



# Quarterly Sludge Summary Report Form

(Class B)  
Attachment D

- 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 operate other registered/permited sludge land application sites, a form should be submitted for each site.
- Note 4: Please send a copy of this sheet and all attachments to the TCEQ regional office in your area.

For TCEQ Quarter 2-97 Reporting period from 3-1-14 to 5-31-14

PERMIT NO.: WQ 000 4436 000 DATE: 6-12-14

NAME OF PERMITEE: Bell Co. WCID # 2

MAILING ADDRESS: P.O. Box 338  
Little River TX 76554

Contact Name: Billy K. Easley Telephone No: 254-982-4685

Field Number (if any): \_\_\_\_\_ (Submit separate form for each field, if site has two or more fields)

- Class B Sewage Sludge Land Applied: .41 dry tons / quarter
- Treated Domestic Septage - Land Applied: NA gallons / quarter  
Method used to treat Domestic Septage: NA
- Water Treatment Plant Sludge - Land Applied: NA dry tons / quarter
- Class A sludge land applied: NA dry tons / quarter
  - Acres used for Sludge Application/disposal at this site: NA acres
  - Site Vegetation (such as grass type etc) and # of cuttings: NA
  - Does any of the sludge you have generated or received DOES NOT MEET concentration limits for any of the metals listed in Table 3 of 30 TAC §312.43 (b)? Yes \_\_\_\_\_ No
  - Site location: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_
  - Site physical address: NA

**Sewage Sludge Only - Please attach information regarding the following items:**

\* 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 QUARTERLY REPORT TO :**

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

**TABLE 1- Pollutant and Nutrient Concentrations in Sewage Sludge (for each source)**

<b>Facility Name</b>	<b>TCEQ Permit Number</b>
LITTLE RIVER STP	11091-001

The concentration listed in column two are from 312.43(b)(1) Table 1.

**POLLUTANT/METAL ANALYSIS**

<b>Pollutant</b>	<b>Maximum Concentration mg/kg dry weight</b>	<b>Test Results mg/kg dry weight</b>	<b>Sample Date</b>	<b>Detection Level for Analysis</b>	<b>Sample Method</b>
Arsenic (As)	75	ND	03/16/12	7.14	6020
Cadmium (Cd)	85	1.56	03/16/2012	1.43	6020
Chromium (Cr)	3000	27.2	03/16/2012	7.14	6020
Copper (Cu)	4300	752	03/16/2012	7.14	6020
Lead (Pb)	840	17.2	03/16/2012	7.14	6020
Mercury (Hg)	57	ND	03/19/2012	.371	7471
Molybdenum (Mo)	75	7.42	03/16/2012	7.14	6020
Nickel (Ni)	420	16.5	03/16/2012	7.14	6020
Selenium (Se)	100	15.7	03/16/2012	7.14	6020
Zinc (Zn)	7500	2280	03/16/2012	7.14	6020
PCB (ppm)	2	(ppm)	03/22/2012	857	8082

**NUTRIENT ANALYSIS**

<b>Nutrient</b>	<b>Concentration (%)</b>	<b>Sample Date</b>	<b>Detection Level for Analysis</b>	<b>Sample Method</b>
Total Kjeldahl Nitrogen (TKN)	.321	03/26/2012	.286	SM4500-NH-3 B,D
Ammonium Nitrogen (NH <sub>4</sub> -N)	.314	03/27/2012	.143	SM4500-NH-3 B, D
Nitrate Nitrogen (NO <sub>3</sub> -N)	.0586	03/16/2012	.0357	9056
Phosphorus (P)	2.72	03/20/2012	.0857	4500-P B,E
Potassium (K)	.453	03/16/2012	.0714	6020

**TABLE 1- Pollutant and Nutrient Concentrations in Sewage Sludge (for each source)**

<b>Facility Name</b>	<b>TCEQ Permit Number</b>
ACADEMY STP	11090-001

The concentration listed in column two are from 312.43(b)(1) Table 1.

