Northern New Mexico Stockman's Association

Dennis Gallegos, President

P.O. Box 306 Abiquiu, NM 87510

The Future of Livestock Grazing on New Mexico's National Forests
Northern New Mexico Stockman's Association

Producer Rangeland Assessment
Canjilon Allotment
2024 Grazing Season

Project Team:
Dr. Cristóbal Valencia, (PI) Northern New Mexico Stockman's Association
Carlos Salazar, Producer Representative Northern New Mexico Stockman's Association
Donald Martinez, (Co-PI) Rio Arriba County Extension NMSU
Dr. Casey Spackman, (Co-PI) Range Improvement Task Force NMSU

"This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2022-38640-37490 through the Western Sustainable Agriculture Research and Education program under project number SW23-953. USDA is an equal opportunity employer and service provider. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture."

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Canjilon Allotment
Producer Assessment 2024

Area: 22,146 grazeable acres
Number of Allotment Owners: 11
Total Permitted Livestock: 468 head

Possible Stocking Rate: 1866 AUE (based on 40% use of 2024 forage production)
Allotment is permitted at 25.1% of actual carrying capacity.
Permitted livestock consumed 10% of allowable use forage.

Transects:
Lower Lopez Canyon
Mesa Montosa
Mesa Juan Domingo
Los Fuertes
Montoya

Field Days

5/15/24	3 Producers
8/6/24	4 Producers, 4 USFS including 2 range specialists and 1 hydrologist.
10/24/24	8 producers. 1 USFS, 1 WSARE representative
1/10/25	6 producers, 1 USFS range specialist

Methodology: Qualitative data was systematically gathered using ethnographic methods: face-to-face accompaniment in diverse social, political, and economic contexts of everyday life. Dr. Valencia conducted Participant-observation (DeWalt and DeWalt 2002) prior to livestock entry, during livestock grazing, and after livestock exit. Dr. Valencia also attended cattle association meetings, feast days, fiestas, county fair events, and meetings between producers and management agencies. During participant-observation close attention was paid to producers' descriptions, interpretations, and explanations of rangeland conditions and impacts on their livestock operations, on ranchers' management practices and decision-making processes. Ethnographic field notes were made (Emerson et al. 2011) of participant-observation, recording what is meaningful and important to producers, how producers grapple with sustainability, how understandings of conditions and impacts emerge and change over time, and what knowledge ranchers rely on to make assessments and management decisions. Dr. Valencia also conducted structured and unstructured interviews (Warren and Karner 2015, Brinkmann 2013, Weiss 2004) with producers focusing on their descriptions, interpretations, and explanations of climate and rangeland conditions and impacts on livestock operations. Participatory mapping exercises (Robinson et al. 2016) were also conducted with producers to plot forage, water, and wildlife observations. Dr. Valencia used visual and audio methods to record qualitative data (Warren and Karner 2015). Qualitative data produces culturally situated

understandings of rangeland conditions and impacts on livestock operations from the perspective of Hispano and Native American livestock producers. It supports the development of better management targets and more inclusive decision-making processes.

The Project Team also met with producers and USFS staff to conduct quantitative rangeland assessments using the Rapid Assessment Methodologies and to review end of season summary reports (RAM; Spackman et al. 2022, Allison et al. 2007). Dr. Spackman served as a consultant for producer led RAM training and data entry through the online Rangeland Data Analysis and Records (RaDAR) program, as well as compiling and producing RaDAR end of season reports.

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Forage

Conditions at the start of the season were described as good, especially considering a very cold start which slowed overall forage growth especially height. One producer remarked that the pasture determines whether we begin on time and that starting on time was important because most producers run out of hay at their base properties. Producers observed that the prescribed burn in Martinez Canyon cleared dead and down and allowed for forage growth in and along the canopy. At mid-season the overall available forage per acre was lower in 2024 than in 2023 excluding higher elevation pastures, Fuertes and Montoya. Annual production in 2024 was 985.7 lbs/acre down from 1439.4 lbs/acre in 2023. Overall utilization in 2024 was not significantly different 78.8% up from 71.7% in 2023. Livestock accounted for 10% in 2024 up from 6.9% in 2023. However, this falls within the range of standard error and is likely not significant either. Producers described overall conditions at the end of the grazing season as better than at the end of the 2023 season. Producers observed greater diversity in grass species and plant communities from pasture to pasture and lots of grass left in spots at the end of the season. However, Tree and chamiso encroachment continue to limit grass growth across the allotment. Producers also recorded an increase in “outsiders” using the forest including noticeable increases in ATV damage to grass and key pastures.

Figure 1Increases in recreational users on top of key pastures damage forage availability for livestock. Montoya.

Water

During mid-season monitoring producers observed that conditions were dry in lower pastures. Monsoons kept earthen ponds and tanques on higher pastures about half full or less, allowing for longer use of some pasture areas. Infrequent and isolated rain came "all at once" and did not translate to more grass. However, late rains allowed grasses to regrow in areas already grazed and for a second grazing. A total of 40.4 inches of precipitation was recorded across the five transects. The higher pastures received more than ten inches of rain each while the lower pastures averaged 6.2 inches of rain each. Producers found it difficult to make a correlation between forage and precipitation without more data.

One producer explained that how much water is available at the beginning of the season determimes when, where, and how many livestock his family graze. Producers observed increased soil moisture in all transects throughout season.

Water sources across the allotment tested VERY HIGH and EXTREMELY HIGH for iron or iron and manganese. See individual results and effects in water labs.

