

TCEQ

Attachment D

Quarterly Sludge Summary Report Form

- Note 1: If your site has more than one land application field, please submit a separate form for each field.
- Note 2: Please place this sheet at the top of your Quarterly Sludge Report.
- Note 3: If you have more than one permitted site, then fill-out this form for each one of those sites.
- Note 4: Please send a copy of this sheet and all attachments to the local TCEQ regional office.

For TCEQ Quarter 3rd Reporting period from 9/1/13, to, 8/31/2014

PERMIT NO.: WQ 000 4447000 DATE: 6/3/14

NAME OF PERMITTEE: K-3 Resources, LP

MAILING ADDRESS: PO Box 2236
Alvin, TX 77512

CONTACT PERSON: Name: Charles E. Pehl Telephone No: 281-585-2817

Field No: _____ (Submit separate form for each field, if site has two or more fields)

- Class B Sewage Sludge Land Applied : 38.36 dry tons / quarter
 - Treated Domestic Septage - Land Applied : 0.0 gallons / quarter
 - Method used to treat Domestic Septage: N/A
 - Water Treatment Plant Sludge - Land Applied: 0.0 dry tons /quarter
 - Class A sludge land applied : 0.0 dry tons / quarter
- a. Acreage used for Sludge Application/disposal at this site:- 89.78 acres
- b. Site Vegetation (such as grass type etc) and # of cuttings:- Bermuda grass, 10 ton/AC 4-bb cuttings
- c. Does any of the sludge you have generated or received: NOT MEET concentration limits for any of the metals listed in Table 3 of "30 TAC §312.43 (b)"? Yes _____ No ✓
- d. Site location: Latitude: N 29° 54' 05", Longitude: W 95° 57' 28"
- e. Site physical address: west side of SH 362, Waller Co. Texas

Please attach the information regarding the following items (Sewage Sludge only):-

- * Please note the following information shall be provided in computer generated report format:
- * Please place check mark before each item below to indicate you have attached that item with this report.

1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source.
2. Provide a list containing the name and permit number of each source of sludge.
3. Date of delivery of each load of sludge land applied.
4. Date of land application of each load of sludge.
5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC §312.43 (b)"?
6. The suggested agronomic rate for the class B sludge.

PLEASE MAIL THE COMPLETED REPORT TO :

Texas Commission on Environmental Quality
Municipal Permits Team (MC 148)
Wastewater Permitting Section
P.O. Box 13087
Austin, TX 78711-3087



Land Application Manifest Summary By Site

<Application Date Range: 03/01/2014 - 05/31/2014>

TCEQ # 22430

Site Type: Land Application
Permit No: WQ0004447000
Site Name: Carl Miller Farms 3 RN102643384
Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Delivery Date	Time	Manifest	Generator	Liquid Gallons	Cake Yards	Percent Solids	Dry Tons	Dry Metric Tons	Field #	Acres Land Use	Appl. Date
03/13/2014	11:40 AM	153791	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	01:15 PM	153792	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	03:15 PM	154970	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	12:00 PM	155896	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	01:30 PM	155897	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	03:00 PM	155898	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	08:45 PM	155899	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	08:30 AM	156530	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	10:00 AM	156531	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	11:30 AM	156532	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	01:00 PM	156533	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	02:30 PM	156534	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/13/2014	04:00 PM	156535	HC MUD 71	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	03/13/2014
03/14/2014	05:30 PM	156540	Northwest Freeway	6,500		2.50	0.677625	0.614606	1	89.78 Hay/Pasture	03/14/2014
03/14/2014	05:30 PM	157085	Northwest Freeway	6,500		2.50	0.677625	0.614606	1	89.78 Hay/Pasture	03/14/2014
03/14/2014	06:00 PM	157111	Northwest Freeway	6,500		2.50	0.677625	0.614606	1	89.78 Hay/Pasture	03/14/2014
03/17/2014	12:45 PM	154980	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	02:30 PM	154981	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	04:15 PM	154982	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	06:00 PM	154983	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	12:15 PM	155967	Rayford Road MUD	6,500		1.20	0.325260	0.295011	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	02:45 PM	155968	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	02:00 PM	156078	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	03:45 PM	156079	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	05:15 PM	156080	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	07:15 PM	156517	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	10:30 AM	157087	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	12:00 PM	157088	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	01:30 PM	157089	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	03:15 PM	157090	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	05:00 PM	157091	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	06:30 PM	157092	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014



