Northern New Mexico Stockman's Association

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

Producer Rangeland Assessment
El Rito Lobato West Allotment
2024 Grazing Season

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"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."

USDA National Institute of Food and Agriculture
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WESTERN SARE
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El Rito Lobato West Grazing Allotment
Producer Assessment 2024

Area: 54,702 grazable
Allotment Owners: 9

Total Permitted Livestock: 448 head
Possible Stocking Rate: 3428 AUE (based on 40% of 2024 forage production)
Allotment is permitted at 13.1% of actual carrying capacity.
Permitted livestock consumed 5.2% of allowable use forage.

Transects:
Llano de los Juanes
Escondido
Quemazon
Amarillo
Cañada de la Sierra

Field Days

5/7/24	1 producer
6/7/24	3 producers
8/8/24	3 producers, 2 USFS personnel, 1 NMDA personnel
10/26/24	8 producers, 1 USFS, 1 representative from WSARE
1/12/25	6 producers

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

Producers observed that conditions were great at the start of the season, that there were no differences from previous years, that perhaps there was a small improvement in forage from 2023. Producers pushed livestock into upper pastures within the first two weeks to take advantage of water availability allowing high nutritional forage such as crested wheat to seed in the lower pastures that are dominated by brush and bare ground. In the early season producers estimated that the crested wheat was 10 days out from seeding and 14" high in most of the lower pastures that are utilized in the Fall. Hotter days doubled the amount of livestock salt used. During mid-season monitoring producers observed an increase in cheatgrass in the Quemazon and explained it had limited nutritional value for livestock. Producers also observed good ground moisture at mid-season in the Llano de los Juanes pasture and explained it aided forage regrowth and seeding while livestock were grazing higher up the mountain. Dead and down trees continue to inhibit forage growth in the Amarillo section of the allotment. At mid-season the overall forage availability in 2024 was higher than in 2023 across the allotment excluding Quemazon. Producers considered conditions at the end of the grazing season better than the previous year. Producers observed increased soil moisture in all transects at the end of the season. Forage conditions at end of season showed signs of wildlife use following removal of livestock from key areas, and slow regrowth during the late summer and early fall. Year-end forage availability (275.8 lbs/acre) was less than in 2023. However, annual forage production in 2024 (686.7 lbs/acre) was not significantly different from 2023. Producers explained that a colder start to the season and more high temperature days limited grass production over the season. However, hotter days contributed to more livestock utilization of forage which resulted in higher weaning weights.

Figure 1Crested Wheat beginning to seed at the beginning of the season in resting lower pastures. Escondido May 7, 2024. Photo: C. Valencia

Producers requested a one-month extension to fully utilize winter grazing grounds in lower pastures that were rested earlier in the season and had significant mid and late season regrowth. Producers provided the USFS with a preliminary summary of the producers' assessment along with the request for an extension. The USFS granted the producers a two-week extension only.

Water

Producers described water conditions as great at the start of the season. No differences from previous years and perhaps a small improvement. Tree poaching around the La

Crocha water source was concerning. Debris was laid across the road and trails blocking livestock access to water sources. Debris was also laid in the *arroyo* that feeds the *tanque*. Running water in Cañada Madera was bypassing La Cobre tank. Producers cleaned out the diversion channel to allow the tank to fill. Producers observed that much of the spring waters are lost down river due to a lack of water infrastructure and maintenance on the allotment. One producer remarked: *This water belongs to us. We just see it going away every year. Just going down to where they already have a bunch*. Overall, sufficient stock water throughout season allowed for better distribution of livestock. More cows stayed in the allotment canopy and out of riparian areas because of hotter days, reducing livestock impacts on riparian areas and increasing weaning weights.

Figure 2 Water flowing out of Cañada la Madera downstream. May 7, 2024. Photo: C. Valencia

Figure 3 Diversion blocked, and bypass is dry preventing run-off from filling La Cobre Tank. May 7, 2024. Photo: C. Valencia

Figure 4 La Cobre Tank during heavy stream flow not filling because of bad diversion. May 7, 2024. Photo: C. Valencia.

Rainfall totals for the season were 38.9 inches across the allotment. The lower pastures and Amarillo in the canopy received about 6.5 inches of rain each while Cañada la Madera received more than 13 inches of rainfall.