Figure 2 Dry conditions on lower pastures mean changing rotation and some grasses go unused. Tanque Vidal May 16, 2024. Photo: C. Valencia

Figure 3 Plenty of water and forage to start season in upper pastures. Upper Montoya Tank May 16, 2024. Photo: C. Valencia

Wildlife

Competition with deer and elk are a major consideration for producer families. How many elk are already in the pastures where producers have yet to graze livestock determines when, where, and what number of livestock producers decide to turn out on the range. At mid-season. The Montoya pasture showed heavy elk grazing simultaneous with livestock grazing. However, forage conditions at end of season showed signs of wildlife use following removal of livestock, decreasing available forage for livestock in the Spring. One producer explained that how much dry grass is left from last year at the beginning of the season affects his decisions about when, where, and how to turn out cattle in the Spring. Wildlife camera image data for the 2024 grazing season is still under review.

Figure 4 What are the effects of elk on water sources and availability of certain pastures over the season? Lopez Tank August 6, 2024.

Practices:

Producers start livestock at two different lower elevation pastures in the allotment due to water availability. Forage may go unused if there is no nearby water to support use of certain pastures, especially the lower pastures in the beginning of the season. For example, Juan Domingo. Producers leave section gates open so cattle can go to pastures where there is water sooner. Over the season producers allowed cows to spread out wider because of the dry start to the season. To sustain operations producers must make use of the affordability of grazing livestock on the forest rather than private land. Which requires daily presence on the allotment, constant changes to the rotation plan, attention to bull pastures, and close monitoring of the actions of and interactions between climate, weather, wildlife and livestock. Producers also noted that sustaining operations required continous fence maintenance to maintain cattle in pastures and continuous activities to keep water quality high including seeking out grants for water infrastructure, such as windmills.

What part of the picture is missing?

Producers would like a hydrologic survey of the allotment, and advance knowledge of water infrastructure projects approved by the USFS and an implementation schedule. Producers would also like data about soil characteristics such as composition, quality, type, and moisture, and what types of grass species are best for transect soil types. Producers are interested in data to answer questions regarding the impact of wildlife on water sources. Producers would like to correlate utilization data to actual number of livestock grazing in any year. Finally, producers would like historical data about permitted numbers.

Recommendations:

- More small, prescribed burns
- Mechanical and chemical treatment of chamiso
- Increase logging.

The following information is a summary of the quantitative data collected over the 2024 grazing season. Data was collected using the Rapid Assessment Methodology (RAM; Spackman et al., 2022). Summaries were produced using the Rangeland Data Analysis and Record program (RaDAR; rangelandradar.app) and include individual pasture assessments and the allotment averages for each collection period. This is a single year of data and should not be used to make long-term management decisions or increases/decreases in stocking rates. Multiple years of monitoring are required (minimum of 3-5 years) to begin developing management decisions (Holecheck et al., 2011). An explanation of the report contents is explained below.

Biomass Availability (also called standing crop or residual biomass) is the amount of vegetation, expressed as a weight per area, present during a given point in time, not excluded from grazing activity. Five clippings were taken along each transect, dried, and weighed. The five weights were then averaged and converted to pounds per acre based on a 0.96 ft^2 hoop conversion factor of 100 to obtain biomass availability +/- standard error (variability in weights). It can be used as a grazing intensity guide during the season, if location and number of samples are representative of the landscape, to make temporary adjustments in livestock distribution.

Annual Forage Production is plant material collected from grazing exclusion cages, expressed as a weight per area, and used to assess forage production for an entire year. This is an estimate of what the land can produce without grazing. Three cages were placed near each transect at the beginning of the grazing season. Samples were collected at the end of the season, clipping forage within a 0.96 ft^2 hoop, which was placed in the middle of each cage. Each sample was subsequently dried, weighed, and averaged together. The average was then converted to pounds per acre based on a 0.96 ft^2 hoop conversion factor of 100 to obtain annual forage production +/- standard error (variability in weights).

Estimated Stocking Rate is the calculation of animal unit equivalents (AUE) that the allotment could support for a duration of one month (AUM). Mid-season stocking rates

were not calculated as stocking rates can only be estimated from annual forage production. Individual pasture stocking rates were calculated but used whole allotment grazable acres and are only produced to give an AUM range, not compute actual stocking rate. Estimates are based upon the average collected annual forage production across the allotment, forest service provided grazable acres (pasture size in report) based on the environmental assessment, cattle forage demand of 26 pounds per day (SRM 1998), a conservative 40 percent forage use allocation (Holechek & Galt 2000), and a 30 day grazing period (Holecheck et al., 2011; Vallentine 2001). The AUM calculation equation is:

$$\frac{(annual\ production\ \times\ grazable\ acres\ \times\ use\ allocation)}{animal\ forage\ demand\ \times 30\ days} = AUM$$

Percent Cover is the proportion of the ground surface that is covered by vegetation, litter, rocks, bare soil, or other attributes. It is used to assess distribution and composition of different material covering the ground. The assessment was done along a transect using the step-point method. At each step basal cover was recorded at the tip of the boot until 100 readings were taken. Each cover type was summed to give a percent. Percent cover is slow to change and should be looked at over several years (5 to 10 years) to provide insights about vegetation density, potential erosion, and livestock management (Holechek et al., 2011).

Vegetation Cover – Grasses is the percentage of grasses (grazing forage) by common name and scientific abbreviation (symbol) based on the amount of percent cover of vegetation along the transect. The percentage provides the land manager with species forage composition and diversity. Furthermore, changes in composition can be used as an indicator of grazing impact and vegetation trends over time.

