RENERGY

Farmer:	ARH-22
Site ID:	GRO-01-14
First Year of Application	2015

Date of Application	
Season	Date
2015	5/28/2015
2016	4/17/2016
	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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First Year of Application	2015	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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Conversion to lb/ton	0.002
Percent Solids	6.48%
Conversion to lb/1000 gal	**0.000540**

Site Acreage:	21
Target Application Rate (gal/Acre)	10,000
Total Gallons Applied	266,016
Actual Application Rate (gal/Acre)	12,851
PAN (lbs/acre)	**491.85**
P (lbs/acre)	**547.89**
K (lbs/acre)	**107.51**
Total Dry Tons	**71.9**
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	0.063	36.6	586
Cadmium	0.007	34.8	5011
Copper	2.709	1338.6	494
Lead	0.042	267.7	6424
Mercury	0.000	15.2	72953
Molybdenum	0.063	16.1	258
Nickel	0.111	374.8	3373
Selenium	0.028	89.2	3211
Zinc	4.028	2498.7	620

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	March-14	0.004	0.002	0.405	0.100	0.000	0.030	0.034	0.002	0.978
2015	Spring	May-15	0.023	0.008	1.812	0.038	0.003	0.046	0.100	0.023	3.002
2016	Spring	April-16	0.074	0.007	2.826	0.052	0.000	0.052	0.126	0.037	4.368
2016	Fall	December-16	0.063	0.007	2.709	0.042	0.000	0.063	0.111	0.028	4.028
2017											
2018											
2019											
2020											
2021											
2022											
To Date Metals Loading Sum (lbs/ac):			0.164	0.024	7.752	0.232	0.003	0.191	0.371	0.090	12.377
Remaining Metals Loading Capacity (lbs/ac):			36.436	34.776	1330.848	267.468	15.197	15.909	374.429	89.110	2486.323
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):			685	4825	543	6076	13582	297	3334	3044	654

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Site ID:	GRQ-01-14	NPDES #:	1IN00305*AD
First Year of Application	2015	NANI Month/Year:	December-16

	lbs/ac	$/ac	Total Savings
PAN	491.85	$ 270.52	$ 57,214.68
P2O5	547.89	$ 328.73	$ 69,526.61
K2O	107.51	$ 64.51	$ 13,643.04

Site Acreage	211.5
Savings per Acre	**$ 663.76**
Overall Savings	**$140,384.32**

Assumptions and Constants

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