All water sources rated EXCELLENT quality fresh water suitable for all classes of livestock in terms of total dissolved solids (TDS). Llano Largo Norte, La Crocha, the Amarillo Chupadero, and La Cienega tested EXTREMELY HIGH for iron and manganese. La Cobre had EXTREMELY HIGH iron only. With possible consequences for livestock including reduced 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 iron absorbed from drinking water can lead to cellular oxidative stress, can inhibit copper and zinc absorption, and reduced growth or production. Extremely high manganese levels affect proper water equipment functions and have no effect on livestock health but may impart off-taste to meat of young animals.

Wildlife

Elk continue to utilize the most forage and water. Elk continue to beat livestock to spring pastures in the lower altitudes of the allotment and to reap the benefits of pastures at the end of the season that are intentionally not used by producers to allow regrowth. At mid-season there was high elk presence observable by beds in the Amarillo section. By mid-season *tusas* remained abundant and very active denuding the Quemazon. Wildlife camera image data for the 2024 grazing season is still under review.

Figure 5 Tusas spreading across El Quemazon denuding the pasture 10/27/2024. Photo: Steve Archuleta.

RECOMMENDATIONS:

- Move livestock to upper pastures sooner to allow crested wheat to seed in lower pastures.
- Develop *ojos* around corral at Madera for livestock water.
- Let cows migrate on their own rather than pushing.
- Extend season by at least one month to take advantage of lower pasture regrowth and reduce economic impact of buying hay on operations.
- More water tanks will help distribution of livestock and ease impacts on riparian areas.

- Thinning to reduce the risk of wildfire
- Let fires burn.
- Grub transects to see results of grass growth.
- Spike or chemical treatment of chamiso.
- Increase depredation hunts.
- Provide more licenses to ranchers affected using an open season system similar to pueblos/tribes.

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 is 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, the 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 visits 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 occur 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 correlated 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 the 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:	**El Rito Lobato West**	**Pasture Name:**	**Llano de los Juanes**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**2**	**GPS Coordinates:**	**36.31083,-106.2325**	**(282°)**

Notes: Good ground moisture

Biomass Availability	Pasture Size	Estimated Stocking Rate	Annual Forage Production
363.4 ± 133.6 lbs per acre	58403 acres	AUM	

Percent Cover		Vegetation Cover - Grasses			Other Vegetation Cover	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	60	Crested Wheatgrass	AGCR	11		
Litter	23	Blue Grama	BOGR	2		
Vegetation	13					
Rock (>3/4")	4					
	100			13		0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Crested Wheatgrass	AGCR	59	3.4	2.5
Blue Grama	BOGR	38	2.5	1.5
Interm. Wheatgrass	AGIN	3	4.3	4
		100	3.1	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Quemazon**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.34967, 106.2405**	**(70°)**

Notes:
1.1 inches precipitation
cheatgrass on site, tusas denuded, very active

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
211.8 ± 69.6 lbs per acre	58403 acres	AUM	

Percent Cover

Bare Ground	50
Litter	37
Vegetation	13
Rock (>3/4")	0
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Blue Grama	BOGR	8
Crested Wheatgrass	AGCR	3
Galleta	PLJA	1
		12

Other Vegetation Cover

Common Name	*Percent*
Forb Unknown	1
	1

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Blue Grama	BOGR	40	2.4	1.5
Crested Wheatgrass	AGCR	35	2.6	2.5
West. Wheatgrass	AGSM	14	5.0	2.5
Mountain Muhly	MUMO	8	4.1	2.5
Squirreltail	ELEL	2	4.5	4
Galleta	PLJA	1	4.0	2.5
		100	3.0	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Amarillo**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.41397, -106.2916**	**(289°)**

Notes: Abundant elk beds; 0

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
959.2 ± 191.5 lbs per acre	58403 acres	AUM	

Percent Cover

Bare Ground	2
Litter	95
Vegetation	2
Rock (>3/4")	1
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Sedge	Carex	1
Kentucky Bluegrass	POPR	1
		2

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Sedge	Carex	71	8.2	1.5
West. Wheatgrass	AGSM	25	12.2	2.5
Kentucky Bluegrass	POPR	4	10.8	2.5
		100	9.3	