Other Vegetation Cover is the percentage of vegetation that is not grasses based on percent cover of vegetation along the transect. This is similar to vegetation cover – grasses and can also be used as an indicator of forage composition and habitat for wildlife.

Forage Composition is the percentage of all grass species found along the transect even if cover was not vegetation, where nearest grass species was recorded on the datasheet. Additionally, height of each species is recorded by extending leaves upward and recording the average leaf lengths of all leaves. This provides an inventory and relative abundance (vegetation cover) or diversity of all grasses including their stubble heights. It identifies the specific combination and distribution of different species and helps assess the overall forage biodiversity within the plant community. Furthermore, the stubble heights give an estimate of grazing intensity and potential insight to make mid-season adjustments to grazing strategies (i.e., animal distribution and duration). Species are listed by their common name, scientific abbreviation (symbol), percent, with the addition of height and their minimum height grazing guideline (Holechek and Galt 2000).

Fecal Counts are used to estimate and monitor the relative presence or absence of animals. It is not used to assess animal abundance but can be used generally as an indicator of increases or decreases in animal visitations over time (years).

Photos are used as a qualitative assessment to support quantitative information. They can be used as an illustrative record of the conditions that occurred at a given point in time. Ground photos when accompanied with a scaled ruler can be used to quantify cover or species composition but are limited unless multiple ground photos are taken. Landscape photos can be used to demonstrate grazing intensity and correlate to the quantitative data.

Utilization

A summary of production and utilization is provided at the end of the reports (Table 2). Utilization is a guide and should not be used as a standard or threshold for range management decisions (SRM-RAMC 2018; Ruyle et al., 2007). Conservative grazing (30-40 percent utilization) is recommended in the southwest to sustain or improve rangeland conditions and optimize livestock productivity (Holechek and Galt 2000). The following equation was used to calculate percent utilization:

$$\frac{(annual\ production\ -\ available\ biomass)}{annual\ production} \times 100\ = percent\ utilization$$

Physical Constraint of Animal Intake

Utilization is a very useful guide when all grazing species are accounted for. When multiple grazing species or uncontrolled grazers such as wildlife are present, it becomes difficult if not impossible to determine how much each species has consumed in relation to utilization. This concept, known as resource partitioning, is an ongoing issue for rangeland managers. Currently there is no direct measurement to partition use on rangelands. However, forage intake of range cattle has been extensively researched (Vallentine 1990, McKown et al., 1991, and Holechek et al 2011) and a 1,000-pound mature cow consumes on average 26 pounds of dry forage per day (SRM 1998). Intake can vary depending on other factors such as reproductive status or environmental conditions but the scientifically accepted intake is between 2 and 2.6 percent of the animals body weight (NASEM 2016). Thus, a physical constraint of intake model can be used to calculate approximate cattle use on rangelands. This calculation uses the stocking rate equation, described previously, rearranging the parameters to solve for the desired utilization rather than animal units. It is worth noting that this is a calculation, not a direct measurement of utilization, and should be used as an approximate use level by cattle. A calculated estimate of cattle use can be found in Table 3.

Similarly, the equation can be rearranged to determine how much an individual animal would consume daily (animal demand) to account for the observed utilization level. This equation helps

determine if there is any disparity between physical constraint of intake and the observed utilization level on the allotment. Excess intake above 26 pounds can be contributed to other grazing animals and environmental influences.

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RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Mesa Montosa**	
Date:	**8/6/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**1**	**GPS Coordinates:**	**36.38539, -106.4271**	**(269°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
191.0 ± 132.3 lbs per acre	22146 acres	AUM	

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	59	Blue Grama	BOGR	3		
Litter	35	Sedge	Carex	1		
Vegetation	6	West. Wheatgrass	AGSM	1		
Rock (>3/4")	0	Muttongrass	POFE	1		
	100			6		0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Blue Grama	BOGR	46	4.2	1.5
Sedge	Carex	22	3.6	1.5
West. Wheatgrass	AGSM	13	7.0	2.5
Muttongrass	POFE	11	5.9	2.5
Squirreltail	ELEL	8	7.7	4
		100	4.9	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Juan Domingo**	
Date:	**8/6/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**2**	**GPS Coordinates:**	**36.42372, -106.4114**	**(280°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
517.4 ± 138.4 lbs per acre	22146 acres	AUM	

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	70	Blue Grama	BOGR	26	Clover spp.	
Litter	3	West. Wheatgrass	AGSM	1		
Vegetation	27					
Rock (>3/4")	0					
	100			27		0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Blue Grama	BOGR	75	2.2	1.5
Squirreltail	ELEL	16	6.2	4
West. Wheatgrass	AGSM	6	6.0	2.5
Sedge	Carex	2	8.0	1.5
Needlegrass	STIPA	1	9.0	4
		100	3.3	

Fecal Counts

Horse	0	Elk	0	Cattle	2	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Lower Lopez**	
Date:	**8/6/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**3**	**GPS Coordinates:**	**36.44878, -106.4146**	**(130°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
305.8 ± 64 lbs per acre	22146 acres	AUM	#DIV/0!