Land Application Manifest Summary By Site

<Application Date Range: 03/01/2014 - 05/31/2014>

TCEQ # 22430

Site Type: Land Application
Permit No: WQ0004447000
Site Name: Carl Miller Farms 3 RN102643384
Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Delivery Date	Time	Manifest	Generator	Liquid Gallons	Cake Yards	Percent Solids	Dry Tons	Dry Metric Tons	Field #	Acres Land Use	Appl. Date
03/17/2014	07:00 PM	157165	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/17/2014	09:15 AM	157224	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/17/2014
03/18/2014	08:45 AM	155969	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/18/2014
03/18/2014	11:45 AM	155970	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/18/2014
03/18/2014	11:30 AM	157225	Westlake	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/18/2014
03/18/2014	02:30 PM	157226	North Park	6,500		1.50	0.406575	0.368764	1	89.78 Hay/Pasture	03/18/2014
03/25/2014	05:45 PM	156497	Greentrails	6,500		1.10	0.298155	0.270427	1	89.78 Hay/Pasture	03/25/2014
03/25/2014	06:30 PM	156596	Greentrails	6,500		1.10	0.298155	0.270427	1	89.78 Hay/Pasture	03/25/2014
03/25/2014	05:30 PM	156618	Greentrails	6,500		1.10	0.298155	0.270427	1	89.78 Hay/Pasture	03/25/2014
03/25/2014	06:30 PM	156823	Greentrails	6,500		1.10	0.298155	0.270427	1	89.78 Hay/Pasture	03/25/2014
03/25/2014	11:15 AM	157218	Greentrails	6,500		1.10	0.298155	0.270427	1	89.78 Hay/Pasture	03/25/2014
04/14/2014	08:30 AM	155324	Hunters Glen	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	04/14/2014
04/14/2014	10:30 AM	155859	Hunters Glen	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	04/14/2014
04/14/2014	08:00 AM	157559	Hunters Glen	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	04/14/2014
04/14/2014	12:00 PM	157560	Hunters Glen	6,500		1.40	0.379470	0.344179	1	89.78 Hay/Pasture	04/14/2014
04/15/2014	01:45 PM	156544	Galveston Co. 12	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	04:45 PM	156545	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	09:30 AM	157580	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	04:00 PM	157587	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	03:00 PM	157604	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	01:00 PM	157624	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	04:15 PM	157625	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	11:15 AM	157741	HC MUD 36	6,500		1.00	0.271050	0.245842	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	02:00 PM	157742	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	05:15 PM	157743	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	09:00 AM	158011	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	11:30 AM	158012	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	02:15 PM	158013	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	06:00 PM	158014	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	12:00 PM	158034	HC MUD 36	6,500		1.00	0.271050	0.245842	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	03:10 PM	158035	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014
04/15/2014	12:30 PM	158141	FB 162	6,500		0.70	0.189735	0.172090	1	89.78 Hay/Pasture	04/15/2014



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TCEQ # 22430

Site Type: Land Application
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Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Delivery Date	Time	Manifest	Generator	Liquid Gallons	Cake Yards	Percent Solids	Dry Tons	Dry Metric Tons	Field #	Acres	Land Use	Appl. Date
04/15/2014	03:30 PM	158142	FB 162	6,500		0.70	0.189735	0.172090	1	89.78	Hay/Pasture	04/15/2014
04/16/2014	10:15 AM	156546	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	12:30 PM	157589	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	03:15 PM	157590	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	06:00 PM	157591	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	11:15 AM	157606	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	02:15 PM	157607	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	05:15 PM	157608	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	03:00 PM	157627	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	05:30 PM	157628	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	07:00 AM	157629	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	09:30 AM	157630	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	12:00 PM	158036	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	01:30 PM	158037	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	03:45 PM	158038	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	07:15 AM	158039	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	09:45 AM	158040	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	10:00 AM	158143	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	12:45 PM	158144	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	03:30 PM	158145	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/16/2014	06:30 PM	158146	FB 152	6,500		1.10	0.298155	0.270427	1	89.78	Hay/Pasture	04/16/2014
04/17/2014	12:00 PM	157631	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	02:30 PM	157632	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	05:00 PM	157633	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	10:45 AM	157661	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	01:00 PM	157662	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	03:30 PM	157663	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	04:00 PM	157754	HC MUD 58	6,500		2.28	0.617994	0.560521	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	09:30 AM	158051	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	12:30 PM	158052	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	03:00 PM	158053	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	06:30 PM	158054	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014