Fecal Counts

Horse	0	Elk	5	Cattle	1	Deer	2

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Escondido**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.32428, -106.2479**	**(339°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
533.0 ± 162.3 lbs per acre	58403 acres	AUM	

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	72	Blue Grama	BOGR	4		
Litter	21	Crested Wheatgrass	AGCR	2		
Vegetation	6					
Rock (>3/4")	1					
	100			6		0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Crested Wheatgrass	AGCR	53	4.3	2.5
Blue Grama	BOGR	37	3.4	1.5
Spike Dropseed	SPCO	7	7.0	4
Galleta	PLJA	2	5.0	2.5
West. Wheatgrass	AGSM	1	7.0	2.5
		100	4.2	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Sierra**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.45772, -106.3059**	**(282°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
952.2 ± 123.9 lbs per acre	58403 acres	AUM	

Percent Cover

Bare Ground	21
Litter	54
Vegetation	25
Rock (>3/4")	0
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Kentucky Bluegrass	POPR	4
Sedge	Carex	2
Timothy	PHPR	1
Needlegrass	STIPA	1
		8

Other Vegetation Cover

Common Name	*Percent*
	17
	17

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Kentucky Bluegrass	POPR	49	4.1	2.5
Timothy	PHPR	28	4.4	4
Sedge	Carex	14	5.3	1.5
Needlegrass	STIPA	9	6.9	4
		100	4.6	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**n/a**	
Date:	**8/8/2024**	**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
603.9 ± 85.1 lbs per acre	58403 acres	AUM	

Percent Cover		Vegetation Cover - Grasses			Other Vegetation Cover	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	41.0	Crested Wheatgrass	AGCR	3.2	Clover spp.	3.4
Litter	46.0	Blue Grama	BOGR	2.8	Forb Unknown	0.2
Vegetation	11.8	Kentucky Bluegrass	POPR	1.0		
Rock (>3/4")	1.2	Sedge	Carex	0.6		
		Galleta	PLJA	0.2		
		Timothy	PHPR	0.2		
	100			8.0		3.6

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Crested Wheatgrass	AGCR	29	3.5	2.5
Blue Grama	BOGR	23	2.7	1.5
Sedge	Carex	17	7.7	1.5
Kentucky Bluegrass	POPR	11	4.6	2.5
West. Wheatgrass	AGSM	8	9.5	2.5
Timothy	PHPR	6	4.4	4
		94	4.84 ± 0.15	

Fecal Counts

Horse	0	Elk	5	Cattle	1	Deer	2		0

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Llano de los Juanes**	
Date:	**10/27/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**2**	**GPS Coordinates:**	**36.31083,-106.2325**	**(282°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
131.0 ± 49.2 lbs per acre	58403 acres	12928.5 AUM	431.7 ± 110 lbs per acre

Percent Cover

Bare Ground	61
Litter	18
Vegetation	18
Rock (>3/4")	3
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Blue Grama	BOGR	9
Russian Wildrye	PSJU	9
		18

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Russian Wildrye	PSJU	48	2.1	4	Below Minimum Height
Blue Grama	BOGR	44	1.7	1.5	
Sand Dropseed	SPCR	7	3.3	4	
Crested Wheatgrass	AGCR	1	3.0	2.5	
		100	2.0		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Quemazon**	
Date:	**10/27/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.34967, 106.2405**	**(70°)**

Notes: Tusas: four large disturbances along transect

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
233.2 ± 83.3 lbs per acre	58403 acres	16792.1 AUM	560.7 ± 190 lbs per acre

Percent Cover

Bare Ground	12
Litter	38
Vegetation	45
Rock (>3/4")	5
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Blue Grama	BOGR	20
Russian Wildrye	PSJU	16
West. Wheatgrass	AGSM	5
Sand Dropseed	SPCR	2
Crested Wheatgrass	AGCR	1
Galleta	PLJA	1
		45

