

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 <u>1st</u> Reporting period from <u>9/1/13</u> to, <u>11/30/13</u>	
PERMIT NO.: <u>WQ000 4449 000</u>	DATE: <u>12/04/2013</u>
NAME OF PERMITTEE: <u>K-3 Resources, LP</u>	
MAILING ADDRESS: <u>PO Box 2236, Alvin, TX, 77612</u>	
CONTACT PERSON: Name: <u>Charles E Pehl</u> Telephone No: <u>281-585-2817</u>	

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

- Class B Sewage Sludge Land Applied : 4.31 dry tons / quarter
  - Treated Domestic Septage - Land Applied : 0 gallons / quarter
  - Method used to treat Domestic Septage: N/A
  - Water Treatment Plant Sludge - Land Applied: 0 dry tons /quarter
  - Class A sludge land applied : 0 dry tons / quarter
- a. Acreage used for Sludge Application/disposal at this site:- 40.45 acres
- b. Site Vegetation (such as grass type etc) and # of 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: N29°53'57", Longitude: W95°57'28"
- e. Site physical address: West side of SH 362, 1 mile south of intersection of SH 362 and SH 529, Waller County.

**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

**Facilities Approved  
by TCEQ for  
Land Application**

Date: 11/30/2013

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
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
HC 82	11799-001	3/3/2004

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Facility Name	Permit Number	Approval Date
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
NWHC 20	13625-001	3/3/2004

**Facilities Approved  
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Land Application**

Facility Name	Permit Number	Approval Date
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	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	Pending (7/25/13)
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



# Land Application Manifest Summary By Site

<Application Date Range: 09/01/2013 - 11/30/2013>

TCEQ # 22430

**Site Type:** Land Application  
**Permit No:** WQ0004449000  
**Site Name:** Carl Miller Farms RN103197521  
**Address:** Lat: 29 degrees 53' 56.66"N Lon: 95 degrees 57' 27.75"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
11/19/2013	03:45 PM	152172	Needville S1	6,500		2.60	0.704730	0.639190	1	82.37	11/19/2013
11/19/2013	01:30 PM	152281	Needville S1	6,500		2.60	0.704730	0.639190	1	82.37	11/19/2013
11/19/2013	04:30 PM	152282	Needville S1	6,500		2.60	0.704730	0.639190	1	82.37	11/19/2013
11/21/2013	09:30 AM	151927	HC 374	6,500		0.82	0.222261	0.201591	1	82.37	11/21/2013
11/21/2013	11:30 AM	151928	HC 374	6,500		0.82	0.222261	0.201591	1	82.37	11/21/2013
11/21/2013	01:15 PM	151929	HC 374	6,500		0.82	0.222261	0.201591	1	82.37	11/21/2013
11/21/2013	02:00 PM	152078	HC 374	6,500		0.82	0.222261	0.201591	1	82.37	11/21/2013
11/21/2013	03:30 PM	152079	HC 374	6,500		0.82	0.222261	0.201591	1	82.37	11/21/2013
11/21/2013	01:45 PM	152179	Blue Ridge	6,500		2.00	0.542100	0.491685	1	82.37	11/21/2013
11/21/2013	02:00 PM	152289	Blue Ridge	6,500		2.00	0.542100	0.491685	1	82.37	11/21/2013
<b>Site Total</b>				<b>65,000</b>	<b>0</b>		<b>4.309695</b>	<b>3.908895</b>			

**Cumulative Pollutants**  
November 30, 2013

<i>Pollutants</i>	Cumulative Pollutants 8/31/2013	Weighted Means	Application 9/01/13 to 11/30/2013	Cumulative to 11/30/2013	
	(kg/ha)	(mg/kg)	(kg/ha)	(kg/ha)	(lb./ac.)
<b>Arsenic</b>	4.08	6.35	0.0006	<b>4.08</b>	3.64
<b>Cadmium</b>	2.27	3.02	0.0003	<b>2.27</b>	2.03
<b>Chromium</b>	18.57	25.19	0.0025	<b>18.57</b>	16.58
<b>Copper</b>	111.62	344.07	0.0344	<b>111.65</b>	99.69
<b>Lead</b>	41.02	31.73	0.0032	<b>41.02</b>	36.63
<b>Mercury</b>	0.59	1.22	0.0001	<b>0.59</b>	0.53
<b>Molybdenum</b>	2.53	12.43	0.0012	<b>2.53</b>	2.26
<b>Nickel</b>	5.30	16.28	0.0016	<b>5.30</b>	4.73
<b>Selenium</b>	4.55	11.21	0.0011	<b>4.55</b>	4.06
<b>Zinc</b>	248.07	847.13	0.0848	<b>248.15</b>	221.57