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TCEQ # 22430

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Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Delivery Date	Time	Manifest	Generator	Liquid Gallons	Cake Yards	Percent Solids	Dry Tons	Dry Metric Tons	Field #	Acres	Land Use	Appl. Date
04/17/2014	09:00 AM	158111	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	12:00 PM	158112	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	02:00 PM	158113	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	05:30 PM	158114	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/17/2014	04:00 PM	158147	Blue Ridge	6,500		2.00	0.542100	0.491685	1	89.78	Hay/Pasture	04/17/2014
04/18/2014	07:45 AM	157613	San Jacinto	6,500		2.28	0.617994	0.560521	1	89.78	Hay/Pasture	04/18/2014
04/18/2014	08:00 AM	157755	San Jacinto	6,500		2.28	0.617994	0.560521	1	89.78	Hay/Pasture	04/18/2014
Site Total				669,500	0		38.364417	34.796553				

Appendix A
Agronomic Rate Calculations

TCEQ 04447

Part 1: Biosolids Application Rate

9/1/2013 to 5/31/2014

Step 1- CALCULATE QUANTITY OF NUTRIENTS & METALS IN POUNDS PER TON.

Nutrients	Percent	Conversion Factor	Pounds per ton
Total Nitrogen (TKN)	4.37	x 20 =	87.4
Ammonium Nitrogen (NH4)	0.44	x 20 =	8.8
Nitrate Nitrogen (NO3)	0.23	x 20 =	4.6
Total Phosphorus (P)	1.11	x 20 =	22.2
Total Potassium (K)	0.37	x 20 =	7.4

Pollutants (mg/kg x 0.002 = lb./ton)	mg/kg*	Conversion Factor	lb./ton
Total Arsenic (As)	5.93	x 0.002 =	0.01186
Total Cadmium (Cd)	1.66	x 0.002 =	0.00332
Total Chromium (Cr)	17.95	x 0.002 =	0.0359
Total Copper (Cu)	448.3	x 0.002 =	0.8966
Total Lead (Pb)	14.91	x 0.002 =	0.02982
Total Mercury (Hg)	0.59	x 0.002 =	0.00118
Total Molybdenum (Mo)	9.33	x 0.002 =	0.01866
Total Nickel (Ni)	12.6	x 0.002 =	0.0252
Total Selenium (Se)	8.31	x 0.002 =	0.01662
Total Zinc (Zn)	819.61	x 0.002 =	1.63922

* Values from sludge tests (dry weight)

(Conversion: mg/kg x 0.0001 = %; PPM = mg/kg)

**Appendix A
Agronomic Rate Calculations**

TCEQ 04447

Step 2.- SOIL TEST ANALYSIS AND FERTILIZER RECOMMENDATIONS

Note: Please include fertilizer recommendation from the local County Extension Service or equivalent source for determining the nitrogen need for the specific crop(s)

Intended Crop(s): Bermudagrass and native pasture grasses

Yield Goal(s): 10 tons/ac in 4 to 6 cuttings.

pH: 7.0

	<u>N lb/ac</u>
A. Crop nutrient need for specific yield goal**	<u>500</u>
B. Nutrients available in soil	<u>209.2</u>
= 2 x NO3-N (ppm)(0-6" soil depth)+ 6 x NO3-N(ppm)(6-24" soil depth)	
C. Nutrient amount still needed: (A -B) (enter this amount in step 4A.)	<u>290.8</u>

** Crop nutrient need is based on 50 lb.N/ton of forage, Texas Agriculture Extension Service, Fertilizing Summer Perennial Pastures, Publication I-2210.

Step 3 - CALCULATE THE PLANT AVAILABLE NITROGEN (PAN) PROVIDED BY THE SLUDGE.