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Blue Grama	BOGR	39	2.4	1.5	
Russian Wildrye	PSJU	34	3.1	4	Below Minimum Height
West. Wheatgrass	AGSM	14	5.8	2.5	
Sand Dropseed	SPCR	10	4.6	4	
Galleta	PLJA	2	3.0	2.5	
Crested Wheatgrass	AGCR	1	3.0	2.5	
		100	3.3		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Amarillo**	
Date:	**10/27/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.41397, -106.2916**	**(289°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
568.8 ± 334.4 lbs per acre	58403 acres	21953.5 AUM	733.0 ± 170 lbs per acre

Percent Cover

Bare Ground	0
Litter	91
Vegetation	9
Rock (>3/4")	0
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Sedge	Carex	2
Kentucky Bluegrass	POPR	2
Mountain Brome	BRMA	1
		5

Other Vegetation Cover

Common Name	*Percent*
Forb Unknown	4
	4

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*
Sedge	Carex	54	5.5	1.5
Kentucky Bluegrass	POPR	23	7.7	2.5
Mountain Brome	BRMA	15	6.5	4
Arizona Fescue	FEAR	8	7.4	4
		100	6.3	

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Escondido**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.32428, -106.2479**	**(339°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
134.0 ± 39.1 lbs per acre	58403 acres	16582.5 AUM	553.7 ± 160 lbs per acre

Percent Cover

Bare Ground	48
Litter	33
Vegetation	16
Rock (>3/4")	3
	100

Vegetation Cover - Grasses

Common Name	*Symbol*	*Percent*
Blue Grama	BOGR	13
Sand Dropseed	SPCR	2
Russian Wildrye	PSJU	1
		16

Other Vegetation Cover

Common Name	*Percent*
	0

Forage Composition

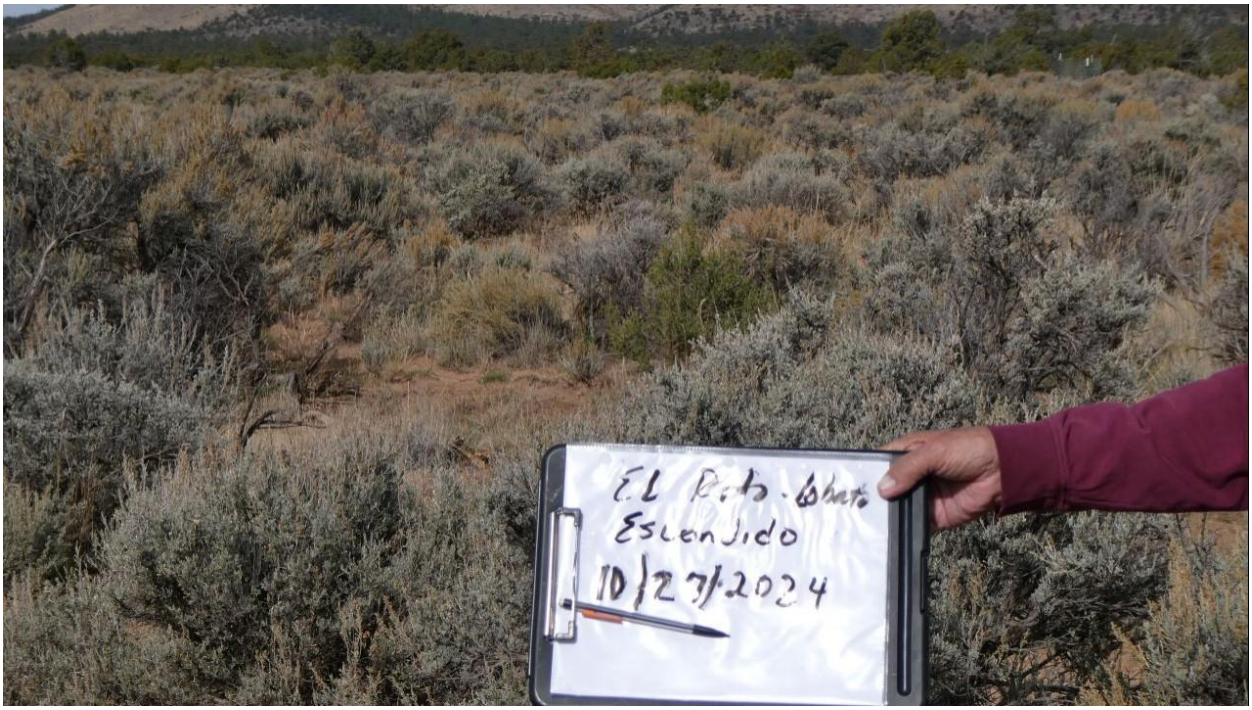
Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Blue Grama	BOGR	43	2.5	1.5	
Russian Wildrye	PSJU	38	3.4	4	Below Minimum Height
Sand Dropseed	SPCR	18	3.7	4	Below Minimum Height
Crested Wheatgrass	AGCR	1	4.0	2.5	
		100	3.0		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo



RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**Sierra**	
Date:	**8/8/2024**	**Collector Names:**	**NNMSA**	
Transect Number:	**5**	**GPS Coordinates:**	**36.45772, -106.3059**	**(282°)**

Notes:

Biomass Availability	**Pasture Size**	**Estimated Stocking Rate**	**Annual Forage Production**
312.0 ± 150.2 lbs per acre	58403 acres	34582.6 AUM	1154.7 ± 380 lbs per acre

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
Bare Ground	8	*Common Name*	*Symbol*	*Percent*	*Common Name*	*Percent*
Litter	50	Kentucky Bluegrass	POPR	12	Clover spp.	16
Vegetation	41	Timothy	PHPR	7	Forb Unknown	1
Rock (>3/4")	1	Sedge	Carex	3	Yarrow	1
		Needlegrass	STIPA	1		
	100			23		18

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Kentucky Bluegrass	POPR	47	1.9	2.5	Below Minimum Height
Sedge	Carex	20	2.8	1.5	
Timothy	PHPR	16	2.4	4	Below Minimum Height
Needlegrass	STIPA	15	6.0	4	
West. Wheatgrass	AGSM	1	3.0	2.5	
Mountain Brome	BRMA	1	3.0	4	Below Minimum Height
		100	2.8		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0

Ground Photo

Landscape Photo

RaDAR - Rangeland Data Analysis & Record

Producer Name:	**El Rito Lobato West**	**Pasture Name:**	**n/a**	
Date:	**10/27/2024**	**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**
275.8 ± 77 lbs per acre	58403 acres	20567.8 AUM	686.7 ± 127.2 lbs per acre

Percent Cover		**Vegetation Cover - Grasses**			**Other Vegetation Cover**	
		Common Name	*Symbol*	*Percent*	*Common Name*	*Percent*
Bare Ground	25.8	Blue Grama	BOGR	8	Clover spp.	3
Litter	46.0	Russian Wildrye	PSJU	5	Forb Unknown	1
Vegetation	25.8	Kentucky Bluegrass	POPR	3	Yarrow	0
Rock (>3/4")	2.4	Timothy	PHPR	1		
		Sedge	Carex	1		
		West. Wheatgrass	AGSM	1		
	100			20		4

Forage Composition

Common Name	*Symbol*	*Percent*	*Avg. Height (inches)*	*Minimum Stubble Height Guidline*	
Blue Grama	BOGR	25	2.2	1.5	
Russian Wildrye	PSJU	24	2.8	4	Below Minimum Height
Sedge	Carex	15	4.7	1.5	
Kentucky Bluegrass	POPR	14	3.8	2.5	
Sand Dropseed	SPCR	7	3.9	4	Below Minimum Height
Timothy	PHPR	3	2.4	4	
		88	3.5 ± 0.11		

Fecal Counts

Horse	0	Elk	0	Cattle	0	Deer	0		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
El Rito Lobato West	71000	58403	46889	5900 to 9700	448	180	May 01	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]
Llano de los Juanes	363.4 ± 133.6	131.0 ± 49.2	431.7 ± 110.0	69.7
Quemazon	211.8 ± 69.6	233.2 ± 88.3	560.7 ± 190.0	58.4
Amarillo	959.2 ± 191.5	568.8 ± 334.4	733.0 ± 170.0	22.4
Escondido	533.0 ± 162.3	134.0 ± 39.1	553.7 ± 160.0	75.8
Sierra	952.2 ± 123.9	312.0 ± 150.2	1154.7 ± 380.0	73.0
Averages	603.9 ± 85.1	275.8 ± 77.0	686.7 ± 127.2	59.8 ± 9.8

