RENERGY

Farmer:	Thurston
Site ID:	DES-02-10
First Year of Application	2017

Date of Application	
Season	Date
2017	8/10/2017

Facility Name:	Emerald BioEnergy
NPDES #:	
NANI Month/Year:	

	Concentration (mg/kg) Dry Weight Basis	Concentration (lb/1000 gal) Liquid Application Basis	Pollutant Concentrations (monthly average limits) mg/kg	Ceiling Concentrations (maximum sample limits) mg/kg
Arsenic		0.0000	41	75
Cadmium		0.0000	39	85
Copper		0.0000	1500	4300
Lead		0.0000	300	840
Mercury		0.0000	17	57
Molybdenum		0.0000	N/A	75
Nickel		0.0000	420	420
Selenium		0.0000	100	100
Zinc		0.0000	2800	7500
Total Kjeldahl Nitrogen		0.0000	N/A	N/A
Ammonia Nitrogen		0.0000	N/A	N/A
Total Phosphorus		0.0000	N/A	N/A
Total Potassium		0.0000	N/A	N/A
Total Solids				

Ton Conversion Factor	0.0005
Specific Weight (lb/gal)	8.34
Conversion to lb/ton	0.002
Conversion to lb/1000 gal	**0.000000**

Farmer:	Thurston	Facility Name:	Emerald BioEnergy
Site ID:	DES-02-10	NPDES #:	0
First Year of Application	2017	NANI Month/Year:	January-00

	Input (ppm)	lbs/1000 gal
TKN	0	***0.0***
Ammonia	0	***0.0***
Phosphorus	0	***0.0***
Potassium	0	***0.0***

Ton Conversion Factor	0.0005
Specific Weight (lb/gal)	8.34
Conversion to lb/ton	0.002
Percent Solids	0.00%
Conversion to lb/1000 gal	**0.000000**

Site Acreage:	
Target Application Rate (gal/Acre)	10,000
Total Gallons Applied	
Actual Application Rate (gal/Acre)	#DIV/0!
PAN (lbs/acre)	#DIV/0!
P (lbs/acre)	#DIV/0!
K (lbs/acre)	#DIV/0!
Total Dry Tons	#DIV/0!
Dry Ton per Acre	#DIV/0!

Plant Available Nitrogen

	lb/1000 gal
TKN	0.0
Ammonia	0.0
Organic	0.0

Surface Application*	
	lb/1000 gal
Ammonia	0.0
Organic**	0.0
PAN	**0.0**

*Assume 50% of Ammonia volatilizes during surface application

**Assume 30% of Organic Nitrogen is available for plant uptake

Injection***	
	lb/1000 gal
Ammonia	0.0
Organic	0.0
PAN	**0.0**

***For calculations assume 100% of ammonia is available for plant uptake. After application actual availability will be evaluated based on material's exposure to atmosphere after injection.

Estimation of availability will be no less than 85%.

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First Year of Application	2017	NANI Month/Year:	January-00

Site Acreage:	0
Target Application Rate (gal/Acre)	10,000
Total Gallons Applied	0
Actual Application Rate (gal/Acre)	#DIV/0!

	Concentration (mg/kg) Dry Weight Basis	Concentration (lb/1000 gal) Liquid Application Basis
Arsenic	0	0.0000
Cadmium	0	0.0000
Copper	0	0.0000
Lead	0	0.0000
Mercury	0	0.0000
Molybdenum	0	0.0000
Nickel	0	0.0000
Selenium	0	0.0000
Zinc	0	0.0000
Total Solids	0.00%	

Ton Conversion Factor	0.0005
Specific Weight (lb/gal)	8.34
Conversion to lb/ton	0.002
Conversion to lb/1000 gal	**0.000000**

	Metals Loading lb/acre	Federal Site Lifetime Limits (lb/Acre)	Estimated Site Lifetime (years)
Arsenic	#DIV/0!	36.6	#DIV/0!
Cadmium	#DIV/0!	34.8	#DIV/0!
Copper	#DIV/0!	1338.6	#DIV/0!
Lead	#DIV/0!	267.7	#DIV/0!
Mercury	#DIV/0!	15.2	#DIV/0!
Molybdenum	#DIV/0!	16.1	#DIV/0!
Nickel	#DIV/0!	374.8	#DIV/0!
Selenium	#DIV/0!	89.2	#DIV/0!
Zinc	#DIV/0!	2498.7	#DIV/0!

OEPA Applied Annual Metals Loading Records

Year of Application	Season of Application	NANI Used	Applied Arsenic (lbs/ac)	Applied Cadmium (lbs/ac)	Applied Copper (lbs/ac)	Applied Lead (lbs/ac)	Applied Mercury (lbs/ac)	Applied Molybdenum (lbs/ac)	Applied Nickel (lbs/ac)	Applied Selenium (lbs/ac)	Applied Zinc (lbs/ac)
2016											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											
To Date Metals Loading Sum (lbs/ac):			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remaining Metals Loading Capacity (lbs/ac):			36.600	34.800	1338.600	267.700	15.200	16.100	374.800	89.200	2498.700
Cummulative Metals Limit (lbs/ac):			36.60	34.80	1338.60	267.70	15.20	16.10	374.80	89.20	2498.70
Estimated Site Lifetime (Years):			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Spring/summer/fall/winter month

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First Year of Application	2017	NANI Month/Year:	January-00

	lbs/ac	$/ac	Total Savings
PAN	#DIV/0!	#DIV/0!	#DIV/0!
P2O5	#DIV/0!	#DIV/0!	#DIV/0!
K2O	#DIV/0!	#DIV/0!	#DIV/0!

Site Acreage	
Savings per Acre	**#DIV/0!**
Overall Savings	**#DIV/0!**

Assumptions and Constants

$ per pound of N = $0.55
$ per pound of P = $0.60
$ per pound of K = $0.60