(Use the values for Total N, NH4-N and NO3-N from Step 1)

	<u>%</u>	<u>lb./ton</u>
A. Organic-N = Total N-(NH ₄ -N+NO ₃ -N)	<u>3.7</u>	<u>74</u>
B. Ammonium Nitrogen (NH ₄ -N)	<u>0.44</u>	<u>8.8</u>
C. Nitrate Nitrogen (NO ₃ -N)	<u>0.23</u>	<u>4.6</u>
D.Total PAN = (0.3 x 3A) + (0.5 x 3B) + 3C =	<u>1.78</u>	<u>31.2</u>

Step 4. CALCULATE MAXIMUM SLUDGE APPLICATION RATE FROM CROP NITROGEN NEED (BARN):

A. Enter amount from Step 2. Nitrogen amount still needed:	<u>290.8</u>	<i>lb./ac./yr</i>
B. Enter amount from Step 3D. Total PAN in sludge	<u>31.2</u>	<i>lb./ton</i>
C. Sludge application rate(SARN)	<u>9.32</u>	<i>ton/ac./yr</i>

Agronomic Rate Calculations

Step 5 - CALCULATE MAXIMUM SLUDGE APPLICATION RATE BASED ON METALS (SARM).

	A	B	C	D	E	F
	Cumulative Metal Limits (lb./ac.)	Max Metal Loading/yr (lb./ac./yr)	Metals in Sludge (lb./ton)	Metals Applied Annually at SARN (lb./ac./yr)	Metals Applied Annually at SARM (lb./ac./yr)	Max Sludge Loading Rate (ton/ac.)
Pollutants	<i>Appendix C</i>	<i>Appendix C</i>	<i>(Step 1)</i>	<i>C x SARN</i>	<i>B/C</i>	<i>A/C</i>
Arsenic	36	1.8	0.01186	0.110541282	0.110541282	3035.413153
Cadmium	35	1.7	0.00332	0.030944103	0.030944103	10542.16867
Chromium	2677	134	0.0359	0.33460641	0.33460641	74568.24513
Copper	1339	67	0.8966	8.356771795	8.356771795	1493.419585
Lead	268	13	0.02982	0.277937692	0.277937692	8987.256875
Mercury	15	0.76	0.00118	0.010998205	0.010998205	12711.86441
Molybdenum	Monitor	Monitor				
Nickel	375	18.7	0.0252	0.234876923	0.234876923	14880.95238
Selenium	89	4.5	0.01662	0.154906923	0.154906923	5354.993983
Zinc	2500	125	1.63922	15.27837103	15.27837103	1525.115604
Other						

If value in column B > D use nitrogen for biosolids application rate.

If value in column B < D use pollutant for biosolids application rate.

Step 6. CALCULATE SITE LIFE AND MAXIMUM APPLICATION RATE BASED ON CUMULATIVE LOADING OF NITROGEN OR LIMITING METAL(S).

A. Maximum allowable cumulative biosolids loading rate:	<u>1525.12</u>	<i>tons/acre</i>
B. Previous application of biosolids:	<u>6.24</u>	<i>tons/acre</i>
C. Remaining biosolids application rate to reach metal limits:	<u>1518.88</u>	<i>tons/acre</i>
D. Maximum allowable biosolids application rate:	<u>9.32</u>	<i>tons/acre/yr</i>
E. Years remaining to reach the maximum cumulative loading:	<u>163</u>	<i>years</i>