Percent Cover

Bare Ground	81
Litter	9
Vegetation	10
Rock (>3/4")	0
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Crested Wheatgrass	AGCR	6
West. Wheatgrass	AGSM	3
Blue Grama	BOGR	1
		10

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Crested Wheatgrass	AGCR	34	3.1	2.5	
West. Wheatgrass	AGSM	32	4.8	2.5	
Smooth Brome	BRIN	23	3.0	4	Below Minimum Height
Blue Grama	BOGR	11	2.5	1.5	
		100	3.5		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Montoya**	
Date:	**8/6/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**4**	**GPS Coordinates:**	**36.49167, -106.38**	**(85°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
303.0 ± 131.1 lbs per acre	22146 acres	AUM	

Percent Cover

Bare Ground	28
Litter	46
Vegetation	20
Rock (>3/4")	6
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Kentucky Bluegrass	POPR	12
West. Wheatgrass	AGSM	7
		19

Other Vegetation Cover

Common Name	*Percent*
Forb Unknown	1
	1

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
West. Wheatgrass	AGSM	61	3.9	2.5	
Kentucky Bluegrass	POPR	37	1.8	2.5	Below Minimum Height
Crested Wheatgrass	AGCR	2	2.5	2.5	
		100	3.1		

Fecal Counts

Horse	0	Elk	16	Cattle	5	Deer	0	

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Fuertes**	
Date:	**8/6/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.51381, -106.377**	**(273°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
1466.8 ± 523.3 lbs per acre	22146 acres	AUM	

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
Bare Ground	18	*Common Name*	*Symbol*	*Percent*	*Common Name*	*Percent*
Litter	30	Interm. Wheatgrass	AGIN	10	Buckwheat spp.	8
Vegetation	50	West. Wheatgrass	AGSM	7	Forb Unknown	6
Rock (>3/4")	2	Kentucky Bluegrass	POPR	5	Gumweed	4
		Needlegrass	STIPA	5	Ragweed spp.	2
		Blue Grama	BOGR	2		
		Crested Wheatgrass	AGCR	1		
	100			30		20

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Interm. Wheatgrass	AGIN	40	9.5	4
West. Wheatgrass	AGSM	34	8.3	2.5
Needlegrass	STIPA	13	13.2	4
Kentucky Bluegrass	POPR	7	4.6	2.5
Blue Grama	BOGR	2	10.3	1.5
Crested Wheatgrass	AGCR	1	18.0	2.5
		97	9.3	

Fecal Counts

Horse	0	Elk	3	Cattle	1	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**n/a**	
Date:	**8/6/2024**	**Collector Names:**	**n/a**	
Transect AVERAGES	**1,2,3,4,5**	**GPS Coordinates:**	**n/a**	**n/a**

Notes: **AVERAGES**

Biomass Availability	Pasture Size	Estimated Stocking Rate	Annual Forage Production
556.8 ± 141.9 lbs per acre	22146 acres	AUM	

Percent Cover		Vegetation Cover - Grasses			Other Vegetation Cover	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	51.2	Blue Grama	BOGR	6	Buckwheat spp.	2
Litter	24.6	West. Wheatgrass	AGSM	4	Forb Unknown	1
Vegetation	22.6	Kentucky Bluegrass	POPR	3	Gumweed	1
Rock (>3/4")	1.6	Interm. Wheatgrass	AGIN	2		0
		Crested Wheatgrass	AGCR	1		
		Needlegrass	STIPA	1		
	100			18		4

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
West. Wheatgrass	AGSM	29	5.5	2.5	
Blue Grama	BOGR	27	3.1	1.5	
Kentucky Bluegrass	POPR	9	2.2	2.5	Below Minimum Height
Interm. Wheatgrass	AGIN	8	9.5	4	
Crested Wheatgrass	AGCR	7	3.5	2.5	
Sedge	Carex	5	3.9	1.5	
		85	4.83 ± 0.15		

Fecal Counts

Horse	0	Elk	19	Cattle	8	Deer	0		0

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Mesa Montosa**	
Date:	**10/24/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**1**	**GPS Coordinates:**	**36.38539, -106.4271**	**(269°)**

Notes: Lots of Elk sign

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
98.4 ± 29.2 lbs per acre	22146 acres	6174.4 AUM	543.7 ± 40 lbs per acre

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	55	Blue Grama	BOGR	10	Forb Unknown	1
Litter	32	Squirreltail	ELEL	2		
Vegetation	13					
Rock (>3/4")	0					
	100			12		1

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Blue Grama	BOGR	70	4.2	1.5
Squirreltail	ELEL	26	8.4	4
West. Wheatgrass	AGSM	4	7.3	2.5
		100	5.4	

Fecal Counts

Horse	0	Elk	6	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Juan Domingo**	
Date:	**10/24/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**2**	**GPS Coordinates:**	**36.42372, -106.4114**	**(280°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
194.2 ± 45.1 lbs per acre	22146 acres	7654.6 AUM	674.0 ± 110 lbs per acre

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	51	Blue Grama	BOGR	25	Forb Unknown	3
Litter	15	West. Wheatgrass	AGSM	3		
Vegetation	34	Needlegrass	STIPA	3		
Rock (>3/4")	0					
	100			31		3

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Blue Grama	BOGR	65	2.9	1.5
West. Wheatgrass	AGSM	16	6.8	2.5
Squirreltail	ELEL	7	9.6	4
Needlegrass	STIPA	6	13.6	4
Indian Ricegrass	ORHY	5	9.5	4
Sedge	Carex	1	4.0	1.5
		100	5.0	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Lower Lopez**	
Date:	**10/24/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**3**	**GPS Coordinates:**	**36.44878, -106.4146**	**(130°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
149.2 ± 49.1 lbs per acre	22146 acres	15884.5 AUM	1398.7 ± 120 lbs per acre

Percent Cover

Bare Ground	76
Litter	14
Vegetation	9
Rock (>3/4")	1
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Smooth Brome	BRIN	4
Crested Wheatgrass	AGCR	3
West. Wheatgrass	AGSM	2
		9