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

Table 3. El Rito Lobato West 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]
59.8	5.2	54.6	297.1
†Adjusted Grazable Acres			
59.8	6.5	53.3	238.5

*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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Lab No.: 3427

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:	LA COBRE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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	36					
		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	1.7					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.58					
		35	130	250	500	1000
Chloride (Cl), mg/L	1.1					
		25	75	150	300	500
Total Sodium (Na), mg/L	2					
		40	100	200	400	600
Total Calcium (Ca), mg/L	8					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	2					
		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	1.21					
		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	28					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	1.6					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	56.2

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Lab No.: 3427

LABORATORY ANALYSIS RESULTS

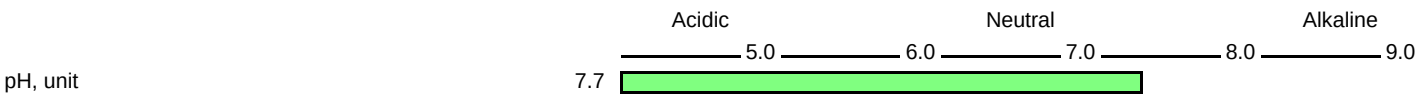
Date Reported: 06/18/2024

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:	LA COBRE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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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Lab No.: 3427

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:	LA COBRE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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: 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.: 3426

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:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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	71					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	0.19					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	2.5					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.84					
		35	130	250	500	1000
Chloride (Cl), mg/L	1.9					
		25	75	150	300	500
Total Sodium (Na), mg/L	4					
		40	100	200	400	600
Total Calcium (Ca), mg/L	21					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	3					
		40	80	120	160	200
Total Potassium (K), mg/L	5					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	4.02					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.240					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	64					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	3.7					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	111

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LABORATORY ANALYSIS RESULTS

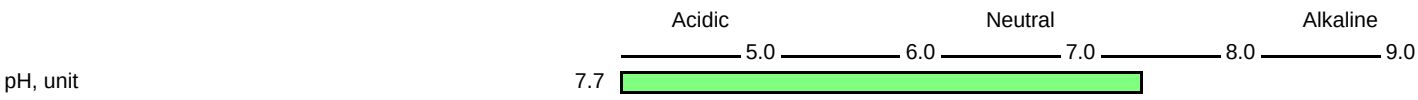
Date Reported: 06/18/2024

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:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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: 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: 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.: 3425

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:	LLANO LARGO NORTE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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	17					
		Very Low	Low	Medium	High	Very High
		10.0	30.0	70.0	100	300
Nitrate Nitrogen (NO3-N), mg/L	0.67					
		200	500	1000	2500	4000
Sulfate (SO4), mg/L	2.9					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	0.98					
		35	130	250	500	1000
Chloride (Cl), mg/L	<1					
		25	75	150	300	500
Total Sodium (Na), mg/L	<1					
		40	100	200	400	600
Total Calcium (Ca), mg/L	4					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	<1					
		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	40.1					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.350					
		Soft	Moderately Hard	Hard	Very Hard	Brackish
		60	120	180	270	400
Hardness (CaCO3), mg/L	14					
		3.5	7.0	11	16	24
Hardness (CaCO3), grains/gal	0.8					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	25.8

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Fax: 806.677.0329

Lab No.: 3425

LABORATORY ANALYSIS RESULTS

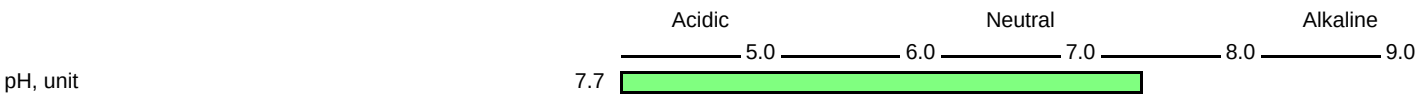
Date Reported: 06/18/2024

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:	LLANO LARGO NORTE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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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Lab No.: 3425

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:	LLANO LARGO NORTE	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	05/07/2024	**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: 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: 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.: 3436

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:	AMARILLO CHUPADERO	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	06/07/2024	**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	485					