Biosolids Management

Application Rate Report By Site

<Date Range: 09/01/2013 - 05/31/2014>

TCEQ # 22430

Permit No.: WQ0004447000

Site ID: 04447

Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Generator	Dry Tons	Lbs/Acre	Lbs/Ton	Lbs														
				Arsenic	Cadium	Chromium	Copper	Lead	Mercury	Moly	Nickel	Selenium	Zinc	Phos	Potas	TKN	A-Nit	N-Nit
Beacon Estates	0.46	0.03	7.46	0.01	0.00	0.02	0.09	0.01	0.00	0.00	0.01	0.00	0.65	1.28	0.18	1.00	0.09	0.09
Bellville, City of	3.69	4.22	102.75	0.02	0.01	0.15	3.40	0.42	0.01	0.04	0.15	0.05	9.72	70.09	8.85	282.58	1.48	2.21
Blue Ridge	13.51	30.41	202.12	0.10	0.10	0.51	11.23	0.31	0.02	0.41	0.51	0.31	25.24	127.03	154.06	2327.06	32.43	51.35
Brookshire WWTP	7.75	9.22	106.81	0.07	0.05	0.65	5.61	0.90	0.01	0.14	0.39	0.02	18.45	272.87	82.17	392.25	38.76	15.50
Chelford City	34.11	1.24	3.28	0.31	0.12	0.93	10.34	0.15	0.01	0.93	0.39	0.46	64.19	6.82	6.82	6.82	6.82	6.82
Cinco Central	10.06	15.35	137.06	0.05	0.00	0.16	2.64	0.04	0.01	0.07	0.10	0.06	3.02	146.93	48.31	1012.44	165.05	0.00
Cinco Southwest	23.80	45.32	170.98	0.05	0.01	0.19	4.28	0.08	0.01	0.15	0.18	0.13	8.95	280.84	104.72	2989.28	371.28	309.40
Eagle Lake WWTP	2.52	1.27	45.29	0.04	0.01	0.15	2.01	0.28	0.01	0.04	0.14	0.09	5.18	79.00	22.14	4.53	0.50	0.00
FB 106	5.20	0.74	12.94	0.27	0.07	0.21	5.58	0.16	0.01	0.25	0.21	0.27	10.30	18.74	1.04	28.10	1.04	1.04
FB 152	5.96	5.19	78.20	0.06	0.06	0.11	3.54	0.06	0.01	0.11	0.11	0.29	8.56	133.57	147.88	137.15	5.96	28.62
FB 162	2.85	3.11	98.27	0.04	0.04	0.13	0.94	0.04	0.01	0.09	0.18	0.18	4.07	68.30	53.51	105.30	22.77	24.48
FB 30	4.84	14.45	268.12	0.04	0.01	0.16	2.67	0.04	0.01	0.05	0.09	0.07	8.13	114.22	35.82	1074.46	61.95	0.00
FB MUD 34 (2)	11.90	20.61	155.51	0.09	0.02	0.31	9.38	0.16	0.04	0.17	0.31	0.18	50.22	364.14	57.12	1289.96	76.16	2.38
Galveston Co. 12	0.19	0.27	130.30	0.00	0.00	0.01	0.12	0.02	0.00	0.01	0.01	0.00	0.26	2.28	1.02	17.80	2.66	0.57
Greentrails	1.49	2.70	163.14	0.04	0.00	0.03	1.67	0.04	0.02	0.03	0.03	0.02	1.79	38.76	16.70	175.91	7.45	0.60
HC 238	10.19	0.44	3.94	0.17	0.08	0.42	6.28	0.25	0.02	0.17	0.25	0.17	20.20	4.08	2.04	2.04	2.04	2.04
HC 345	6.34	20.69	293.01	0.13	0.01	0.14	7.36	0.12	0.00	0.24	0.12	0.09	11.42	1255.83	46.94	494.72	39.32	1.27
HC 358 Fairfield Vil	19.04	60.84	286.88	0.47	0.03	0.57	79.97	0.46	0.03	0.38	0.46	0.46	36.94	952.00	342.72	3427.20	609.28	11.42
HC 432	1.49	1.72	104.06	0.01	0.00	0.02	0.43	0.02	0.00	0.01	0.01	0.01	1.60	7.16	18.19	113.90	12.22	1.49
