ADC NORTH CENTRAL UNIT FACILITY- IZARD COUNTY

Wastewater Treatment Plant Route 5 Hwy 5 North Calico Rock, Arkansas

2022 ANNUAL BIOSOLIDS REPORT Biosolids Land Application Site

For

Arkansas Department of Correction P. O. Box 8707 Pine Bluff Arkansas 71611

McClelland Consulting Engineers, Inc

MCE Project Number 22-5794 April 26, 2023



North Central Unit WWTP-Izard County Annual Biosolids Report 2021

The North Central Unit (NCU) Facility submitted waste management plan (WMP) for its biosolids land application sites on June 25, 2019. Subsequently, a biosolids land application permit for the facility was issued March 16, 2020 and became effective April 1, 2020 with expiration date, March 31, 2025. The biosolids land application permit number is 5124-WR-2. The permit requires an annual monitoring and reporting of certain biosolids characteristics including total volume of land applied biosolids and nitrogen application rate. Soil parameters such as electrical conductivity, cation exchange capacity (CEC), pH, and soil adsorption ratio are also required to be monitored and reported annually. Whereas the 40 CFR Part 503 regulated metals are required to be analyzed for the field soil once every five years. Details of the important parameters for both soil and biosolids are succinctly presented in the permit, 5124-WR-2 Part I.

However, the facility did not measure biosolids characteristic parameters for 2020 and 2021, neither necessary soil parameters were measured for these years. The only available data for the NCU biosolids was the total volume of land applied biosolids. The manner in which data were measured and recorded might have introduced considerable errors. For instance, some data were reported in number of beds, some in liquid tanks, and some in cubic yard, all in the same collecting period, and the application fields were not clearly defined. Efforts were made to properly apply the available data. Nevertheless, data collected and recorded in inconsistent ways are bound to have some errors, regardless of the efforts to properly apply such data.

Data Analysis – Loading

In **2022**, biosolids were applied to Field-1 through each month of the year. From January 2022 through December 2022 a total of number of 50 days were used for land application of Field-1. Shown in the aerial map are the locations of Field-1, with the corresponding geographic coordinates of 36° 10' 19.69" N, 92° 9' 5.06" W. Approximately 1,875 cubic yards of biosolids were applied on Field-1 and it was determined that this equates to 3.3 dry tons/acre-year; assuming 3% solids per volume of liquid biosolids.

In **2021**, biosolids were applied to both Field-1 and Field-2 all through the months of the year. Biosolids were applied on Field-2 from January to April 2021 for a total number of 38 days. The total number of days in which biosolids were applied on Field-1 was 73 days from May to December 2021. Shown in the aerial map are the locations of Field-1 and Field-2, with the corresponding geographic coordinates of 36° 10' 19.69" N, 92° 9' 5.06" W and 36° 10' 0.63" N, 92° 8' 40.4" W, respectively. Approximately 950 cubic yards of biosolids were applied on field 2 for the 2021 period; whereas 1,741 cubic yards were applied on Field-1. It was determined that 29.10 lb/d of dry solids (DS) were applied on

Field-2 based on the assumption that 0.65 percent was solids. In like fashion, 1,741 cubic yards translate to 53.3 lb/d DS for Field-1.

Agronomic loading rate

The site is covered with cover crops: 75 percent fescue and 25 percent natural pasture grasses. Thus, the biosolids nitrogen required for the field is 148 lb/acre. The agronomic loading (ALR) is defined as:

ALR = <u>Biosolids nitrogen needed for crop, lb/acre</u> PAN in biosolids ALR = <u>148 lb/acre</u> PAN

Where PAN is the plant available nitrogen

Biosolids Loading Rate

<u>2022</u>

Biosolid loading rate (BLR) is the amount of biosolids applied on a land application site that is not necessarily based on ALR, usually reported annually. The land application area for Field-1 is 20 acres.

BLR = <u>Quantity of biosolids applied</u> Area

Where the quantity of biosolids is in ton and the area in acres.

1.) Field-1

BLR1 = <u>66.39 tons</u> 20 acres

BLR1 = 3.3 ton/acre

<u>2021</u>

Biosolid loading rate (BLR) is the amount of biosolids applied on a land application site that is not necessarily based on ALR, usually reported annually. The land application areas for Field-1 and Field-2 are, respectively 20 and 23 acres.

Where the quantity of biosolids is in ton and the area in acres. 2.) Field-1

BLR1 = 0.50 ton/acre

3.) Field-2

BLR2 = <u>5.31 tons</u> 23 acres

BLR2 = 0.23 tons/acre

The agronomic loading rates (ALRs) for both Field-1 and Field-2 reported in the prevailing waste management plan (WMP) were essentially the same, 2.43 ton/acre. In addition, it was determined in the WMP that it would take approximately the same number of years, 1523 to reach their cumulative limits. With BLRs of 0.50 ton/acre and 0.23 ton/acre, respectively, for Field-1 and Field-2 these would add insignificant amounts of 40 CFR Part 503 regulated metals to the respective application fields.

Summary

<u>2022</u>

See attachments for the WWTP sludge removal volumes and locations, and is for U of A Division of Agriculture's soil conditions report that is comprised of nutrient and metal data describing the existing soil conditions for march 2022. In 2022 BLR was 66.39 tons applied to 20 acres for a 3.3 dry tons/acre BLR to Field-1.

<u>2021</u>

Although essential biosolids characteristics data were not monitored and reported, the regulated metals that might had been added to the soils of Field-1 and Field-2 were insignificant. This is supported by the notion that the biosolids loading rates for the 2021 period were considerably lower than the agronomic loading rate, the limiting loading rate given in the existing WMP.

Efforts should be directed in the future towards improving data collection, and reporting.

