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:	Reporting period:	From September 1, 201	to August 31, 201
Registration No: WQ 0004454000		Date	
Name of Registrant: K-3 Resources, LP dba BMI			
Mailing Address: P.O. Box 2236, Alvin, TX 77512			
Contact Person	Name Charles E. Pehl		Telephone No: 281-585-4262

Field No. (if any): 1 **(Submit separate form for each field, if site has two or more fields).**

Class B Sewage Sludge Land Applied:	73.89	dry tons /quarter
Treated Domestic Septage - Land Applied:	0.00	gallons / quarter
Method used to treat Domestic Septage:	N/A	
Water Treatment Plant Sludge - Land Applied:	0.00	dry tons /quarter
Class A sludge land applied:	0.00	dry tons /quarter

a. Acreage used for Sludge Application/disposal at this site 357

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 29°55'3.3"N Longitude: 96°1'23"W

e. Site physical address: Intersection FM 529 and FM 359, Waller Co, TX

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 ANNUAL 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: 09/01/2013 - 11/30/2013>

TCEQ # 22430

Site Type: Land Application
Permit No: WQ0004454000
Site Name: Jeffries Ranch RN102994506
Address: Lat: N29deg 55' 3.3" Long: W96deg 1" 23" 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
09/01/2013	04:30 PM	149230	Fry Road	6,500		0.60	0.162630	0.147505	1	357.00	Hay/Pasture	09/01/2013
09/01/2013	06:45 PM	149231	Fry Road	6,500		0.60	0.162630	0.147505	1	357.00	Hay/Pasture	09/01/2013
09/01/2013	08:40 AM	149336	HC 238	6,500		1.79	0.485180	0.440058	1	357.00	Hay/Pasture	09/01/2013
09/01/2013	11:45 AM	149337	HC 238	6,500		1.79	0.485180	0.440058	1	357.00	Hay/Pasture	09/01/2013
09/03/2013	07:45 PM	146647	Rayford Road MUD	6,500		1.20	0.325260	0.295011	1	357.00	Hay/Pasture	09/03/2013
09/03/2013	11:15 AM	149183	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/03/2013
09/03/2013	12:30 PM	149184	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/03/2013
09/03/2013	02:00 PM	149185	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/03/2013
09/03/2013	03:15 PM	149186	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/03/2013
09/03/2013	04:45 PM	149187	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/03/2013
09/04/2013	06:00 AM	148730	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/04/2013
09/04/2013	09:30 PM	148733	FB 106		13	15.70	1.734850	1.573509	1	357.00	Hay/Pasture	09/04/2013
09/04/2013	09:00 AM	148810	Beacon Estates	6,500		1.68	0.455364	0.413015	1	357.00	Hay/Pasture	09/04/2013
09/04/2013	09:45 AM	149257	Langham Creek		13	14.00	1.547000	1.403129	1	357.00	Hay/Pasture	09/04/2013
09/05/2013	06:15 PM	146633	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	04:00 PM	148669	Heather Glen	6,500		2.40	0.650520	0.590022	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	06:00 AM	148734	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	09:30 AM	148735	Cinco Central		20	14.80	2.516000	2.282012	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	02:30 PM	148736	Eagle Lake WWTP		20	14.80	2.516000	2.282012	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	04:00 PM	148790	Heather Glen	6,500		2.40	0.650520	0.590022	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	07:45 AM	149164	FB 30		13	15.30	1.690650	1.533420	1	357.00	Hay/Pasture	09/05/2013
09/05/2013	04:15 PM	149198	Heather Glen	6,500		2.40	0.650520	0.590022	1	357.00	Hay/Pasture	09/05/2013
09/06/2013	04:15 PM	146632	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	08:15 PM	146634	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	06:00 PM	148674	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	07:00 AM	148739	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	06:45 PM	148795	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	02:30 PM	149170	HC MUD 26		13	12.50	1.381250	1.252794	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	03:00 PM	149502	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	05:00 PM	149503	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	07:00 PM	149504	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013
09/06/2013	05:30 PM	149561	W H C 7	6,500		1.38	0.374049	0.339262	1	357.00	Hay/Pasture	09/06/2013