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Smooth Brome	BRIN	38	2.2	4	Below Minimum Height
Crested Wheatgrass	AGCR	34	2.3	2.5	Below Minimum Height
West. Wheatgrass	AGSM	26	3.7	2.5	
Blue Grama	BOGR	2	2.0	1.5	
		100	2.6		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Montoya**	
Date:	**10/24/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**4**	**GPS Coordinates:**	**36.49167, -106.38**	**(85°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
95.2 ± 45.9 lbs per acre	22146 acres	13548.8 AUM	1193.0 ± 230 lbs per acre

Percent Cover

Bare Ground	25
Litter	57
Vegetation	15
Rock (>3/4")	3
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Kentucky Bluegrass	POPR	6
West. Wheatgrass	AGSM	3
		9

Other Vegetation Cover

Common Name	*Percent*
Forb Unknown	6
	6

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
West. Wheatgrass	AGSM	51	2.5	2.5	Below Minimum Height
Kentucky Bluegrass	POPR	47	1.6	2.5	Below Minimum Height
Blue Grama	BOGR	2	3.0	1.5	
		100	2.1		

Fecal Counts

Horse	0	Elk	1	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**Fuertes**	
Date:	**10/24/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.51381, -106.377**	**(273°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
509.4 ± 166.4 lbs per acre	22146 acres	12708.4 AUM	1119.0 ± 490 lbs per acre

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	12	West. Wheatgrass	AGSM	13	Forb Unknown	4
Litter	52	Kentucky Bluegrass	POPR	8		
Vegetation	36	Arizona Fescue	FEAR	5		
Rock (>3/4")	0	Blue Grama	BOGR	2		
		Interm. Wheatgrass	AGIN	2		
		Sedge	Carex	1		
	100			31		4

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
West. Wheatgrass	AGSM	62	7.6	2.5
Arizona Fescue	FEAR	13	11.3	4
Kentucky Bluegrass	POPR	12	2.6	2.5
Interm. Wheatgrass	AGIN	5	7.2	4
Blue Grama	BOGR	2	3.8	1.5
Sedge	Carex	2	5.0	1.5
		96	7.6	

Fecal Counts

Horse	0	Elk	5	Cattle	5	Deer	2

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**Canjilon**	**Pasture Name:**	**n/a**	
Date:	**10/24/2024**	**Collector Names:**	**n/a**	
Transect AVERAGES	**1,2,3,4,5**	**GPS Coordinates:**	**n/a**	**n/a**

Notes: **AVERAGES**

Biomass Availability	Pasture Size	Estimated Stocking Rate	Annual Forage Production
209.3 ± 46.5 lbs per acre	22146 acres	11194.1 AUM	985.7 ± 150.6 lbs per acre

Percent Cover		Vegetation Cover - Grasses			Other Vegetation Cover	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	43.8	Blue Grama	BOGR	7	Forb Unknown	3
Litter	34.0	West. Wheatgrass	AGSM	4		
Vegetation	21.4	Kentucky Bluegrass	POPR	3		
Rock (>3/4")	0.8	Arizona Fescue	FEAR	1		
		Crested Wheatgrass	AGCR	1		
		Smooth Brome	BRIN	1		
	100			17		3

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
West. Wheatgrass	AGSM	32	5.2	2.5	
Blue Grama	BOGR	28	3.6	1.5	
Kentucky Bluegrass	POPR	12	1.8	2.5	Below Minimum Height
Smooth Brome	BRIN	8	2.2	4	
Crested Wheatgrass	AGCR	7	3.1	2.5	
Squirreltail	ELEL	7	8.6	4	
		93	4.53 ± 0.16		

Fecal Counts

Horse	0	Elk	12	Cattle	5	Deer	2		0

Table 1. Allotment summary and operational conditions based on US Forest Service Environmental Assessment.

	Total Allotment Acres	Grazable Acres	†Adjusted Grazable Acres	Allotment Elevation (feet)	Permitted Livestock (AUE)	Grazing Duration (days)	Entry Date	Exit Date
Canjilon	42626	22146	20634	7300 to 9300	468	180	May 1	Oct 31

†adjustments to grazable acres based on 2024 GIS assessment provided by US Forest Service; AUE = Animal Unit Equivalent.

Table 2. Allotment Production and Use for 2024 grazing season (mean ± standard error).

	Mid-Year Biomass (lbs/acre)	Year-End Biomass (lbs/acre)	Annual Production (lbs/acre)	Utilization as a Percent[1]
Mesa Montosa	191.0 ± 132.3	98.4 ± 29.2	543.7 ± 40.0	81.9
Juan Domingo	517.4 ± 138.4	194.2 ± 45.1	674.0 ± 110.0	71.2
Lower Lopez	305.8 ± 64.0	149.2 ± 49.1	1398.7 ± 120.0	89.3
Montoya	303.0 ± 131.1	95.2 ± 45.9	1193.0 ± 230.0	92.0
Fuertes	1466.8 ± 523.3	509.4 ± 166.4	1119.0 ± 490.0	54.5
Averages	556.8 ± 141.9	209.3 ± 46.5	985.7 ± 150.6	78.8 ± 6.9

$\frac{(annual\ production - year\ end\ biomass)}{annual\ production} \times 100 = percent\ utilization^1$

Table 3. Canjilon allotment utilization for 2024 grazing season, partitioned use, and expected cow intake based on the Physical Constraint of Intake model for cattle.

*Grazable Acres			
Utilization as a Percent[1]	Cattle Utilization as a Percent[2]	Other Utilization as a Percent	Cow Intake from Observed Utilization (lbs/day)[3]
78.8	10.0	68.8	204.1
†Adjusted Grazable Acres			
78.8	10.8	68.0	190.2

*based on 2008 US Forest Service Environmental Assessment; †based on 2024 GIS assessment provided by US Forest Service.