T	Т		VISION	OF AGR	ICULI	TURE	Soil	Test Report F	or:				
	Ö	$\dagger \Delta \overline{R}$	ESEARC	H & EX	TENS	SION	Sgt.	Kenny Morehe	ad	870-373-0219			
	J		University	of Arkansa	is System	m	Calic	rison Circle	510				
	Mari	anna Soil Tr	ont & Pocoar	ch Laborat	is Syster	'n	Calle	0 NOCK, AN 72.	<u>, , , , , , , , , , , , , , , , , , , </u>	(070) 260 1222			
	iviari	anna 30n 10 0	08 Lee 214		Ory			Sample ID	12ard	(870) 368-4323			
		Maria	anna, AR 723	360				Jah ID	28122				
		(87	70) 295-2851				Dat	e Processed	3/3/2022				
soiltest	t@ua	rk.edu ~~	https://u	asoiltest.	uada.ec	du/		Field ID	Pas. 1				
The University	of Arka	insas is an eq	ual opportuni	ity/affirmati	ve action	institution	-						
	Pi	revious Crop	o: Pasture	(212)			Acres: 10						
Field Lev	eled in	last 4 year	s:			Ir	rigation Water Source:						
Lime App	lied in	last 4 year:	s: No			Nutri	ent Ma	nagement Plan	:				
Soil pH & Nutrie	ent Av	ailability I	ndex	4.0 - 5	5.0	5.1 - 6.0		6.1 - 7.0	7.1 - 8.0	8.1 - 9.0			
				Strongly	Acidic	Medium Acid	ic s	Slightly Acidic	Slightly Alkaline	Strongly Alkaline			
Soil pH		6	5.5										
		U	nits				So	oil Test Level					
Mehlich III Nutr	ient	ppm	lbs/acre	Very L	.ow	Low		Medium	Optimum	Above Optimum			
Phosphorus (P)		40	80	< 16 p	pm	16 - 25 ppm	n .	26 - 35 ppm	36 - 50 ppm	> 50 ppm			
Potassium (K)		331	662	< 61		61 – 90		91 – 130	131 – 175	> 175			
Zinc (Zn)		1.9	3.8	< 1.	6	1.6 - 2.5	Property officers	2.6 - 4.0	4.1 - 8.0	> 8.0			
Mehlich III Nutr	ient	ppm	lbs/acre	Other S	oil Prop	perties			Units				
Sulfate-S (SO4-S)	14	28	Electric	al Cond	uctivity (EC)			µmhos/cm				
Calcium (Ca)		704	1408	Estimat	ed CEC	(ECEC)		7	cmolc/kg				
Magnesium (Mg)	87	174	Organic	Matter	r — — — — — —			%				
Iron (Fe)	•	98	196	Estimat	ed Soil	Texture Sil	t Loam						
Conner (Cu))	45	06	Base Sa	turatio	n 67	Ca	46.1	% of ECEC				
Boron (B)		0.3	0.0				Mg	9.5	% of ECEC				
Nitrate (NO3-N)		0.2	0.4				K	11.1	% of ECEC				
Methods: Soil	pH and	d EC in 1:2 so	il-water volun	ne mixture;	nutrients	other than NO3	-N extra	cted with Mehlic	h-3 determined b	y ICAP;			
Comments: U	nit of lt	os/acre assum	nes the sample	e depth repr	resents a	plow layer weigh	n; organ ning 2 m	illion pounds.	gnt loss on ignitio	n.			
Code	٦	Name		N	P2O5	K ₂ O	SO4-S	5 Zn	B Lir	ne			
212 Mixed Cool	and V	Varm-Seaso	n Grass	60	30	0	0	0	0 0) lb/acre			

Crop 2 Notes:

	ТТ		VISION	OF AGRI	CULI	TURE		Soil T	est Report F	or:		
			SEADCI	H & EVI	TENG	LON		Sgt. K	enny Morehe	ad	8	370-373-0219
			ISEARCI		LENS	DION		10 Pri	son Circle			
			University of	oj Arkansas	Syster	m	_	Calico	ROCK, AR 72	519		
	Mari	anna Soil Te	est & Resear	ch Laborato	ry					Izard		(870) 368-4323
		0	08 Lee 214						Sample ID	003522	69	
		Maria	anna, AR 723	860				1	Lab ID	28112		
		(87	0) 295-2851					Date	Processed	3/3/202	22	
	solitest@uai	rk.edu ~~	https://u	asoiltest.u	ada.ec	du/		i. G	Field ID	Pas. 2		
	e University of Arka Pi	insas is an eq revious Cror	c: Pasture	ty/affirmative (212)	e action	institutio	n		Acres	: 10		
	Field Leveled in	last 4 years	s:	(===)			In	rigation				
	Lime Applied in	last 4 years	s: No				Nutrie	ent Man	agement Plan	:		
				40-5	0	5 1	-60	1	61-70	71-	80	81-90
Soil p	H & Nutrient Av	ailability l	ndex	Strongly A	cidic	Mediu	m Acidi	c SI	ightly Acidic	Slightly	Alkaline	Strongly Alkaline
Soil p	Н	6	5.8			incure		• 1 •		- onBirthy ,	indiric	otiongly randine
		Ui	nits					Soi	Test Level			
Mehli	ch III Nutrient	ppm	lbs/acre	Very Lo	w	L	ow		Medium	Optin	mum	Above Optimum
Phosp	ohorus (P)	27	54	< 16 pp	m	16 - 2	25 ppm	2	6 - 35 ppm	36 - 50) ppm	> 50 ppm
Potas	sium (K)	105	210	< 61		61	- 90		91 – 130	131 -	- 175	> 175
Zinc (Zn)	1.9	3.8	< 1.6		1.6	- 2.5		2.6 - 4.0	4.1 -	- 8.0	> 8.0
Mehli	ch III Nutrient	nnm	lbs/acre	Other Sc	il Pro	nerties				Unite		
Sulfat	e-S (SO4-S)	5	10	Electrica	Cond	uctivity	(EC)			umbo	s/cm	
Calciu	$m(c_2)$	815 815	1630	Electrica	d CEC	(ECEC)	(EC)		7	cmole	/ka	
Magn	esium (Mg)	84	168	Organic	Matte	(LCLC) r			,	%	/ ~8	
Iron (Ee)	89	178	Estimate	d Soil	r Texture	Silt	Loam		70		
Mang	anese (Mn)	200	400	Baco Cot	uratio	- C7	5110	Ca	52.0	0/ of F	CEC	
Coppe	er (Cu)	0.5	1.0	Dase Sal	uratio	n 0/		La	55.9	% of E		
Boron	(B)	0.3	0.6					IVIB	9.5	% of E	CEC	
Nitrat	e (NO3-N)							Na	0.3	% of E	CEC	
Met	hods: Soil pH and	d EC in 1:2 so 2(SO4)3 and	il-water volur	ne mixture; n	utrients	other the	an NO3-	N extract	ed with Mehlic	ch-3 detern	nined by I	ICAP;
Com	ments: Unit of It	os/acre assun	nes the sampl	e depth repre	sents a	plow laye	er weigh	ing 2 mil	lion pounds.	BUC 1035 011	ignition.	
Code		Name		N	D.O.	L V		50 S	70	D	Limo	
212	Mixed Cool and V	Varm-Seaso	n Grass	60	40	6		0	0	0		lb/acre
	white coor and v	Tarin Seaso		00	40		-	0		0		is/acie
						_					L	

Crop 2 Notes:

	ТТ	CA D	IVISION	OF AGR	ICUL	TURE	Soil	Test Report F	or:		
	Ď	$†\Delta$ RI	ESEARC	H&FX	TEN	SION	Sgt. H	Kenny Morehe	ad		870-373-0219
	y.		University	of Arhance	ac Sucto		Calic	o Bock AP 72	10		
	Mari	anna Cail T	Oniversity	of Arkanse	is syste	m	Call	U RUCK, AR 72:	519		
	wari	anna Soli T	est & Resear	ch Laborat	ory			Completion 10	Izard		(870) 368-4323
		Mari	anna $\Delta P 723$	260				Sample ID	0035226	80	
		(8)	70) 295-2851				Dat		2/2/202	2	
	soiltest@ua	rk.edu ~~	https://u	asoiltest.	uada.e	du/	Dat	Field ID	Pas. 3	Z	
Т	e University of Arka	insas is an eq	ual opportuni	ity/affirmati	ive actior	institution	-				
	P	revious Cro	o: Pasture	(212)				Acres	: 10		
	Field Leveled in	n last 4 year	s:			lr	rigation	Water Source	:		
	Lime Applied in	last 4 year	s: No			Nutri	ent Management Plan:				
Soil n	H & Nutrient Av	ailability	ndex	4.0 -	5.0	5.1 - 6.0		6.1 - 7.0	7.1 - 8	8.0	8.1 - 9.0
				Strongly	Acidic	Medium Acidi	ic S	Slightly Acidic	Slightly A	lkaline	Strongly Alkaline
Soil p	Н		5.9								
		U	nits				So	il Test Level			
Mehl	ich III Nutrient	ppm	lbs/acre	Very l	low	Low		Medium	Optim	num	Above Optimum
Phos	ohorus (P)	45	90	< 16 p	pm	16 - 25 ppm	2	26 - 35 ppm	36 - 50	ppm	> 50 ppm
Potas	sium (K)	100	200	< 61		61 – 90		91 – 130	131 —	175	> 175
Zinc (Zn)	3.0	6.0	< 1.	6	1.6 – 2.5		2.6 - 4.0	4.1 -	8.0	> 8.0
Mehl	ich III Nutrient	ppm	lbs/acre	Other S	il Pro	perties			Units		
Sulfat	e-S (SO4-S)	10	20	Electric	al Conc	uctivity (EC)			umhos	/cm	
Calciu	ım (Ca)	470	940	Estimat	ed CEC	(ECEC)		6	cmolc/	kg	
Magn	esium (Mg)	56	112	Organio	Matte	r			%	U	
Iron (Fe)	128	256	Estimat	ed Soil	Texture Sar	ndy Loa	am			
Mang	anese (Mn)	67	134	Base Sa	turatio	on 51	Ca	38.6	% of EC	CEC	
Coppe	er (Cu)	0.9	1.8				Mg	7.7	% of EC	CEC	
Boror		0.3	0.6				к	4.2	% of EC	CEC	
Nitrat	e (NO3-N)						Na	0.4	% of EC	CEC	
Met	hods: Soil pH and	d EC in 1:2 so	il-water volur	ne mixture;	nutrients	s other than NO3-	-N extrac	cted with Mehlic	h-3 determ	ined by	ICAP;
Com	ments: Unit of It	os/acre assur	nes the sampl	e depth repi	resents a	plow layer weigh	ning 2 mi	illion pounds.	Bur loss on I	gnition.	
Code		Name		N	P ₂ O ₂	K-0	SO-S	Zn	в	Lime	
212	Mixed Cool and V	Varm-Seaso	n Grass	60	30	60	0	0	0	0	lb/acre
							0		~	0	/ uci c
									I		

Crop 2 Notes:

	ТТ		VISION	OF AGRIC	ULI	URE	Soil	Test Report F	or:				
			SFARCI	H & FYTE	NS	ION	Sgt.	Kenny Morehea	ad	8	370-373-0219		
	Y.							rison Circle	10				
			University a	of Arransas Sy	yster	n	Calle	CO ROCK, AR 725	519	-			
	Mari	anna Soil Te	est & Resear	ch Laboratory			1		Izard	_	(870) 368-4323		
		U	08 Lee 214					Sample ID	0035226	7			
		iviaria	Inna, AK 723	60				Lab ID	28116				
	coiltoct@uo	(8)	U) 295-2851	and literat word	-	1	Da	te Processed	3/3/2022				
T	Surrest@ual	ncas is an aa	nttps://u	asontest.uda	a.eo	institution	<u>,</u>	Field ID	Pas. 4				
	Pi	revious Crop	: Pasture	(212)		institution	Acres: 10						
	Field Leveled in	last 4 years	5:			Irri	igatio	n Water Source	:				
	Lime Applied in	last 4 years	s: No			Nutrie	ent Ma	anagement Plan	:				
Soil n	H & Nutrient Av	ailability	ndev	4.0 - 5.0		5.1 - 6.0		6.1 - 7.0	7.1 - 8	.0	8.1 - 9.0		
501 p	an och utilent Av		nuex	Strongly Acid	lic	Medium Acidic	:	Slightly Acidic	Slightly Al	kaline	Strongly Alkaline		
Soil p	н	5	5.9										
		Ur	nits				S	oil Test Level					
Mehl	ich III Nutrient	ppm	lbs/acre	Very Low		Low	Medium Optimum Above Opt						
Phos	phorus (P)	67	134	< 16 ppm		16 - 25 ppm		26 - 35 ppm	орт	> 50 ppm			
Potas	sium (K)	96	192	< 61		61 – 90		91 – 130	131 – 1	.75	> 175		
Zine (7n)	E 4	10.9	< 1.6		1.6 - 2.5		2.6 - 4.0	4.1-8	3.0	> 8.0		
21110 (211)	5.4	10.8		-								
Mehl	ich III Nutrient	ppm	lbs/acre	Other Soil	Prop	perties			Units				
Sulfat	e-S (SO4-S)	15	30	Electrical C	ond	uctivity (EC)			µmhos/	/cm			
Calciu	ım (Ca)	700	1400	Estimated	CEC	(ECEC)		7	cmolc/l	kg			
Magn	esium (Mg)	100	200	Organic Ma	atter	r			%				
Iron (Fe)	141	282	Estimated S	Soil	Texture Silt	Loam	1					
Mang	anese (Mn)	189	378	Base Satur	atio	n 61	Ca	46.0	% of EC	EC			
Copp	er (Cu)	1.8	3.6				Mg	11.0	% of EC	EC			
Boror		0.3	0.6				к	3.2	% of EC	EC			
INITIAL	le (NO3-N)						Na	0.4	% of EC	EC			
Met	hods: Soil pH and	d EC in 1:2 so	il-water volur	ne mixture; nutr	ients	other than NO3-	N extra	acted with Mehlic	h-3 determi	ned by I	CAP;		
Nitra	te extracted with Al	2(504)3 and (actermined by	electrode; ECE	L by c	cation summation	ing 2 -	nic matter by wei	gnt loss on ig	gnition.			
Com	iments: Onit of it	os/acre assuri	les the sample	e depth represei	nts a	plow layer weight	ing z n	nillion pounds.					
Code		Name		N P	205	K ₂ O	SO4-	S Zn	В	Lime			
212	Mixed Cool and V	Varm-Seaso	n Grass	60	0	60	0	0	0	0	lb/acre		

Crop 2 Notes:

	ТТ	CA D	IVISION	OF AG	RICULI	URE	So	il Test I	Report I	For:			
		$f \Lambda \overline{R}$	ESEARC	HATE	YTENS	ION	Sgt	. Kenny	Morehe	ad		870-373	-0219
	Y.		University	of Arhan				Prison C	ircle	F10			
	Mari		Oniversity	of Arrans	sas Syster	n	Cal		, AR 72	519			
	Mari	anna Soil I	est & Resear	ch Labora	itory					Izard		(870)	368-4323
		Mari	00 Lee 214	260				San	ple ID	003522	266		
		(8)	70) 295-2851	500				to Dro		28124	22		
	soiltest@ua	rk.edu ~~	https://u	asoiltest	.uada.ec	lu/		ate Pro F	ield ID	3/3/20. Pas 5	22		
Th	e University of Arka	nsas is an ea	ual opportuni	ity/affirma	tive action	institution				1 43. 5			
	Pr	evious Cro	p: Pasture	(212)					Acres	s: 10			
	Field Leveled in	last 4 year	s:				Irrigatio	rrigation Water Source:					
	Lime Applied in	last 4 year	s: No			Nut	rient M	lanagem	ent Plar	:			
Soil p	H & Nutrient Av	ailability	ndex	4.0	5.0	5.1 - 6.0		6.1 -	7.0	7.1	- 8.0	8.	1 - 9.0
				Strong	y Acidic	Medium Aci	idic	Slightly	Acidic	Slightly	Alkaline	Strong	gly Alkaline
Soil p	Н		7.4							and the second			
		U	nits				S	Soil Tes	t Level				
Mehli	ich III Nutrient	ppm	lbs/acre	Very	Low	Low		Med	ium	Opti	mum	Above	Optimum
Phosp	ohorus (P)	38	76	< 16	ррт	16 - 25 pp	m	26 - 35	ppm	36 - 5	0 ppm	n > 50 ppm	
Potas	sium (K)	93	186	< 61	!	61 – 90	1	91 –	130	131 -	- 175	2	175
Zine /	7n)	2.0	7.0	< 1	.6	16-25		26-	40	11-	- 8 0		80
21110 (2	211)	5.8	7.0			110 210		2.0	4.0	4.1	0.0		- 0.0
Mehli	ch III Nutrient	ppm	lbs/acre	Other	Soil Prop	perties				Units			
Sulfat	e-S (SO4-S)	7	14	Electri	cal Cond	uctivity (EC)				umho	os/cm		
Calciu	m (Ca)	590	1180	Estima	ted CEC	(ECEC)			6	cmolo	/kg		
Magn	esium (Mg)	168	336	Organi	c Matter					%			
Iron (F	Fe)	130	260	Estima	ted Soil	Texture Si	ilt Loar	n					
Mang	anese (Mn)	118	236	Base S	aturatio	n 76	Ca	4	8.1	% of E	ECEC		
Coppe	er (Cu)	0.5	1.0				Mg	2	2.8	% of E	ECEC		
Boron	(B)	0.3	0.6				ĸ		3.9	% of E	CEC		
Nitrat	e (NO3-N)						Na		0.7	% of E	ECEC		
Met	hods: Soil pH and	d EC in 1:2 so	il-water volun	ne mixture	; nutrients	other than NO	3-N extr	acted wi	th Mehlic	h-3 deter	mined by	ICAP;	
Nitrat	e extracted with Al2	(SO4)3 and	determined by	electrode	; ECEC by o	ation summat	ion; orga	anic matt	er by wei	ight loss on	ignition.		
Com	ments: Unit of Ib	s/acre assur	nes the sample	e depth rep	presents a	plow layer wei	ghing 2	million p	ounds.				
Code	N	lame		N	P205	K ₂ O	SO4	-S	Zn	В	Lime		
	Mixed Cool and M	/arm-Seaso	n Grass	60	30	60	0		0	0	0		b/acre
212	Wikeu Cool allu V		Contraction of Parameters			_							and the second
212	Wixed Cool and W												
212	Wixed Cool and W												

Crop 2 Notes:

TI		VISION	OF AGRICUI	LTURE	Soil 1	est Report F	or:	870-373-0219
		ESEARCI	H & EXTEN	SION	10 Pri	ison Circle		0.000.000
\mathcal{O}		University of	of Arkansas Syst	em	Calico	Rock, AR 72	519	
Maria	anna Soil Te O	est & Resear 08 Lee 214	ch Laboratory			Sample ID	Izard 00352265	(870) 368-4323
	iviaria (97	inna, AR 723	60		Date		20111	
soiltest@ua	rk.edu ~~	https://u	asoiltest.uada.	edu/		Field ID	Pas. 6	
The University of Arka	nsas is an eq	ual opportuni	ty/affirmative action	on institution				
Pr	evious Crop	: Pasture	(212)			Acres	s: 10	
Field Leveled in	last 4 years	5:		li	rrigation	Water Source	:	
Lime Applied in	last 4 years	s: No		Nutri	ient Mar	nagement Plar	:	
Soil nH & Nutrient Av	ailability I	ndex	4.0 - 5.0	5.1 - 6.0		6.1 - 7.0	7.1 - 8.0	8.1 - 9.0
Son pri di Nutrient A		Index	Strongly Acidic	Medium Acid	lic S	lightly Acidic	Slightly Alkalin	e Strongly Alkaline
Soil pH	7	7.2						
	Ui	nits			So	il Test Level		
Mehlich III Nutrient	ppm	lbs/acre	Very Low	Low		Medium	Optimum	Above Optimum
Phosphorus (P)	5	10	< 16 ppm	16 - 25 ppn	n 2	?6 - 35 ppm	36 - 50 ppm	> 50 ppm
Potassium (K)	62	124	< 61	61 – 90		91 – 130	131 – 175	> 175
Zinc (Zn)	0.7	1.4	< 1.6	1.6 – 2.5		2.6 - 4.0	4.1 - 8.0	> 8.0
Mehlich III Nutrient	ppm	lbs/acre	Other Soil Pr	operties			Units	
Sulfate-S (SO4-S)	6	12	Electrical Con	nductivity (EC)			µmhos/cm	Ж.
Calcium (Ca)	967	1934	Estimated CE	EC (ECEC)		9	cmolc/kg	
Magnesium (Mg)	310	620	Organic Mat	ter	. 23		%	
Iron (Fe)	68	136	Estimated Sc	oil Texture Sil	t Loam			
Manganese (Min)	196	392	Base Saturat	i on 79	Ca	50.2	% of ECEC	
Boron (B)	0.0	0.4			Mg	26.8	% of ECEC	
Nitrate (NO3-N)	0.2	0.4			Na	0.5	% of ECEC	
Methods: Soil pH an Nitrate extracted with Al Comments: Unit of I	d EC in 1:2 sc 2(SO4)3 and bs/acre assur	bil-water volur determined b mes the samp	me mixture; nutrier y electrode; ECEC b le depth represents	nts other than NO by cation summations a plow layer weig	3-N extra on; organ shing 2 m	cted with Mehli ic matter by we illion pounds.	ch-3 determined ight loss on ignitic	by ICAP; on.
Code	Namo		ND		50.5	70	R 11	me
212 Mined Cool and	Norm Coord	n Grace	CO 12		304-3			
212 Mixed Cool and V	warm-Seaso	on Grass	60 12	100	0	0	0	
Crop 1 Notes:								

Crop 2 Notes:

Ιþ		VISION (OF AGRICULI	TURE SION	Soil Sgt. K 10 Pr	Test Report F Kenny Morehea ison Circle	or:	870-373-0219
Maria soiltest@uar	nna Soil Te O Maria (87 k.edu ~~	oniversity of est & Researce 08 Lee 214 nna, AR 723 0) 295-2851 https://ua	60 asoiltest.uada.ee	m du/	Date	Sample ID Lab ID e Processed Field ID	Izard 00352264 28120 3/3/2022 Pas. 7	(870) 368-4323
The University of Arka	nsas is an eq evious Cror	v Pasture (ty/affirmative action	institution		Acres	s: 10	
Field Loveled in	last A year	······································	.212)	Ir	rigation	Water Source		
Lime Applied in	last 4 years	: No		Nutri	ent Mai	nagement Plan		
Line Applied in	last 4 years	5. INU		Nutri		lagement i la		
Soil pH & Nutrient Av	ailability I	ndex	4.0 - 5.0	5.1 - 6.0		6.1 - 7.0	7.1 - 8.0	8.1 - 9.0
			Strongly Acidic	Medium Acidi	c S	Slightly Acidic	Slightly Alkaline	Strongly Alkaline
Soil pH		5.9						
	Ur	nits			So	il Test Level		
Mehlich III Nutrient	ppm	lbs/acre	Very Low	Low		Medium	Optimum	Above Optimum
Phosphorus (P)	112	224	< 16 ppm	16 - 25 ppm		26 - 35 ppm	36 - 50 ppm	> 50 ppm
Potassium (K)	166	332	< 61	61 – 90		91 – 130	131 – 175	> 175
Zinc (Zn)	8.0	16.0	< 1.6	1.6 – 2.5		2.6 - 4.0	4.1 - 8.0	> 8.0
Mehlich III Nutrient	ppm	lbs/acre	Other Soil Pro	perties			Units	
Sulfate-S (SO4-S) Calcium (Ca) Magnesium (Mg) Iron (Fe)	8 943 98 152	16 1886 196 304	Electrical Con Estimated CEC Organic Matte Estimated Soi	ductivity (EC) C (ECEC) er Texture Sil ⁱ	t Loam	8	µmhos/cm cmolc/kg %	
Manganese (Mn) Copper (Cu) Boron (B) Nitrate (NO3-N)	80 0.6 0.3	160 1.2 0.6	Base Saturatio	on 71	Ca Mg K Na	55.6 9.6 5.0 0.3	% of ECEC % of ECEC % of ECEC % of ECEC	
Methods: Soil pH an Nitrate extracted with Al	d EC in 1:2 so 2(SO4)3 and	oil-water volur determined b	me mixture; nutrient y electrode; ECEC by	s other than NO3	-N extra	icted with Mehli nic matter by we	ch-3 determined b eight loss on ignitior	y ICAP; n.

Comments: Unit of lbs/acre assumes the sample depth represents a plow layer weighing 2 million pounds.

Code	Name	N	P2O5	K ₂ O	SO4-S	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	0	40	0	0	0	0	lb/acre

Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

Crop 2 Notes:

		VISION	OF ACR		TIPE		Soil Te	est Report F	or:		
<u>ل</u>	$f \Lambda =$						Sgt. Ke	nny Morehe	ad	8	370-373-0219
		SEARC	H&EX	TENS	TON		10 Pris	on Circle			
		University	of Arkanso	is Syster	n	_	Calico I	Rock, AR 72	519		
Maria	anna Soil Te	est & Resear	ch Laborat	ory					Izard	8	(870) 368-432
	0	08 Lee 214	56.14					Sample ID	00352263	3	
	Maria	inna, AR 723	360				Data	Lab ID	28118		
sailtast@up	(8)	0) 295-2851	acoiltact	unda or	4/		Date	Field ID	3/3/2022	2	
sontest@uar	k.eau	nttps://u	asontest.	uada.ec	u/			Field ID	Pas. 0		
The University of Arka	nsas is an eq	ual opportuni	ity/affirmati	ive action	institution		<u>in an an</u>		10		
Pr	evious Crop	e: Pasture	(212)					Acres	5: 10		
Field Leveled in	last 4 years	5:				Irrig	ation V	Vater Source	2:		
Lime Applied in	last 4 years	s: No			Nu	trien	t Mana	gement Plar	1:		
Soil nH & Nutriant Au	ailability	ndev	4.0 -	5.0	5.1 - 6.0)		6.1 - 7.0	7.1 - 8	8.0	8.1 - 9.0
Soli pri & Nutrient Av		nuex	Strongly	Acidic	Medium Ad	cidic	Slig	ghtly Acidic	Slightly Al	kaline	Strongly Alkalin
Soil pH	6	5.5	14-14-24 - 14 - 24 - 14 - 24 - 14 - 14 -								
	Ur	nits		= =			Soil	Test Level			
Mehlich III Nutrient	ppm	lbs/acre	Very	Low	Low			Medium	Optim	um	Above Optimur
Phosphorus (P)	105	210	< 16 p	орт	16 - 25 pj	от	26	- 35 ppm	36 - 50 µ	ppm	> 50 ppm
Potassium (K)	200	400	< 61		61 – 90)	9	91 – 130	131 – 1	175	> 175
Zinc (Zn)	2.8	5.6	< 1.	.6	1.6 – 2.	5	2	2.6 – 4.0	4.1 - 8	8.0	> 8.0
Mehlich III Nutrient	ppm	lbs/acre	Other	Soil Pro	perties				Units		
Sulfate-S (SO4-S)	10	20	Electric	al Cond	luctivity (EC	:)			umhos	/cm	
Calcium (Ca)	840	1680	Estima	ted CEC	(ECEC)			7	cmolc/l	kg	
Magnesium (Mg)	85	170	Organi	c Matte	r				%		
Iron (Fe)	188	376	Estima	ted Soil	Texture 2	Silt L	oam				
Manganese (Mn)	33	66	Base Sa	aturatio	n 69		Ca	52.8	% of EC	CEC	
Copper (Cu)	0.3	0.6				1	Mg	8.9	% of EC	CEC	
Boron (B)	0.3	0.6					К	6.5	% of EC	CEC	
Nitrate (NO3-N)							Na	0.3	% of EC	CEC	
Methods: Soil pH an Nitrate extracted with Al	d EC in 1:2 so 2(SO4)3 and	il-water volu determined b	me mixture; y electrode;	nutrients ECEC by	s other than N cation summa	O3-N ation;	extracto organic	ed with Mehli matter by we	ch-3 determi ight loss on ig	ined by gnition.	ICAP;
Comments: Unit of I	os/acre assur	nes the samp	le depth rep	resents a	plow layer we	eighin	g 2 milli	ion pounds.			
Code	Name		N	P205	K ₂ O		SO4-S	Zn	В	Lime	2
212 Minud Cool - 1		0	60		-		•		0	0	Ib /aara

Code	Name	N	P205	K ₂ U	504-5	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	0	0	0	0	0	0	lb/acre

Crop 2 Notes:

тт		VISION	OF AGR	ICUIT	TIRF	S	Soil Tes	st Report I	For:		
ト		CEADO		TENIC	LON	S	Sgt. Ken	ny Morehe	ad	870)-373-0219
L Y		SEARCI	H & EA	TENS	ION		LO Priso	n Circle			
		University of	of Arkanso	is Systen	n		alico R	OCK, AR 72	519		
Mari	ianna Soil Te	est & Resear	ch Laborat	ory					Izard	(8	370) 368-4323
	0	08 Lee 214					S	ample ID	0035226	52	
	Iviaria /97	INNA, AR 723	560				Data D		28206	n	
soiltest@ua	rk.edu ~~	https://u	asoiltest.	uada.ed	lu/		Dater	Field ID	Pas. 9	2	
The University of Arka	ansas is an eq	ual opportuni	ty/affirmati	ive action	institution	_					
Р	revious Crop	: Pasture	(212)					Acres	s: 10		
Field Leveled in	n last 4 years	5:				Irriga	ation W	ater Source	2:		
Lime Applied in	n last 4 years	s: No			Nut	rient	ent Management Plan:				
Soil nH & Nutrient A	vailability	ndex	4.0 -	5.0	5.1 - 6.0		6	.1 - 7.0	7.1 -	8.0	8.1 - 9.0
Son pri di Nutrient A	vanability i	IIUCA	Strongly	Acidic	Medium Aci	dic	Sligh	ntly Acidic	Slightly A	Ikaline	Strongly Alkaline
Soil pH	5	5.3									
	Ur	nits					Soil T	est Level			
Mehlich III Nutrient	ppm	lbs/acre	Very	Low	Low		N	/ledium	Optim	num	Above Optimum
Phosphorus (P)	35	70	< 16 p	opm	16 - 25 pp	m	26 -	- 35 ppm	36 - 50	ррт	> 50 ppm
Potassium (K)	101	202	< 61	MARKEN DE	61 – 90		9:	1 – 130	131 –	175	> 175
Zinc (Zn)	3.0	6.0	< 1.	.6	1.6 – 2.5		2.	6 - 4.0	4.1 -	8.0	> 8.0
Mehlich III Nutrient	nnm	lbs/acro	Other	Soil Pror	nortios				Units		
Sulfate 5 (504 5)	27	[103/ acre	Electric	al Cond	uctivity (EC)				umbor	lam	
Calcium (Ca)	203	406	Electric		(ECEC)			6	cmole	/kø	
Magnesium (Mg)	37	74	Organi	c Matter	(LCLC)			U	%	"6	
Iron (Fe)	371	742	Estima	ted Soil	Texture S	andy	/ Loam				
Manganese (Mn)	20	40	Base Sa	aturatio	n 26	(Са	16.6	% of E	CEC	
Copper (Cu)	0.6	1.2			0	N	Лg	5.0	% of E	CEC	
Boron (B)	0.3	0.6					ĸ	4.2	% of E	CEC	
Nitrate (NO3-N)						Ν	Na	0.4	% of E	CEC	
Methods: Soil pH ar	nd EC in 1:2 so	il-water volur	ne mixture;	nutrients	other than NC	3-N e	extracted	d with Mehli	ch-3 determ	nined by ICA	NP;
Nitrate extracted with A	12(SO4)3 and	determined b	y electrode;	ECEC by o	cation summat	ion; o	organic r	natter by we	ight loss on	ignition.	
Comments: Unit of I	bs/acre assur	nes the samp	e depth rep	resents a	plow layer wei	ghing	g 2 millio	on pounds.			
Code	Name	-	N	P205	K ₂ O	s	60 ₄ -S	Zn	В	Lime	

Code	Name	N	P2O5	K ₂ O	SO4-S	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	40	60	0	0	0	4000	lb/acre

Crop 2 Notes:

Marian soiltest@uark The University of Arkans Prev Field Leveled in la Lime Applied in la Soil pH & Nutrient Ava Soil pH Mehlich III Nutrient Phosphorus (P)	nna Soil Te 00 Maria (87 c.edu ~~ sas is an equ vious Crop ast 4 years	st & Researc)8 Lee 214 nna, AR 723 0) 295-2851 https://ua ual opportunit : Pasture (th Laboratory 60 asoiltest.uada	.edu/			Sample ID	Izard 00352261	(8	70) 368-4323				
The University of Arkans Prev Field Leveled in la Lime Applied in la Soil pH & Nutrient Ava Soil pH Mehlich III Nutrient Phosphorus (P)	sas is an equ vious Crop ast 4 years	<i>ial opportunit</i> : Pasture (008 Lee 214 Marianna, AR 72360 (870) 295-2851 soiltest@uark.edu ~~ https://uasoiltest.uada.edu/ The University of Arkansas is an equal opportunity/affirmative action institution Previous Crop: Pasture (212)											
Field Leveled in la Lime Applied in la Soil pH & Nutrient Ava Soil pH Mehlich III Nutrient Phosphorus (P)	ast 4 years	. rastare (The University of Arkansas is an equal opportunity/affirmative action institue Previous Crop: Pasture (212)					: 10						
Lime Applied in la Soil pH & Nutrient Ava Soil pH Mehlich III Nutrient Phosphorus (P)	use i jears		Field Leveled in last 4 years:					Irrigation Water Source:						
Soil pH & Nutrient Ava Soil pH Mehlich III Nutrient Phosphorus (P)	Lime Applied in last 4 years: No				Nutrient Management Plan:									
Soil pH Mehlich III Nutrient Phosphorus (P)	Soil pH & Nutrient Availability Index			c M	5.1 - 6.0 1edium Acid	lic	6.1 - 7.0 Slightly Acidic	7.1 - 8. Slightly All	.0 kaline	8.1 - 9.0 Strongly Alkaline				
Mehlich III Nutrient Phosphorus (P)	6	.8												
Mehlich III Nutrient Phosphorus (P)	Un	its				So	oil Test Level							
Phosphorus (P)	ppm	lbs/acre	Very Low		Low		Medium	Optimu	um	Above Optimum				
Detectium (K)	78	156	< 16 ppm	1	16 - 25 ppn	n	26 - 35 ppm	36 - 50 p	opm	> 50 ppm				
Potassium (K)	256	512	< 61	100 C 100 C	61 – 90	Sector Sector	91 – 130	131 – 1	.75	> 175				
Zinc (Zn)	7.5	15.0	< 1.6		1.6 – 2.5		2.6 - 4.0	4.1 – 8	3.0	> 8.0				
Mehlich III Nutrient	ppm	lbs/acre	Other Soil F	Propert	ties			Units						
Sulfate-S (SO4-S) Calcium (Ca) Magnesium (Mg) Iron (Fe)	10 1052 239 195	20 2104 478 390	Electrical Co Estimated C Organic Ma Estimated S	onduct CEC (EC atter Soil Tex	ivity (EC) CEC) cture Si	lt Loan	10	µmhos, cmolc/l %	/cm kg					
Manganese (Mn) Copper (Cu) Boron (B) Nitrate (NO3-N)	64 1.9 0.4	128 3.8 0.8	Base Satura	ation	76	Ca Mg K Na	50.3 19.1 6.3 0.4	% of EC % of EC % of EC % of EC	XEC XEC XEC XEC					
Methods: Soil pH and Nitrate extracted with Al2(Comments: Unit of Ibs	Nitrate (NO3-N) Na 0.4 % OT ECEC Methods: Soil pH and EC in 1:2 soil-water volume mixture; nutrients other than NO3-N extracted with Mehlich-3 determined by ICAP; Nitrate extracted with Al2(SO4)3 and determined by electrode; ECEC by cation summation; organic matter by weight loss on ignition. Comments: Unit of lbs/acre assumes the sample depth represents a plow layer weighing 2 million pounds.													