Biosolids Application (9/01/13 to 11/30/13):

0.11 (tons/acre)



Charles E. Pehl, PhD, PG  
Compliance Director

**Appendix A**  
**Agronomic Rate Calculations**

TCEQ 04449

**Part 1: Biosolids Application Rate**

11/30/2013

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

Nutrients		Percent	Conversion Factor	Pounds per ton
Total Nitrogen	(TKN)	3.99	x 20 =	79.8
Ammonium Nitrogen	(NH <sub>4</sub> )	0.44	x 20 =	8.8
Nitrate Nitrogen	(NO <sub>3</sub> )	1.81	x 20 =	36.2
Total Phosphorus	(P)	0.71	x 20 =	14.2
Total Potassium	(K)	0.35	x 20 =	7

Pollutants	(mg/kg x 0.002 = lb./ton)	mg/kg*		lb./ton
Total Arsenic	(As)	6.35	x 0.002 =	0.0127
Total Cadmium	(Cd)	3.02	x 0.002 =	0.00604
Total Chromium	(Cr)	25.19	x 0.002 =	0.05038
Total Copper	(Cu)	344.07	x 0.002 =	0.68814
Total Lead	(Pb)	31.73	x 0.002 =	0.06346
Total Mercury	(Hg)	1.22	x 0.002 =	0.00244
Total Molybdenum	(Mo)	12.43	x 0.002 =	0.02486
Total Nickel	(Ni)	16.28	x 0.002 =	0.03256
Total Selenium	(Se)	11.21	x 0.002 =	0.02242
Total Zinc	(Zn)	847.13	x 0.002 =	1.69426

\* Values from sludge tests (dry weight)

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

**Appendix A  
Agronomic Rate Calculations**

TCEQ 04449

**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): Warm season: Jiggs Bermudagrass and native pasture grasses,  
Cool season: Winter Rye

Yield Goal(s): 10 tons/ac ( 6 tons,warm season + 4 tons,cool season ) 3 bales/acre      pH: 7.0  
in in 4 cuttings, plus grazing stubble between cuttings.

	<u>N lb/ac</u>
A. Crop nutrient need for specific yield goal**	<u>500</u>
B. Nutrients available in soil	<u>27</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>473</u>

\*\* Crop nutrient need is based on 50 lb.N/ton of forage, Texas Agriculture Extension Service, Fertilizing Summer Perennial Pastures, Publication 1-2210.

**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 <sub>4</sub> -N+NO <sub>3</sub> -N)	<u>1.74</u>	<u>34.8</u>
B. Ammonium Nitrogen (NH <sub>4</sub> -N)	<u>0.44</u>	<u>8.8</u>
C. Nitrate Nitrogen (NO <sub>3</sub> -N)	<u>1.81</u>	<u>36.2</u>
D.Total PAN = (0.3 x 3A) + (0.5 x 3B) + 3C =	<u>2.772</u>	<u>51.04</u>

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

A. Enter amount from Step 2. Nitrogen amount still needed:	<u>473</u>	<i>lb./ac./yr</i>
B. Enter amount from Step 3D. Total PAN in sludge	<u>51.04</u>	<i>lb./ton</i>
C. Sludge application rate(SARN)	<u>9.27</u>	<i>ton/ac./yr</i>



**Appendix A  
Agronomic Rate Calculations**

TCEQ 04449

**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.)
<b>Pollutants</b>	<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	0.0127	0.117693966	0.117693966	2834.645669
Cadmium	35	1.7	0.00604	0.055974138	0.055974138	5794.701987
Chromium	2677	134	0.05038	0.466883621	0.466883621	53136.16514
Copper	1339	67	0.68814	6.377159483	6.377159483	1945.824977
Lead	268	13	0.06346	0.588099138	0.588099138	4223.132682
Mercury	15	0.76	0.00244	0.022612069	0.022612069	6147.540984
Molybdenum	Monitor	Monitor				
Nickel	375	18.7	0.03256	0.301741379	0.301741379	11517.19902
Selenium	89	4.5	0.02242	0.207771552	0.207771552	3969.669938
Zinc	2500	125	1.69426	15.70111638	15.70111638	1475.570456
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:	1475.57	<i>tons/acre</i>
B. Previous application of biosolids:	<u>6.11</u>	<i>tons/acre</i>
C. Remaining biosolids application rate to reach metal limits:	1469.46	<i>tons/acre</i>
D. Maximum allowable biosolids application rate:	<u>9.27</u>	<i>tons/acre/yr</i>
E. Years remaining to reach the maximum cumulative loading:	159	<i>years</i>