$\frac{(annual\ production - year\ end\ biomass)}{annual\ production} \times 100 = percent\ utilization^1$

$\frac{(animal\ demand \times grazing\ duration \times permitted\ animals)}{(annual\ production \times grazable\ acres)} \times 100 = percent\ utilization^2$

$\frac{(annual\ production \times grazable\ acres \times observed\ utilization)}{(grazing\ duration \times permitted\ animals} = animal\ demand\ or\ daily\ intake^3$

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Fax: 806.677.0329

Lab No.: 3428

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANADA MARTINEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	98					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	13					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	4.2					
		35	130	250	500	1000
Chloride (Cl), mg/L	2.2					
		25	75	150	300	500
Total Sodium (Na), mg/L	4					
		40	100	200	400	600
Total Calcium (Ca), mg/L	20					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	5					
		40	80	120	160	200
Total Potassium (K), mg/L	3					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	1.49					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.010					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	70					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	4.1					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	153

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Lab No.: 3428

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANADA MARTINEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock

		Acidic			Neutral			Alkaline
		5.0	6.0	7.0	8.0	9.0		
pH, unit	7.8							

INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: VERY LOW: No effect expected for livestock or poultry use. Calcium mineral supplementation may be needed in certain cases.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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Lab No.: 3428

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANADA MARTINEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

HARDNESS: MODERATELY HARD: Hardness has no direct effect on drinking water safety or animal health.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 3431

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANJILON CREEK	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	77					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	14					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	4.6					
		35	130	250	500	1000
Chloride (Cl), mg/L	<1					
		25	75	150	300	500
Total Sodium (Na), mg/L	3					
		40	100	200	400	600
Total Calcium (Ca), mg/L	17					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	4					
		40	80	120	160	200
Total Potassium (K), mg/L	2					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	1.38					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.020					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	58					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	3.4					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	121

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LABORATORY ANALYSIS RESULTS

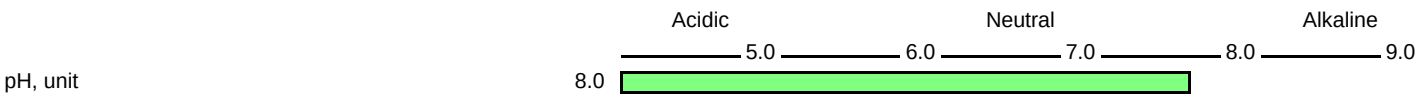
Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANJILON CREEK	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock



INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: VERY LOW: No effect expected for livestock or poultry use. Calcium mineral supplementation may be needed in certain cases.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANJILON CREEK	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

MANGANESE: LOW (0.010 to 0.025 mg/L): No production problems expected for livestock consuming this water.

HARDNESS: SOFT: "Soft" water has no direct effect on drinking water safety or animal health, but may influence equipment, plumbing, and fixture performance.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 3429

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To:
55267

NORTHERN NM STOCKMANS ASSOC
DR CRISTOBAL VALENCIA
1116 SILVER AVE SW UNIT I
ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANO DE LOPEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	500					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	220					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	72					
		35	130	250	500	1000
Chloride (Cl), mg/L	3.0					
		25	75	150	300	500
Total Sodium (Na), mg/L	26					
		40	100	200	400	600
Total Calcium (Ca), mg/L	109					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	31					
		40	80	120	160	200
Total Potassium (K), mg/L	6					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	0.90					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.010					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	400					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	23					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	781

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LABORATORY ANALYSIS RESULTS

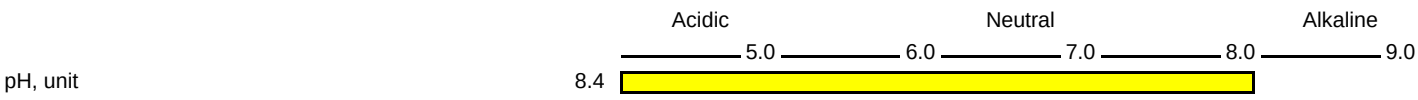
Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANO DE LOPEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock



INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: LOW: Considered safe for all classes of livestock. No problems are expected, but availablity of certain trace minerals could be affected. Likely to affect poultry performance, especially when sodium, magnesium, or chloride levels are high. Consider diluting 1:2 to 1:4 with low sulfate water for use with poultry.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: LOW: Sodium by itself poses little risk to livestock, but is considered a dissolved solid. See TDS comments. Water with sodium over 50 mg/L may affect poultry performance if the sulfate plus chloride is 75 mg/L or greater.

CALCIUM: MEDIUM: No effect expected for livestock or poultry use.

MAGNESIUM: LOW: Presents little risk to livestock. Levels over 50 mg/L Mg may affect poultry if the sulfate plus chloride is 75 mg/L or greater.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

IRON: VERY HIGH: Livestock performance may be affected by improper equipment function rather than health problems. High iron concentration may result in increased microbial growth and biofilm buildup in watering equipment. May impart off-taste to milk or to meat of young animals (e.g., veal calves).