Code	Name	N	P ₂ O ₅	K ₂ O	SO4-S	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	0	0 -	0	0	0	0	lb/acre

Crop 2 Notes:

ТТ		VISION (OF AGR	ICULT	URE	S	oil Tes	t Report F	or:		
ן <u>ה</u>		CEADCI	I C. EV	TENC	LON	S	gt. Ken	ny Morehe	ad	8	70-373-0219
	HRE	SEARCI	1 & EX	TENS	TON	1	0 Priso	n Circle			
		University of	of Arkansa	is Syster	n	C	alico Ro	ock, AR 72	519		
Maria	anna Soil Te	st & Resear	ch Laborat	ory					Izard		(870) 368-4323
	0	08 Lee 214					S	ample ID	0035226	50	
	Maria	nna, AR 723	60					Lab ID	28109		
	(87	0) 295-2851					Date P	rocessed	3/3/202	2	
soiltest@uai	'k.edu ~~	https://u	asoiltest.	uada.ed	du/			Field ID	Pas. 11		
The University of Arka	nsas is an eq	ual opportuni	ty/affirmati	ve action	institution	_	_				
Pr	evious Crop	: Pasture	212)			Acres: 10					
Field Leveled in last 4 years:					Irrigation Water Source:						
Lime Applied in last 4 years: No				Nutrient Management Plan:							
Soil nH & Nutrient Av	ailahility I	ndev	4.0 -	5.0	5.1 - 6.0		6.	1 - 7.0	7.1 - 3	8.0	8.1 - 9.0
Son pri di Nutrient Av	anability i	INCA	Strongly	Acidic	Medium Aci	dic	Sligh	tly Acidic	Slightly A	Ikaline	Strongly Alkaline
Soil pH	E	5.5									
	Ur	nits					Soil T	est Level			
Mehlich III Nutrient	ppm	lbs/acre	Very	Low	Low		N	ledium	Optim	num	Above Optimum
Phosphorus (P)	78	156	< 16 p	орт	16 - 25 pp	m	26 -	35 ppm	36 - 50	ppm	> 50 ppm
Potassium (K)	300	600	< 61		61 – 90		91	- 130	131 –	175	> 175
				and the state of some			-			~ ~	
Zinc (Zn)	6.9	13.8	< 1.	.6	1.6 – 2.5		2.	6 – 4.0	4.1 -	8.0	> 8.0
Meblich III Nutrient	nnm	lbs/acre	Other	Soil Pro	nerties				Units		
Sulfata S (SOA S)	12	24	Electric	al Cond	luctivity (EC)				umbor	lam	
Calcium (Ca)	1127	24	Electric					11	cmole	/ka	
Magnesium (Mg)	258	516	Organi	r Matte	r			**	%	10	
Iron (Fe)	203	406	Estima	ted Soil	Texture S	ilt Lo	bam				
Manganese (Mn)	65	130	Baco S	aturatio	n 78		(a	51.0	% of F	CEC	
Copper (Cu)	1.7	3.4	Dase J	aturatio	/// //	Ň	Λσ	19.3	% of Fi		
Boron (B)	0.5	1.0					K	6.9	% of E	CEC	
Nitrate (NO3-N)						١	Na	0.4	% of E	CEC	
Methods: celletter	d FC in 1.2	iltorcl		outriont	other than NC	12 NI -	vtractor	with Mahli	ch 2 datar	ained by l	CAR
Nitrate extracted with Al	0 EC III 1:2 SC	determined b	ne mixture;	FCEC by	cation summat	ion: c		a with weni	and loss on	ignition	
Comments: Unit of I	os/acre assur	nes the sampl	e depth rep	resents a	plow layer we	ighing	g 2 millio	n pounds.	IGHT 1035 011	Buildon	
		<u> </u>									
Code	Name		N	P205	K ₂ O	S	O ₄ -S	Zn	В	Lime	

Code	Name	N	P205	K ₂ O	SO4-S	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	0	0	0	0	0	0	lb/acre

Crop 2 Notes:

		VISION	DE ACR	CUIT	TIRE		Soil Tes	st Report F	or:			
		131014	JI AGA	COLL		[Sgt. Ken	ny Morehe	ad	8	70-373-0219	
Ŷ	ARE	SEARCH	4 & EX	TENS	ION		10 Priso	n Circle				
U.		University o	of Arkansa	s Systen	n		Calico R	ock, AR 72	519			
Maria	anna Soil Te	st & Researd	ch Laborat	ory					Izard		(870) 368-4323	
	0	08 Lee 214					S	ample ID	0035225	9		
	Maria	nna, AR 723	60					Lab ID	28119			
	(87	0) 295-2851					Date P	rocessed	3/3/2022	2		
soiltest@uar	k.edu ~~	https://u	asoiltest.	uada.ed	u/			Field ID	Pas.12			
The University of Arka	nsas is an eq	ual opportuni	ty/affirmati	ve action	institution							
Pr	Previous Crop: Pasture (212)					Acres: 10						
Field Leveled in last 4 years:					Irrigation Water Source:							
Lime Applied in	last 4 years	s: No			Nutrient Management Plan:							
Soil nH & Nutrient Availability Index		ndev	4.0 -	5.0	5.1 - 6	5.0	6	.1 - 7.0	7.1 - 8	8.0	8.1 - 9.0	
Soli pri a Nutrient Av	anability	nuex	Strongly	Acidic	Medium	Acidic	Slig	htly Acidic	Slightly A	lkaline	Strongly Alkaline	
Soil pH	6	5.9										
	U	nits					Soil	Fest Level				
Mehlich III Nutrient	ppm	lbs/acre	Very I	.ow	Lov	v		/ledium	Optim	num	Above Optimum	
Phosphorus (P)	34	68	< 16 p	opm	16 - 25	ppm	26	- 35 ppm	36 - 50	ppm	> 50 ppm	
Potassium (K)	110	220	< 61	1000 Carlos	61 –	90	9	1 – 130	131 -	175	> 175	
Zinc (Zn)	0.8	1.6	< 1.	6	1.6 -	2.5	2	.6 – 4.0	4.1 -	8.0	> 8.0	
Meblich III Nutrient	nnm	lbs/acre	Other	Soil Pror	nerties				Units			
	A	0	Electric	al Cond	uctivity /	C)			umbos	lom		
Sulfate-5 (SO4-5)	4	911	Electric	an Conu	(ECEC)	LC)		5	cmole	/kø		
Magnosium (Mg)	422	190	Organi	Matte	r				%			
Iron (Fe)	73	146	Estimat	ted Soil	Texture	San	dy Loam		70			
Manganese (Mn)	26	52	Baco Se	aturatio	n 62		(2	40.6	% of F	CEC		
Copper (Cu)	1.9	3.8	Dase Sa	aturatio	02		Mø	15.2	% of F	CEC		
Boron (B)	0.2	0.4					K	5.4	% of F	CEC		
Nitrate (NO3-N)							Na	0.3	% of E	CEC		
Methods: Soil pH an Nitrate extracted with Al Comments: Unit of I	Na 0.5 76 OF ECEC Methods: Soil pH and EC in 1:2 soil-water volume mixture; nutrients other than NO3-N extracted with Mehlich-3 determined by ICAP; Nitrate extracted with Al2(SO4)3 and determined by electrode; ECEC by cation summation; organic matter by weight loss on ignition. Comments: Unit of lbs/acre assumes the sample depth represents a plow layer weighing 2 million pounds.											
Code	Name		N	P205	K20		SO4-S	Zn	В	Lime		