**POLLUTANT/METAL ANALYSIS**

<b>Pollutant</b>	<b>Maximum Concentration mg/kg dry weight</b>	<b>Test Results mg/kg dry weight</b>	<b>Sample Date</b>	<b>Detection Level for Analysis</b>	<b>Sample Method</b>
Arsenic (As)	75	9.94	03/16/12	7.14	6020
Cadmium (Cd)	85	ND	03/16/2012	1.43	6020
Chromium (Cr)	3000	20.1	03/16/2012	7.14	6020
Copper (Cu)	4300	250	03/16/2012	7.14	6020
Lead (Pb)	840	11.6	03/16/2012	7.14	6020
Mercury (Hg)	57	3.49	03/19/2012	.371	7471
Molybdenum (Mo)	75	ND	03/16/2012	7.14	6020
Nickel (Ni)	420	14.2	03/16/2012	7.14	6020
Selenium (Se)	100	19.6	03/16/2012	7.14	6020
Zinc (Zn)	7500	404	03/16/2012	7.14	6020
PCB (ppm)	2	(ppm)	03/22/2012	857	8082

**NUTRIENT ANALYSIS**

<b>Nutrient</b>	<b>Concentration (%)</b>	<b>Sample Date</b>	<b>Detection Level for Analysis</b>	<b>Sample Method</b>
Total Kjeldahl Nitrogen (TKN)	.633	03/26/2012	.286	SM4500-NH-3 B,D
Ammonium Nitrogen (NH <sub>4</sub> -N)	.347	03/27/2012	.143	SM4500-NH-3 B, D
Nitrate Nitrogen (NO <sub>3</sub> -N)	ND	03/16/2012	.0357	9056
Phosphorus (P)	2.05	03/20/2012	.0857	4500-P B,E
Potassium (K)	.858	03/16/2012	.0714	6020

**APPENDIX E  
PATHOGEN REDUCTION OPTIONS**

Description:

Please indicate which pathogen reduction alternatives (as stated in §312.82) will be used prior to land application of the sewage sludge/septage.

If **multiple** treatment **facilities** are involved, please indicate which alternative is applicable for **each** sludge source facility.

TCEQ Permit Number	Alternative Utilized	Fecal Coliform Geometric Mean (cfu/gram total solids)*	Fecal Test Date*	PSRP Certification Attached?
Example -WQ11280-001	Option 1 - Density of Fecal Coliform	300,000 cfu/g	8/02/98	N/A
Example -WQ13450-003	Option 2a - PSRP Alternative-Aerobic Digestion	N/A	N/A	Yes
11090-001	OPTION 1 - DENSITY OF FECAL COLIFORM	825,000 cfu/g	3-7-12	N/A
11091-001	OPTION 1 DENSITY OF FECAL COLIFORM	88,000 cfu/g	3-7-12	N/A

\*If Applicable

**CLASS B Pathogen Reduction Alternatives**

1. Density of fecal coliform
2. Processes to Significantly Reduce Pathogens (PSRP\*\*): (40 CFR Part 503 Appendix B)
  - a. Aerobic digestion
  - b. Air drying
  - c. Anaerobic digestion
  - d. Composting
  - e. Lime stabilization
  - f. Addition of lime (Only option for domestic septage)
  - g. Other (please explain) \_\_\_\_\_

\*\* Please provide additional sludge testing information or certifications required in §312.82.

**APPENDIX F  
VECTOR ATTRACTION REDUCTION OPTIONS**

**Description:**

Please indicate the vector attraction reduction options (as stated in §312.83) that will be implemented prior to or after land application of the sewage sludge/septage. If **multiple** treatment **facilities** are involved, please indicate which alternative is applicable for **each** sludge source facility.