HC MUD 200	2.13	6.16	260.02	0.01	0.00	0.04	0.94	0.03	0.00	0.03	0.06	0.02	1.93	106.68	36.55	359.13	48.03	0.43
HC MUD 26	6.91	15.41	200.34	0.04	0.01	0.25	2.24	0.12	0.00	0.08	0.13	0.13	7.04	252.77	93.93	761.07	70.44	196.14
HC MUD 36	0.54	1.34	223.10	0.00	0.00	0.01	0.37	0.01	0.00	0.01	0.01	0.00	0.58	20.60	6.61	67.87	9.00	15.40
HC MUD 58	0.62	1.22	176.93	0.03	0.00	0.02	0.30	0.02	0.00	0.01	0.02	0.01	3.11	21.63	3.58	70.33	10.51	0.12
HC MUD 71	4.93	7.17	130.57	0.04	0.03	0.28	3.16	0.48	0.02	0.17	0.20	0.03	6.89	59.20	26.64	462.73	69.06	14.80
HC WCID 109	2.57	0.18	6.50	0.02	0.01	0.11	1.72	0.14	0.00	0.04	0.11	0.02	5.29	0.51	0.51	3.59	1.03	3.59
Hunters Glen	1.52	2.28	134.81	0.01	0.00	0.06	0.67	0.03	0.00	0.02	0.03	0.03	2.50	40.68	12.75	119.91	10.93	17.30
Langham Creek	6.19	12.68	183.98	0.04	0.02	0.20	5.32	0.20	0.00	0.11	0.15	0.07	11.51	173.26	64.36	841.57	37.13	4.95
North Park	0.81	1.22	136.32	0.01	0.00	0.03	0.65	0.02	0.00	0.01	0.03	0.01	1.35	32.85	8.94	60.99	5.37	0.16
Northwest Freeway MU	2.03	2.05	90.98	0.02	0.01	0.05	1.07	0.06	0.00	0.02	0.05	0.04	3.28	45.13	23.99	88.23	22.36	0.41
NWHC 21- 23	4.64	5.34	103.43	0.03	0.01	0.17	2.61	0.12	0.00	0.07	0.13	0.06	7.09	173.57	47.34	195.85	51.98	0.93
Pecan Grove Wastewat	2.98	1.10	33.42	0.05	0.01	0.18	3.37	0.17	0.00	0.03	0.08	0.04	5.84	10.71	13.69	47.01	0.60	17.85
Pecan Grove Water Tr	2.99	0.04	1.35	0.22	0.01	0.13	0.15	0.00	0.00	0.00	0.12	0.00	0.42	0.60	0.60	0.60	0.60	0.60
Ponderosa JPA	7.60	16.08	189.98	0.02	0.01	0.06	1.27	0.12	0.01	0.03	0.08	0.03	4.48	130.70	42.55	1115.53	86.63	62.31
Rayford Road MUD	0.33	0.57	155.28	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.15	3.25	0.98	40.20	4.68	1.89
Richmond Regional WW	6.61	2.61	35.45	0.03	0.02	1.02	10.23	0.45	0.00	0.14	0.25	0.05	14.59	23.79	35.69	136.16	7.93	3.97
Rosenberg (1-A)	2.81	3.71	118.77	0.17	0.01	0.14	2.57	0.31	0.01	0.04	0.08	0.04	5.56	0.00	15.15	307.43	0.56	1.68
San Jacinto Elementa	1.24	1.79	130.06	0.01	0.01	0.07	0.79	0.12	0.00	0.04	0.05	0.01	1.73	14.83	6.67	115.94	17.30	3.71
Sealy, City of	1.70	2.57	136.14	0.02	0.01	0.10	1.24	0.13	0.00	0.03	0.08	0.03	1.67	54.40	7.14	142.80	23.80	0.00
Tomball North WWTP	3.71	6.35	153.81	0.02	0.01	0.16	6.03	0.17	0.00	0.11	0.10	0.07	6.58	111.18	12.60	406.18	27.42	0.00
Tomball South WWTP	5.34	9.62	161.86	0.01	0.01	0.24	13.67	0.14	0.01	0.09	0.12	0.43	7.31	127.04	21.35	649.10	39.50	5.34