Code	Name	N	P205	K ₂ O	SO4-S	Zn	В	Lime	
212	Mixed Cool and Warm-Season Grass	60	40	60	0	0	0	0	lb/acre
		I							

Crop 2 Notes:

Auth acesart #106199

January 20<u>22</u> WWTP SLUDGE REMOVAL

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
1-7-22	11 miled 9 Toriks		Anderst
55.8.1	Howled 5 Touts		ande Delane
1.9.22	Hauled 1 Bed		Link Delan
1-18-26	Harland 1 Bet		Apole Ochural
1-27.22	Harled 2 Bels		Ande Ochungh
1.25.22	Hunled le Tanks		tinda Delund
			Apple Deader
		-	
		-	
		nel internet president set werden eine strategie ander som eine strategie	

Feb. 20<u>22</u> WWTP SLUDGE REMOVAL

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
2.7.27	Houled & Tuiles		Ande Oct D
2.8.22	Hadred 1 Brel		Loole Ochung
2.11.22	Hauled 1 Bed		Ande Pelane
2.14.27	Hauled & Tanks		Laste Ocherd a
2.22.27	Marlee 10 Tanks		Sude Ochar
228.22	Hauled 7 Tuntes		AndE Cithura
		-	

		=	
		7	
		-	
		1	

March 20<u>22</u> WWTP SLUDGE REMOVAL

Denaed I riden # 16 gusg

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
3-10-22	1 Bed		Apple Orcharch Pasture
3-16.22	2 Bed		Coole Ochure
			in pre Cremiter
		n	
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DATE	LOADS HAULED	CUBIC YARDS	LOCATION
4.5.27	1 Ber Hauled		A all Colored
4.9.22	2 Red Hadad		The Ochore
4.14.22	1 Bed Herled		enve Ocherce
4-26.22	1 Bed Haller		Apple Othered
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		+	
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May 20<u>22</u> WWTP SLUDGE REMOVAL

Anthe facthine # 106149

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
5-3-22	Poursed 3 BERS		
5-10-22	Poured 1 bred		
5-14-22	Hauled 1 BE-1		Airport pature
5-18.72	Howled 2 BEds		Sieport sustria
5.14.22	Harlad & Tanks		Aicrot posture
5.73.27	Hauled 2 Beds		Airport pustine
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			International sector and the sector sec

June 20<u>22</u> WWTP SLUDGE REMOVAL

I #106199 A. Jockhunt

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
6.3.22	Haule of 8 Tusks		Anat 121
6-13-62	Hadsel 2 Tents		All Called
6.29.22	Hayled & Tasts		Ante Oal
10.30.77	Hadred 1 Berl		A la Dela
			Apple Olhard
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1/4 20<u>22</u> WWTP SLUDGE REMOVAL

Althe fackburg # 106199

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
\$7-5.22	Haulsel 9 Taulos		
7.15.22	Hould b Tunks		the Ochard
7.26.22	Hadged 3 Beds		Apple Ochurch
			- Apple Other
			T
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and the second second second			

22

Agust 20<u>22</u> WWTP

Jeth Joethant # 106199

SLUDGE REMOVAL

42.522 Hankel S Bede Asole Delined 8.722 Hankel 2 Bede July Ottand 8.723 Hankel 2 Bede July Ottand 8.724 Hankel 3 Bede July Ottand 8.725 Hankel 4 Bedes Apple Delined 8.725 Hankel 4 Bedes Apple Delined 9.726 Hankel 4 Bedes Apple Delined 9.727 Hankel 4 Bedes Apple Delined 9.728 Hankel 4 Bedes Apple Delined 9.729 10.727 10.727 9.720 10.727 10.727 9.721 10.727 10.727 9.722 10.727 10.727 9.722 10.727 10.727 9.722 10.727 10.727 9.722 10.727 10.727 9.722 10.727 10.727 9.724 10.727 10.727 9.725 10.727 10.727 9.727 10.727 10.727 9.727 10.727 10.727 9.727 10.727 10.727 9.727 <th>DATE</th> <th>LOADS HAULED</th> <th>CUBIC YARDS</th> <th>LOCATION</th>	DATE	LOADS HAULED	CUBIC YARDS	LOCATION
G. Z.Z. Harled 2 Bidly Alate Detund S. Bab Harled 3, Beds Alate Detund S. Bab Harled 3, Beds Alate Detund S. Bab Harled 3, Beds Alate Detund S. Bab Harled 4, Beds Alate Detund S. Bab Harled 4, Beds Alate Detund S. Bab Harled 4, Beds Alate Detand S. Bab Stand Alate Detand	8.3.22	Hauled 3 BEds		Ande Delicinal
Y. Scat Heiled 2 Disked Staba Huded 3 Apple Ochard Stripp2 Huded 4 heds Apple Queet Huded 4 heds Apple Image: Apple Disked Apple Queet Huded 5 Apple Image: Apple Disked	8.7.22	Itauled 2 BEds		diale Polyand
Stab Holded 2, Reds Apple Deland Strong Apple Deland Strong Apple Deland Strong Apple Deland	8.9.22	Houled 2 BEds		Auto Deburch
Starting Apple Apple Ochoird) Start Apple Apple Apple Start Apple Apple Apple Start Apple Apple Apple Start Apple Apple Apple Start Start Apple Apple Start Start Start Apple Start Start Start Start Start St	8-12-22	Havled 2 Beals		Ande Ochard
	8-19-22	Hauled 4 beds		Apple Ochardh
	8.25.22	Hauled 4 heds		Ands Person
Image: Section of the section of t				apple to construct the second
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			100 million (100 million)	



DATE	LOADS HAULED	CUBIC YARDS	LOCATION
9-2-22	Hauled 3 beds		goole pickerd
9.8.22	Harled 2 beds		Josh Dehus
9.14-22	Herler Z beds		Sonto Optime ()
9.20.22	Hovied 2 beds		Ande Dechard
9-26-22	Harland 3 Beds		Apple Dehard
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Jath Tockhunt # 106199

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DATE	LOADS HAULED	CUBIC YARDS	LOCATION
111-3-22	Harlad 3 Reds		Apple Dehard
10 10.2	He lead 3 BEds		Apole Ochur
16.17.27	Haded 4 Berts		Andle Ochard
1 22 . 22	Harled Z Beds		Apple Ochard
16-27.22	Hauler 7 Tunks		Anake Ochard
11:200	Proved 3 Beds		17
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DATE	LOADS HAULED	CUBIC YARDS	LOCATION
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11.420	Held 3 Rode		doals Ochard.
11. 14.20	Helet 3 Beds		Ande Dehard
11-21-6-			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
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Arthe Jeckhant # 106199

DATE	LOADS HAULED	CUBIC YARDS	LOCATION
12.2.22	Helel 2 Reds		Anale Delard
12.5.27	Hule Z Beds		Prople Ocherch
18-12-22	Houled 2 Beds		Apple Ochurch
17.16-22	Haulad Z Beds		Apple Ocheral
11.14			
		-	
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