Land Application Manifest Summary By Site

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

TCEQ # 22430

Site Type: Land Application
Permit No: WQ0004454000
Site Name: Jeffries Ranch RN102994506
Address: Lat: N29deg 55' 3.3" Long: W96deg 1" 23" 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
09/07/2013	08:00 AM	149172	Richmond Regional		20	12.96	2.203200	1.998302	1	357.00	Hay/Pasture	09/07/2013
09/03/2013	06:30 AM	149254	Tomball North		20	10.90	1.853000	1.680671	1	357.00	Hay/Pasture	09/07/2013
09/10/2013	03:15 PM	149178	HC MUD 26		13	12.50	1.381250	1.252794	1	357.00	Hay/Pasture	09/10/2013
09/10/2013	06:00 AM	150006	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/10/2013
09/10/2013	03:00 PM	150008	Cinco Central		20	14.80	2.516000	2.282012	1	357.00	Hay/Pasture	09/10/2013
09/11/2013	08:45 AM	150041	Cinco Central		20	14.80	2.516000	2.282012	1	357.00	Hay/Pasture	09/11/2013
09/12/2013	07:00 AM	150016	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/12/2013
09/12/2013	02:40 AM	150045	Richmond Regional		20	12.96	2.203200	1.998302	1	357.00	Hay/Pasture	09/12/2013
09/12/2013	09:45 AM	150046	Langham Creek		13	14.00	1.547000	1.403129	1	357.00	Hay/Pasture	09/12/2013
09/12/2013	01:00 PM	150047	HC MUD 26		13	12.50	1.381250	1.252794	1	357.00	Hay/Pasture	09/12/2013
09/13/2013	07:00 AM	150019	Ponderosa JPA		20	14.90	2.533000	2.297431	1	357.00	Hay/Pasture	09/13/2013
09/13/2013	11:00 AM	150020	Chelford City		20	14.33	2.436100	2.209543	1	357.00	Hay/Pasture	09/13/2013
09/13/2013	05:15 AM	150049	FB 106		13	15.70	1.734850	1.573509	1	357.00	Hay/Pasture	09/13/2013
09/13/2013	06:45 AM	150050	Cinco Central		20	14.80	2.516000	2.282012	1	357.00	Hay/Pasture	09/13/2013
09/13/2013	09:15 AM	150051	Rosenberg (1-A)		20	16.50	2.805000	2.544135	1	357.00	Hay/Pasture	09/13/2013
09/13/2013	02:30 PM	150053	Chelford City		20	14.33	2.436100	2.209543	1	357.00	Hay/Pasture	09/13/2013
09/14/2013	07:15 AM	150054	Meadow Place		20	14.40	2.448000	2.220336	1	357.00	Hay/Pasture	09/14/2013
09/14/2013	09:00 AM	150055	Chelford City		20	14.33	2.436100	2.209543	1	357.00	Hay/Pasture	09/14/2013
09/17/2013	11:45 AM	147308	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/17/2013
09/17/2013	01:15 PM	147309	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/17/2013
09/17/2013	02:45 PM	147310	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/17/2013
09/17/2013	09:00 AM	149599	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/17/2013
09/17/2013	10:30 AM	149600	Brookshire WWTP	6,500		2.60	0.704730	0.639190	1	357.00	Hay/Pasture	09/17/2013
09/17/2013	09:30 AM	150140	Beacon Estates	6,500		1.68	0.455364	0.413015	1	357.00	Hay/Pasture	09/17/2013
Site Total				**188,500**	**484**		**73.893709**	**67.021590**				

Cumulative Pollutants

November 30, 2013

Pollutants	Cumulative Pollutants to 8/31/2013 *(kg/ha)*	Weighted Means *(mg/kg)*	Application 9/01/13 to 11/30/13 *(kg/ha)*	Cumulative to 11/30/13 *(kg/ha)*	*(lb./ac.)*
Arsenic	1.76	5.41	0.0010	**1.76**	1.57
Cadmium	0.39	2.70	0.0005	**0.39**	0.35
Chromium	4.54	24.99	0.0048	**4.54**	4.06
Copper	17.94	364.39	0.0696	**18.01**	16.08
Lead	8.49	23.33	0.0045	**8.49**	7.58
Mercury	0.10	0.78	0.0001	**0.10**	0.09
Molybdenum	0.56	9.62	0.0018	**0.56**	0.50
Nickel	1.99	13.84	0.0026	**1.99**	1.78
Selenium	0.64	7.33	0.0014	**0.64**	0.57
Zinc	35.23	917.44	0.1753	**35.41**	31.61