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Lab No.: 3429

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	CANO DE LOPEZ	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

HARDNESS: EXTREMELY HARD: Hardness has no direct effect on drinking water safety or animal health. It can cause scale buildup and clogging of pipes and drinkers, leading to reduced water consumption and associated problems.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 3430

LABORATORY ANALYSIS RESULTS

Date Reported: 06/18/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	UPPER MONTOYA TANK	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	124					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	2.5					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.82					
		35	130	250	500	1000
Chloride (Cl), mg/L	1.4					
		25	75	150	300	500
Total Sodium (Na), mg/L	4					
		40	100	200	400	600
Total Calcium (Ca), mg/L	27					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	8					
		40	80	120	160	200
Total Potassium (K), mg/L	7					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	1.91					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.080					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	100					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	5.8					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	194

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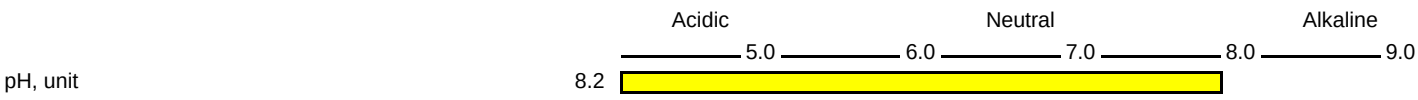
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

Livestock



INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: VERY LOW: No effect expected for livestock or poultry use. Calcium mineral supplementation may be needed in certain cases.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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Date Reported: 06/18/2024

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Amy Meier
Data Review Coordinator

Sample ID:	UPPER MONTOYA TANK	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/15/2024	**Name of Sampler:**	
Date/Time Submitted:	06/11/2024	**Name of Submitter:**	UPS
Subject:	Livestock Water Lab Analysis	**Depth:**	

IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

MANGANESE: VERY HIGH (0.075 - 0.150 mg/L): Performance likely to be affected by improper equipment functions due to high manganese concentration (resulting in increased microbial growth and biofilm buildup) rather than specific livestock health problems. May impart off-taste to meat of young animals (e.g., veal calves).

HARDNESS: MODERATELY HARD: Hardness has no direct effect on drinking water safety or animal health.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 4741

LABORATORY ANALYSIS RESULTS

Date Reported: 08/19/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	TANQUE FUERTECUTOS	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	172					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	0.78					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.26					
		35	130	250	500	1000
Chloride (Cl), mg/L	5.4					
		25	75	150	300	500
Total Sodium (Na), mg/L	3					
		40	100	200	400	600
Total Calcium (Ca), mg/L	41					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	10					
		40	80	120	160	200
Total Potassium (K), mg/L	14					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	2.55					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	1.66					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	140					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	8.4					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	268

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Amy Meier
Data Review Coordinator

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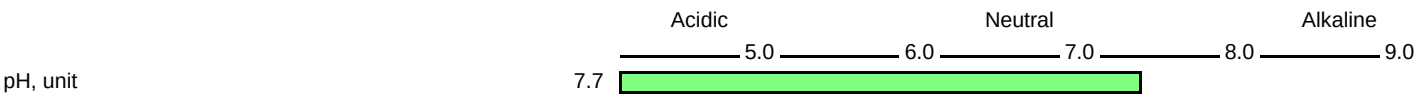
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock



More information is available at **cropfile.servitech.com**, 5.00.000 Water Resource Management (panel), 5.03 Livestock Water Quality (dropdown) and 5.03 Livestock Water Surveys (dropdown).

INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: LOW: No effect expected for livestock or poultry use.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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LABORATORY ANALYSIS RESULTS

Date Reported: 08/19/2024

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Data Review Coordinator

Sample ID:	TANQUE FUERTECUTOS	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

MANGANESE: EXTREMELY HIGH (over 0.0150 mg/L): Performance likely to be affected by improper equipment functions due to high manganese concentration (resulting in increased microbial growth and biofilm buildup) rather than specific livestock health problems. May impart off-taste to meat of young animals (e.g., veal calves).

HARDNESS: HARD: Hardness has no direct effect on drinking water safety or animal health. It can cause scale buildup and clogging of pipes and drinkers, leading to reduced water consumption and associated problems.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 4743

LABORATORY ANALYSIS RESULTS

Date Reported: 08/19/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	LOWER LOPEZ TANK	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	319					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	0.13					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	140					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	45					
		35	130	250	500	1000
Chloride (Cl), mg/L	2.0					
		25	75	150	300	500
Total Sodium (Na), mg/L	4					
		40	100	200	400	600
Total Calcium (Ca), mg/L	90					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	15					
		40	80	120	160	200
Total Potassium (K), mg/L	12					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	1.44					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.200					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	290					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	17					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	498

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Amy Meier
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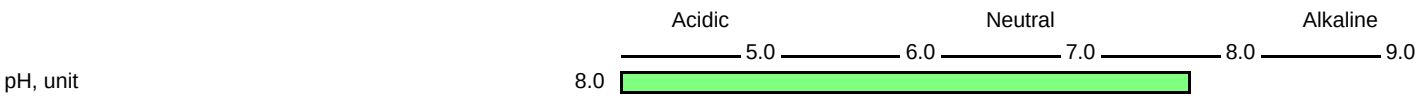
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock



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INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: LOW: No effect expected for livestock or poultry use.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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Amy Meier
Data Review Coordinator

Sample ID:	LOWER LOPEZ TANK	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

MANGANESE: EXTREMELY HIGH (over 0.0150 mg/L): Performance likely to be affected by improper equipment functions due to high manganese concentration (resulting in increased microbial growth and biofilm buildup) rather than specific livestock health problems. May impart off-taste to meat of young animals (e.g., veal calves).

