RENERGY

Farmer:	AR-50
Site ID:	GRO-01-03
First Year of Application	2014

Date of Application	
Season	Date
2014	9/15/2014
	9/16/2014
	9/18/2014
	9/19/2014
	9/26/2014
	9/29/2014
	9/30/2014
2015	5/19/2015
2016	5/22/2016
	12/4/2016
	12/29/2016

Facility Name:	Dovetail Energy
NPDES #:	1IN00305*AD
NANI Month/Year:	December-16

	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	9	0.0049	41	75
Cadmium	1	0.0005	39	85
Copper	390	0.2108	1500	4300
Lead	6	0.0032	300	840
Mercury	0.03	0.0000	17	57
Molybdenum	9	0.0049	N/A	75
Nickel	16	0.0086	420	420
Selenium	4	0.0022	100	100
Zinc	580	0.3135	2800	7500
Total Kjeldahl Nitrogen	99,800	53.9351	N/A	N/A
Ammonia Nitrogen	58,400	31.5612	N/A	N/A
Total Phosphorus	34,600	18.6989	N/A	N/A
Total Potassium	12,900	6.9716	N/A	N/A
Total Solids	6.48%			

Ton Conversion Factor	0.0005
Specific Weight (lb/gal)	8.34
Conversion to lb/ton	0.002
Conversion to lb/1000 gal	**0.000540**

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Site ID:	GRQ-01-03	NPDES #:	1IN00305*AD
First Year of Application	2014	NANI Month/Year:	December-16

	Input (ppm)	lbs/1000 gal
TKN	99,800	***53.9***
Ammonia	58,400	***31.6***
Phosphorus	78,888	***42.6***
Potassium	15,480	***8.4***

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Percent Solids	6.48%
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Site Acreage:	46
Target Application Rate (gal/Acre)	10,000
Total Gallons Applied	589,409
Actual Application Rate (gal/Acre)	12,841
PAN (lbs/acre)	**491.47**
P (lbs/acre)	**547.46**
K (lbs/acre)	**107.43**
Total Dry Tons	**159.3**
Dry Ton per Acre	**3.5**

Plant Available Nitrogen

	lb/1000 gal
TKN	53.9
Ammonia	31.6
Organic	22.4

Surface Application*	
	lb/1000 gal
Ammonia	15.8
Organic**	6.7
PAN	**22.5**

*Assume 50% of Ammonia volatilizes during surface application

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

Injection***	
	lb/1000 gal
Ammonia	31.6
Organic	6.7
PAN	**38.3**

***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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	Metals Loading lb/acre	Federal Site Lifetime Limits (lb/Acre)	Estimated Site Lifetime (years)
Arsenic	0.062	36.6	586
Cadmium	0.007	34.8	5015
Copper	2.707	1338.6	495
Lead	0.042	267.7	6429
Mercury	0.000	15.2	73009
Molybdenum	0.062	16.1	258
Nickel	0.111	374.8	3375
Selenium	0.028	89.2	3213
Zinc	4.025	2498.7	621

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)
2014	Spring	September-14	0.009	0.004	0.382	0.022	0.000	0.027	0.031	0.007	1.345
2015	Summer	May-15	0.024	0.008	1.885	0.040	0.003	0.048	0.104	0.024	3.123
2016	Summer	May-16	0.072	0.011	2.471	0.039	0.000	0.061	0.100	0.039	4.630
2016	Fall	December-16	0.062	0.007	2.707	0.042	0.000	0.062	0.111	0.028	4.025
2017											
2018											
2019											
2020											
2021											
2022											
To Date Metals Loading Sum (lbs/ac):			0.168	0.030	7.444	0.143	0.004	0.198	0.346	0.097	13.123
Remaining Metals Loading Capacity (lbs/ac):			36.432	34.770	1331.156	267.557	15.196	15.902	374.454	89.103	2485.577
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):			688	4003	565	6660	13090	278	3566	2948	633

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Site ID:	GRQ-01-03	NPDES #:	1IN00305*AD
First Year of Application	2014	NANI Month/Year:	December-16

	lbs/ac	$/ac	Total Savings
PAN	491.47	$ 270.31	$ 57,170.78
P2O5	547.46	$ 328.48	$ 69,473.26
K2O	107.43	$ 64.46	$ 13,632.57

Site Acreage	211.5
Savings per Acre	**$ 663.25**
Overall Savings	**$140,276.61**

Assumptions and Constants

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