TCEQ Permit Number	Alternative Utilized	Monitoring criteria and results needed for alternative
<i>Example - WQ11280-001</i>	<i>Option 10 - Sludge incorporated within 6 hours of application</i>	<i>Visual inspection of area after tilling</i>
<i>Example - WQ13450-003</i>	<i>Option 4 - SOUR Test</i>	<i>Aerobically digested, 2.0% solids, SOUR=1.3 mg/g</i>
ACADEMY STP 11090-001	OPTION 4 - SOUR TEST	AEROBICALLY DIGESTED, .05% SOLIDS, SOUR =1.47mg/g
LITTLE RIVER 11091-001	OPTION 4-SOUR TEST	AEROBICALLY DIGESTED, 0.7% SOLIDS, SOUR = 0.7 mg/g

Vector Attraction Reduction Alternatives

Sludge Treatment Alternatives

- Option 1. volatile solids reduced by 38 percent
- Option 2. Lab demonstration of volatile solids reduction anaerobically.
- Option 3. Lab demonstration of volatile solids reduction aerobically.
- Option 4. SOUR ≤ 1.5 mg O<sub>2</sub>/hour/g total solids at 20C (< 2% solids).
- Option 5. Aerobic process for 14 days at > 40C (45C average).
- Option 6 . pH to ≥ 12 for 2 hours and retain at 11.5 for 22 hours.
- Option 7 . Stabilized sludge is ≥ 75 percent solids
- Option 8 . Unstabilized sludge is ≥ 90 percent solids.

Onsite Alternatives

- Option 9 . Subsurface injection.
- Option 10. Incorporation within 6 hours

Domestic Septage Alternative (only option):

- Option 12. Raise pH to greater than 12 for at least 30 minutes.

## APPENDIX A AGRONOMIC RATE CALCULATIONS

**Note: If the agronomic rate exceeds 12 tons/acre/ year, there is likely to be a miscalculation or lab analysis problem. Please check all calculations and analysis before submitting.**

### PART 1: SEWAGE SLUDGE APPLICATION RATE

#### Step 1 - Calculate Quantity of Nutrients & Metals in Sludge in Pounds per Ton (# / Ton)

Nutrient	% nutrient in sludge*	Conversion factor	Pounds per ton
Total Kjeldahl Nitrogen (TKN)	0.4800	x 20	9.6000
Ammonium Nitrogen (NH <sub>4</sub> -N)	0.3300	x 20	6.6000
Nitrate Nitrogen (NO <sub>3</sub> -N)	0.0300	x 20	0.6000
Total Phosphorus (P)	2.3900	x 20	47.8000
Total Potassium (K)	0.6600	x 20	13.2000

Metal	metal in sludge (mg/kg) *	Conversion factor	Pounds per ton
Total Arsenic (As)	4.97	x 0.002	0.01
Total Cadmium (Cd)	0.78	x 0.002	0.00
Total Chromium (Cr)	23.65	x 0.002	0.05
Total Copper (Cu)	501.00	x 0.002	1.00
Total Lead (Pb)	14.40	x 0.002	0.03
Total Mercury (Hg)	17.40	x 0.002	0.03
Total Molybdenum (Mo)	3.71	x 0.002	0.01
Total Nickel (Ni)	15.35	x 0.002	0.03
Total Selenium (Se)	17.65	x 0.002	0.04
Total Zinc (Zn)	1140.04	x 0.002	2.28

\*Values from the sludge tests (dry weight only).  
(Conversions: mg/kg ÷ 10,000 = % ; PPM = mg/kg)

**TABLE 2 - Volume Weighted Average (Mean) of Nutrient and Pollutant Concentration**

**INCLUDE ONLY IF MORE THAN ONE SOURCE IS LAND APPLIED**

**Directions:**

1. Multiply the Pollutant Concentrations from Table 1 (previous page) by the number of dry tons you expect to apply from that facility.
2. Sum the individual columns. Enter results in last row of the table.
3. Divide the sum of each column by the dry tons sum (bottom of second column). Enter number in the appropriate Volume Weighted Average Box (row below table).
4. Use these final results to complete the table in Step 1 of Appendix A.