Application Rate Report By Site

<Date Range: 09/01/2013 - 05/31/2014>

TCEQ # 22430

Permit No.: WQ0004447000

Site ID: 04447

Address: Lat: 29 degrees 54' 5.41"N Lon: 95 degrees 57' 28.05"W Quality: Class B

Generator	Dry Tons	Lbs/ Acre	Lbs/ Ton	Lbs														
				Arsenic	Cadium	Chromium	Copper	Lead	Mercury	Moly	Nickel	Selenium	Zinc	Phos	Potas	TKN	A-Nit	N-Nit
Waller WWTP	2.44	4.70	173.21	0.02	0.00	0.10	2.83	0.63	0.01	0.04	0.11	0.03	4.66	72.21	28.30	299.08	14.64	0.00
Westlake	8.13	11.42	126.14	0.12	0.01	0.60	4.72	0.18	0.01	0.11	0.16	0.09	12.85	195.16	69.93	666.78	66.68	8.13
Williamsburg	12.14	26.01	192.40	0.12	0.01	0.27	6.78	0.29	0.01	0.20	0.63	0.19	15.32	119.00	148.15	1559.17	143.29	342.43
Willow Creek Farms W	2.03	2.95	130.67	0.02	0.01	0.11	1.30	0.20	0.01	0.07	0.08	0.01	2.84	24.39	10.98	190.68	28.46	6.10
Total	258.33	382.62	132.97	3.06	0.86	9.27	231.62	7.70	0.31	4.82	6.51	4.30	423.46	5758.09	1889.19	22590.40	2255.19	1167.52
Weighted Test Data				5.93	1.66	17.95	448.30	14.91	0.59	9.33	12.60	8.31	819.61	1.11	0.37	4.37	0.44	0.23

**Facilities Approved
by TCEQ for
Land Application**

Date: 05/31/2014

Facility Name	Permit Number	Approval Date
BMI Lime Stabilization Facility	4364	3/3/2004
BMI Lime Stabilization Facility	4538	7/26/2004
Addicks	11696-002	2/4/2003
Aldine Jr High	12072-001	2/4/2003
Arcola, City of	13362-001	1/26/2006
Bacliff	10627-001	2/4/2003
Bay View, City of	10770-001	8/22/2012
Bellville, City of	10385-002	3/3/2004
BC1	12332-001	2/4/2003
BC 31	14546-001	12/2/2011
Bernard Timbers WSC	12097-001	7/26/2004
Bilma	12025-001	1/26/2006
Blue Ridge	11553-001	2/4/2003
Burton, City	12193001	3/4/2014
Carby MHP	14217-001	1/12/2005
Castlewood	11883-001	2/4/2003
Chelford City	14418-001	7/24/2013
Cinco Central	13558-001	2/4/2003
Cinco South	13172-002	2/4/2003
Cinco Southwest	14343-001	12/2/2011
Copperfield	11947-001	2/4/2003
Crosby	11388-001	2/4/2003
Cy-Klein	11366-001	3/3/2004
Durkee Manor	10419-001	3/3/2004
Dynamics Products	11841-001	10/21/2005
Emerson EST	14285-001	12/10/2004
Fairgreen	11791-001	2/4/2003
Fondren (HC WCID) Road	10570-001	2/4/2003
Fort Bend 25	12003-001	4/29/2003
Fort Bend 26	12073-001	3/3/2004
Fort Bend 30	12068-001	3/08/2012
Fort Bend 37	12370-001	2/4/2003
Fort Bend 81	13051-002	2/4/2003
Fort Bend 106	12356-001	2/4/2003
Fort Bend 116	13976-001	2/4/2003
Fort Bend 142	14408-001	3/29/2007
Fry Road	11989-001	10/21/2005
Grantham	12070-002	2/4/2003
Greentrails	12289-001	2/4/2003
Harris County Detention Center (HCDC)	13561-001	11/7/2006
Harris County Juvenile Boot Camp (HCBC)	13921-001	12/10/2004
HC/FB 1	12805-001	2/4/2003
HC 8	11727-001	4/29/2013
HCFWSD 6	10184-001	3/3/2004
HC FWSD 58	11941-001	2/4/2003
HC WCID 109	11026-002	2/4/2003
HC 24	11988-001	2/4/2003
HC 26	11406-001	2/4/2003
HC 58	11941-001	3/3/2004
HC 70	11486-001	1/12/2005
HC 71	11947-001	5/15/2013