		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	15					
		65	170	340	670	1300
Sulfate-Sulfur (SO4-S), mg/L	5.0					
		35	130	250	500	1000
Chloride (Cl), mg/L	25					
		25	75	150	300	500
Total Sodium (Na), mg/L	9					
		40	100	200	400	600
Total Calcium (Ca), mg/L	64					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	14					
		40	80	120	160	200
Total Potassium (K), mg/L	78					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	13.9					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	4.00					

		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	758

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LABORATORY ANALYSIS RESULTS

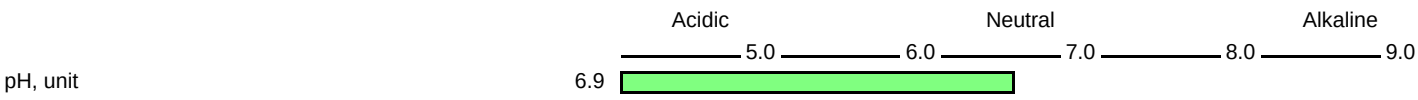
Date Reported: 06/18/2024

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:	AMARILLO CHUPADERO	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	06/07/2024	**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: LOW: No effect expected for livestock or poultry use.

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

POTASSIUM: LOW: This water is considered satisfactory for animal consumption.

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Lab No.: 3436

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:	AMARILLO CHUPADERO	**Date Received:**	
Client Name:		**Invoice No:**	425740
Location:		**P.O. #:**	
Date/Time Sampled:	06/07/2024	**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: 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.: 4745

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:	LA CUENEGA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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	97					
		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	<1					
		25	75	150	300	500
Total Sodium (Na), mg/L	3					
		40	100	200	400	600
Total Calcium (Ca), mg/L	32					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	5					
		40	80	120	160	200
Total Potassium (K), mg/L	5					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	1.97					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.240					
		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	151

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LABORATORY ANALYSIS RESULTS

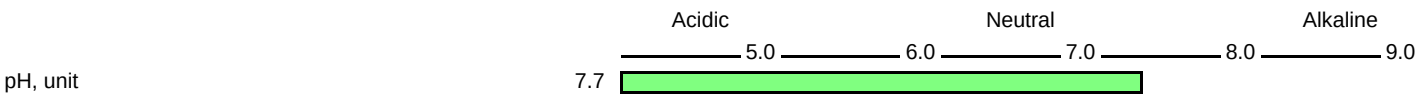
Date Reported: 08/19/2024

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:	LA CUENEGA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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: 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.: 4745

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:	LA CUENEGA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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: 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.: 4746

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:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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	131					
		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	4.9					
		25	75	150	300	500
Total Sodium (Na), mg/L	5					
		40	100	200	400	600
Total Calcium (Ca), mg/L	34					
		25	50	120	250	500
Total Magnesium (Mg), mg/L	4					
		40	80	120	160	200
Total Potassium (K), mg/L	13					
		0.10	0.20	0.40	0.80	1.20
Total Iron (Fe), mg/L	3.05					
		0.010	0.025	0.050	0.075	0.150
Total Manganese (Mn), mg/L	0.530					
		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	5.9					

Additional Tests

Electrical Conductivity (EC @ 25C), µmho/cm	204

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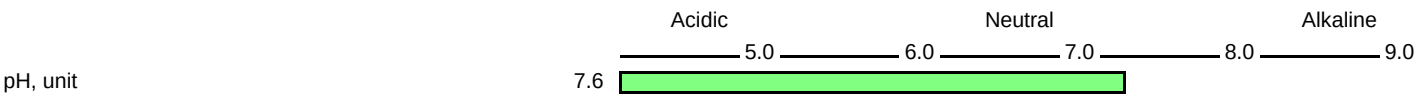
Send To: 55267	NORTHERN NM STOCKMANS ASSOC DR CRISTOBAL VALENCIA 1116 SILVER AVE SW UNIT I ALBUQUERQUE, NM 87102

Amy Meier
Data Review Coordinator

Sample ID:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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: 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: 08/19/2024

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Data Review Coordinator

Sample ID:	LA CROCHA	**Date Received:**	
Client Name:		**Invoice No:**	426207
Location:		**P.O. #:**	
Date/Time Sampled:	08/08/2024	**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: 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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