Biosolids Application (09/01/13 to 11/30/13): 0.21 (tons/acre)

Charles E. Pehl

Charles E. Pehl, Ph. D.
Compliance Director

Appendix A
Agronomic Rate Calculations

Part 1: Biosolids Application Rate 11/30/2013

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

Nutrients		*Percent*	*Conversion Factor*	*Pounds per ton*
Total Nitrogen	(TKN)	4.05	x 20 =	81
Ammonium Nitrogen	(NH_4)	0.37	x 20 =	7.4
Nitrate Nitrogen	(NO_3)	0.08	x 20 =	1.6
Total Phosphorus	(P)	1.26	x 20 =	25.2
Total Potassium	(K)	0.4	x 20 =	8

Pollutants *(mg/kg x 0.002 = lb./ton)*		*mg/kg**		*lb./ton*
Total Arsenic	(As)	5.41	x 0.002 =	0.01082
Total Cadmium	(Cd)	2.7	x 0.002 =	0.0054
Total Chromium	(Cr)	24.99	x 0.002 =	0.04998
Total Copper	(Cu)	364.39	x 0.002 =	0.72878
Total Lead	(Pb)	23.33	x 0.002 =	0.04666
Total Mercury	(Hg)	0.78	x 0.002 =	0.00156
Total Molybdenum	(Mo)	9.62	x 0.002 =	0.01924
Total Nickel	(Ni)	13.84	x 0.002 =	0.02768
Total Selenium	(Se)	7.33	x 0.002 =	0.01466
Total Zinc	(Zn)	917.44	x 0.002 =	1.83488

** Values from sludge tests (dry weight)*

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

Appendix A
Agronomic Rate Calculations

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)

Yield Goal(s) 7 tons/ac pH _____

Warm Season Intended Crop(s): Bermudagrass and native pasture grasses

Cool Season Intended Crop(s): Winter Rye, Bermudagrass and native pasture grasses

	N lb/ac
A. Crop nutrient need for specific yield goal**	350
B. Nutrients available in soil	89.8
= 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.)*	260.2

** *Crop nutrient need is based on 50 lb.N/ton of forage, Texas AgricultureExtension Service, Fertilizing Summer Perennial Pastures, Publication l-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)

	%	*lb./ton*
A. Organic-N = Total N-(NH_4-N+NO_3-N)	3.6	72
B. Ammonium Nitrogen (NH_4-N)	0.37	7.4
C. Nitrate Nitrogen (NO_3-N)	0.08	1.6
D.Total PAN = (0.3 x 3A) + (0.5 x 3B) + 3C =	1.53	26.9

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

A. Enter amount from Step 2. Nitrogen amount still needed:	260.2	*lb./ac./yr*
B. Enter amount from Step 3D. Total PAN in sludge	26.9	*lb./ton*
C. Sludge application rate(SARN)	**9.67**	*ton/ac./yr*

Appendix A
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	*Appendix C*	*Appendix C*	*(Step 1)*	*C x SAR N*	*B/C*	*A/C*
Arsenic	36	1.8	0.01082	0.104660372	0.104660372	3327.171904
Cadmium	35	1.7	0.0054	0.052233457	0.052233457	6481.481481
Chromium	2677	134	0.04998	0.483449665	0.483449665	53561.42457
Copper	1339	67	0.72878	7.049388699	7.049388699	1837.31716
Lead	268	13	0.04666	0.451335762	0.451335762	5743.677668
Mercury	15	0.76	0.00156	0.015089665	0.015089665	9615.384615
Molybdenum	Monitor	Monitor				
Nickel	375	18.7	0.02768	0.267744833	0.267744833	13547.68786
Selenium	89	4.5	0.01466	0.141804164	0.141804164	6070.941337
Zinc	2500	125	1.83488	17.74854186	17.74854186	1362.48692
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:	1362.49	*tons/acre*
B. Previous application of biosolids:	1.94	*tons/acre*
C. Remaining biosolids application rate to reach metal limits:	1360.55	*tons/acre*
D. Maximun allowable biosolids application rate:	9.67	*tons/acre/yr*
E. Years remaining to reach the maximum cumulative loading:	141	*years*