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Land Application**

Facility Name	Permit Number	Approval Date
HC 82	11799-001	3/3/2004
HC 89	12939-001	4/29/2003
HC WCID 92	10908-001	5/15/2013
HC 104	11925-001	9/5/2012
HC 105	11792-002	4/29/2003
HC 122	12250-001	4/26/2004
HC 130	12574-001	11/14/2013
HC 155	12726-001	2/4/2003
HC 185	12124-001	12/2/2011
HC 196	12447-001	2/4/2003
HC 200	12294-001	3/3/2004
HC 238	12802-001	2/4/2003
HC 249	13765-001	2/4/2003
HC 284	12949-001	2/4/2003
HC 345	12356-001	12/2/2011
HC 358	13290-002	5/15/2013
HC 365	13881-001	4/18/2013
HC 368	12044-001	3/3/2004
HC 374	14354-001	4/10/2013
HC 391	14327-001	12/2/2011
HC 405	14448-001	6/6/2013
HC 432	14589-001	11/14/2013
HC 408	14606-001	6/6/2013
Heather Glen	11231-001	2/4/2003
High Meadow	10812-001	2/4/2003
Hillman Schrimp	03719-001	2/4/2003
Holiday Inn Airport	14066-001	2/4/2003
Horsebend Bayou	12128-001	3/15/2011
Hunter's Glen	11618-001	2/4/2003
Inverness Forest	10783-001	2/4/2003
Katy, City of	10706-001	4/29/2003
Langham Creek	11682-001	12/13/2005
Manford Williams Elementary 8	13007-001	4/29/2003
Mayde Creek	11969-001	3/3/2004
Meadow Hill	11215-001	3/3/2004
Meadow Place	11039-001	10/15/2012
MC UD 2	11271-001	5/3/2013
MC 15	11395-001	2/4/2003
MC 24	14116-001	11/14/2013
MC 56	13760-001	12/2/2011
MC 112	14671001	3/15/2011
MC-Woodland Oaks	14166-001	5/3/2013
Missouri City	13873-001	2/4/2003
New Ulm	13655-001	2/7/2007
Northforest	10905-001	2/4/2003
Northampton	10910-001	12/10/2004
Northline	10518-001	2/4/2003
North Mission Glen	12379-001	1/15/2013
North Park	11855-001	2/4/2003
NWHC 9	14030-001	2/4/2003
NWHC 10	11912-002	2/4/2003
NWHC 15	11939-001	3/3/2004

**Facilities Approved
by TCEQ for
Land Application**

Facility Name	Permit Number	Approval Date
NWHC 20	13625-001	3/3/2004
NWHC 21-23	12144-001	3/3/2004
NWHC 24	13760-001	11/14/2013
NWHC 36	13573-001	12/2/2011
Oakwilde	10236-001	3/3/2004
Orange Grove	12070-004	2/4/2003
Palmer Plantation	12937-001	3/3/2004
Pearland, City of	21484-001	3/3/2004
Pecan Grove Plantation	11655-001	3/3/2005
Plantation	11971-001	1/12/2005
Plantation Crossing	14490-001	12/2/2011
Ponderosa, Joint Powers	11081-001	2/4/2003
Rayford Road	12030-001	2/4/2003
Remington	11328-001	4/29/2005
Richmond, City of	10258-003	3/15/2011
River Oaks MHP	12692-001	12/10/2004
Riverside MHP(Glen Oaks)	12296-001	11/7/2006
Rosenberg, City of	10607-003	3/20/2013
Sealy, City of	10276-001	3/15/2011
Sienna Plantation	14100-001	3/15/2011
Southern Montgomery County	11001-01	7/26/2005
SWHC 1	12641-001	2/4/2003
Spring Creek	11574-001	2/4/2003
Spring Cypress	13711-001	2/4/2003
Sugarland, City of	12833-001	4/29/2005
Tiki Island	10879-001	2/4/2003
Timbercrest	13487-001	3/3/2004
Timberlake	11267-001	3/8/2012
Timberlane	11142-002	1/26/2006
City of Tomball, North	101616-001	2/26/2013
City of Tomball, South	101616-002	2/26/2013
Varco Shaffer	3994	12/10/2004
Waller, City of	10310-001	9/13/2012
WHC 7	12140-001	12/2/2011
WHC 11	13689-001	2/4/2003
WHC 15	12233-001	12/10/2004
Westlake	11284-001	11/14/2013
West Memorial	11152-001	2/4/2003
Westmont MHP	12761-001	12/10/2004
West Park	12346-001	7/26/2004
Ann Louise Ed Complex (Alief ISD)Wilson	13609-001	2/4/2003
WHC 10 (Winchester)	10472-001	2/4/2003
Wild Peach Elementary (CBISD)	12103-001	9/3/2013
Williamsburg	11598-001	3/3/2004
Willow River Farms	13466-001	7/26/2004
Woodcreek	11933-001	2/4/2003
Woodland Oaks	11670-001	3/3/2004