HARDNESS: EXTREMELY HARD: Hardness has no direct effect on drinking water safety or animal health. It can cause scale buildup and clogging of pipes and drinkers, leading to reduced water consumption and associated problems.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 4744

LABORATORY ANALYSIS RESULTS

Date Reported: 08/19/2024

Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	MONTOYA TANK	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	268					

		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	0.14					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	2.2					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.74					
		35	130	250	500	1000
Chloride (Cl), mg/L	7.2					
		25	75	150	300	500
Total Sodium (Na), mg/L	5					
		40	100	200	400	600
Total Calcium (Ca), mg/L	57					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	18					
		40	80	120	160	200
Total Potassium (K), mg/L	26					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	2.45					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.200					

		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	220					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	13					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	419

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Phone: 806.677.0093
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Fax: 806.677.0329

Lab No.: 4744

LABORATORY ANALYSIS RESULTS

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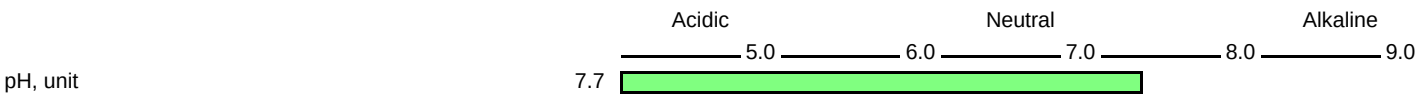
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock



More information is available at **cropfile.servitech.com**, 5.00.000 Water Resource Management (panel), 5.03 Livestock Water Quality (dropdown) and 5.03 Livestock Water Surveys (dropdown).

INTERPRETATIONS for GENERAL LIVESTOCK PRODUCTION ..... The following statements are general interpretations for a wide range of common livestock and poultry animals. The actual effect of a particular water source on health or performance depends on many factors, including diet, animal activity, air temperature, animal size, and condition. Interpretations for specific livestock types are available on request, including: *beef cattle, beef calves, dairy cattle, dairy calves, mature hogs, young pigs, poultry, horses, or sheep/goats*.

TOTAL DISSOLVED SOLIDS, CONDUCTIVITY: EXCELLENT QUALITY ("fresh" water): Low salinity level. Suitable for all classes of livestock and poultry.

NITRATE-NITROGEN: VERY LOW: Should have no effect on animal health or performance.

SULFATE: VERY LOW: Considered safe for all classes of livestock. No problems are expected. Could possibly affect poultry performance at upper end of range when sodium, magnesium, or chloride levels are high.

CHLORIDE: VERY LOW: Chloride is considered a dissolved solid. See TDS comments. Levels greater than 15 to 25 mg/L might affect poultry production when sodium exceeds 50 mg/L.

SODIUM: VERY LOW: Presents little or no risk to livestock or poultry.

CALCIUM: LOW: No effect expected for livestock or poultry use.

MAGNESIUM: VERY LOW: Presents little or no risk to livestock or poultry.

POTASSIUM: VERY LOW: This water is considered satisfactory for all classes of animals.

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IRON: EXTREMELY HIGH: Performance likely to be affected by improper equipment function, due to high iron concentration resulting in increased microbial growth and biofilm buildup in watering equipment. High iron in drinking water may also reduce water intake which can directly reduce feed intake or milk production. This water may impart off-taste to meat of young animals (e.g., veal calves) or to milk. Excess absorbed iron from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Seek professional advice regarding use of this water for livestock consumption.

MANGANESE: EXTREMELY HIGH (over 0.0150 mg/L): Performance likely to be affected by improper equipment functions due to high manganese concentration (resulting in increased microbial growth and biofilm buildup) rather than specific livestock health problems. May impart off-taste to meat of young animals (e.g., veal calves).

HARDNESS: VERY HARD: Hardness has no direct effect on drinking water safety or animal health. It can cause scale buildup and clogging of pipes and drinkers, leading to reduced water consumption and associated problems.

AVERAGE DAILY WATER CONSUMPTION (gallons per day)

Beef cattle ..... 7 to 12 per head	Sheep, goats ..... 2 to 4 per head
Dairy cattle ..... 10 to 40 per head	Chickens ..... 8 to 10 per hundred birds
Swine ..... 2 to 8 per head	Turkeys ..... 10 to 15 per hundred birds
Horses ..... 8 to 12 per head	

(Note: Water consumption may increase by 1½ to 2 times when temperatures exceed 80°F.)

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Lab No.: 4742

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Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	TANQUE YESO	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/06/2024	**Name of Sampler:**	C VALENCIA
Date/Time Submitted:	08/13/2024	**Name of Submitter:**	
Subject:	Drinking Water Lab Analysis	**Depth:**	

Livestock

		Excellent	Good	Fair	Poor	Very Poor
		1000	2000	4000	6000	10000
Total Dissolved Solids (Calc) (TDS), mg/L	212					

		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	<0.1					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	<0.6					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	<0.2					
		35	130	250	500	1000
Chloride (Cl), mg/L	11					
		25	75	150	300	500
Total Sodium (Na), mg/L	5					
		40	100	200	400	600
Total Calcium (Ca), mg/L	44					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	10					
		40	80	120	160	200
Total Potassium (K), mg/L	24					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	2.15					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	1.37					

		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	150					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	8.8					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	331

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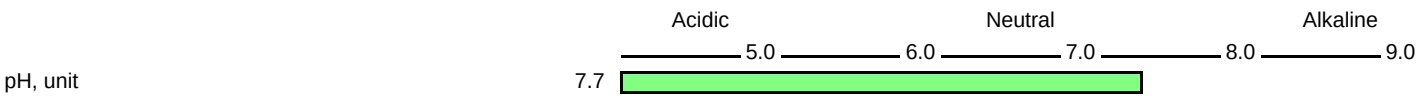
Livestock



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