TCEQ Permit No.	Estimated Dry Tons *	Pollutant Concentrations (Table 1) x Dry Tons (mg/kg dry weight)										Nutrient Conc. (Table.1) x Dry tons (%)				
		As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	TKN	NH <sub>4</sub> -N	NO <sub>3</sub> -N	P	K
11091-001	3	0	4.68	81.6	2256	51.6	0	22.26	49.5	47.1	6840	0.96	0.94	0.18	8.16	1.36
11090-001	3	20.82	0	60.3	750	34.8	10.47	0	42.6	59.8	0.21	1.9	1.04	0	6.15	2.57
Sum =	6	29.82	4.68	141.9	3006	86.4	10.47	22.26	92.1	105.9	6840.21	2.86	1.98	0.18	14.31	3.93
Volume Weighted Average		4.97	0.78	23.65	501	14.4	1.74	3.71	15.35	17.65	1140.04	0.48	0.33	0.03	2.39	0.66

\* Total estimated dry tons to be land applied from source facility. (Needed for volume weighted calculation).

**Step 2 - Soil Test Analysis and Fertilizer Recommendations**

Note: Please include a fertilizer recommendation from the local County Extension Service or equivalent source for determining the nutrient needed by the specified crop(s).

Yield Goal(s): 6 TONS DRY FORAGE pH: \_\_\_\_\_

Warm Season Intended Crop(s): NATIVE BERMUDA AND RYE GRASS

Cool Season Intended Crop(s): + NATIVE BERMUDA AND RYE GRASS

Total Nutrient Needed by crop for specific yield goal:  
225LBS/ACRE NITROGEN (Include in Line A)

	<u>N (lbs/Acre)</u>
A. Nutrient needed by crop for specific yield goal**	<u>225</u>
B. Nutrient available in soil (lbs/acre) [= 2 x NO <sub>3</sub> -N(ppm)(0-6" soil depth) + 6 x NO <sub>3</sub> -N(ppm)(6-24" soil depth)] **	<u>122.6</u>
C. Nutrient amount still needed [Nutrient needed - Nutrient available] (enter this amount in Step 4 A.)	<u>102.4</u>

\*\*Please provide the means of determining these values.

**Step 3 - Calculate the Plant Available Nitrogen (Pan) Provided By the Sludge**

(Use the values for TKN, NH<sub>4</sub>-N, and NO<sub>3</sub>-N from Step 1.)

A. Organic Nitrogen = TKN - (NH <sub>4</sub> -N) - (NO <sub>3</sub> -N) = (Multiply by percent values in Appendix C for PAN) x <u>30</u> % =	<u>2.4</u>
B. Ammonium Nitrogen (NH <sub>4</sub> -N) x V = <u>6.6</u> x <u>.5</u> = Use Volatilization factor (V) = 0.5 is sludge is left on soil surface; Use Volatilization factor (V) = 1.0 if sludge is worked into soil.	<u>+ 3.3</u>
C. Nitrate Nitrogen (NO <sub>3</sub> -N) =	<u>+ .6</u>
D. 3A. + 3B. + 3C. = (enter this amount in Step 4B.) Total PAN =	<u>4.62</u>



**Bell County Water Control &  
Improvement District #2**

202 South Brookman St.  
P.O. Box 338  
Little River-Academy, Texas 76554  
254-982-4685 OFFICE  
254-982-4685 FAX

EACH LOAD IS 1900 GALLONS OF LIQUID SLUDGE  
(LOADS X 1900 GAL/100 X 4.4 LBS/2000= DRY TONS)

LITTLE RIVER PLANT 11091-001 .08 DRY/TONS

Date	Time	Time	Time	Time
4/15/2014	14:15	15:10		

ACADEMY PLANT 1109 001 .33 Dry/Tons

Date	Time	Time	Time	Time
3/21/2014	13:00	13:30	14:10	
4/18/2014	13:30	14:10	14:50	
5/9/2014	13:15	14:00		