Green Bay Packaging Inc.

• ARKANSAS KRAFT DIVISION
338 Hwy. 113 • MORRILTON, ARKANSAS 72110
501-354-4521

CERTIFIED MAIL # 7009 2820 0004 4029 4557

December 3, 2013

John Bailey
Arkansas Department of Environmental Quality
Water Division, Permits Branch
5301 Northshore Dr.
North Little Rock, AR 72118-5317

RE: Permit Application – Green Bay Packaging, Inc. – Lagoon Wastewater Digested Residuals

Dear Mr. Bailey:

Please find enclosed a complete application, Disclosure Statement, and Waste Management Plan for the land application of Lagoon Wastewater Digested Residuals. An initial permit application for these lagoon residuals was submitted earlier in June, 2013. The application was deemed incomplete by the Department and returned, requiring additional information to show adequate compliance with 40 C.F.R. Part 257.3-4. Included in this application package is a "Technical Addendum to Waste Management Plan for Land Application of Organic Residuals." This addendum is respectfully submitted in order to demonstrate groundwater protection and compliance with 40 C.F.R Part 257.3-4.

If additional information and/or details are required please contact Stan Chivers at (501) 354-9518 or schivers@gbp.com.

Sincerely,

Stan Chivers
Environmental Supervisor
GREEN BAY PACKAGING
Arkansas Kraft Division

Green Bay Packaging Inc.

• ARKANSAS KRAFT DIVISION
338 Hwy. 113 • MORRILTON, ARKANSAS 72110
501-354-4521

CERTIFIED MAIL # 7010 1870 0003 1236 6065

December 3, 2013

Arkansas Department of Health
Engineering Division, Slot #27
4815 West Markham
Little Rock, AR 72205

RE: New Permit Application
Conway County

Dear Engineers:

This Letter shall serve as notification that Green Bay Packaging – Morrilton, AR has submitted a permit application to the Arkansas Department of Environmental Quality. This will be a new permit in Conway County for Lagoon Wastewater Digested Residuals.

Please find a copy of the permit application, proposed new land application site list, and maps attached with this letter. If you have any questions, or need any additional information, please call me at (501) 354-9518.

Sincerely,

Stan Chivers

Stan Chivers
Environmental Supervisor
GREEN BAY PACKAGING
Arkansas Kraft Division

Green Bay Packaging, Inc.
Arkansas Kraft Division

Technical Addendum to Waste Management Plan For Land Application of Organic Residuals

INTRODUCTION

A Waste Management Plan (WMP) for the land application of organic residuals from the Green Bay Packaging, Inc. Arkansas Kraft Division (AKD) paper and pulp mill was submitted to the Arkansas Department of Environmental Quality (ADEQ) Water Division on June 19, 2013. On July 16, 2013 ADEQ issued a letter stating the submittal was incomplete because it did not document how the application of organic residuals to land would comply with 40 C.F.R. Part 257.3-4 which addresses groundwater protection criteria of the solid waste code for a disposal facility.

The WMP illustrated compliance with Class A metal limitations found in 40 C.F.R. 503 for AKD organic residuals. The 40 C.F.R. 503 metals include arsenic, cadmium, copper, lead, mercury, nickel, selenium and zinc. Additional metals cited in 40 C.F.R. Part 257.3-4 for consideration are barium, chromium (hexavalent), and silver. This addendum further documents that the land application of organic residuals from the AKD waste water treatment system will not be detrimental to groundwater; rather, they will service as a beneficial soil amendment.

This technical addendum provides information specific to the land application sites that address 40 C.F.R. Part 257.3-4 and show the land application of the AKD organic residuals will not have adverse impacts on the groundwater resource. Included in this addendum is the presentation and interpretation of : 1) local hydrogeological conditions; 2) water use; 3) characterization of the soils of land application sites and the organic residuals; and, 4) an assessment of the metals.

AKD believes this technical addendum sufficiently addresses the agency's concern of detriment to groundwater from metals found in our organic residuals and justifies the issuance of a land application permit.

HYDROGEOLOGIC CONDITIONS

The potential for groundwater impacts from land applied organic residuals are largely controlled by the hydrogeologic conditions at the application sites. A literature review has been completed to better define and understand the hydrogeologic conditions at the AKD land application sites.

According to the USDA, the land application sites under consideration are underlain with alluvial soils, primarily the Roxana and related soil series[1]. The topsoil texture of the Roxana soil series is typically fine sandy loam and, according to the 1980 USDA Soil Survey, the soil meets the Unified Soil Classification System (USCS) for silt (ML) or clayey silt (CL-ML)[2]. The substratum consists of sandy loam to silt loam bedding planes and is classified as massive. The hydraulic conductivity is reported to be in a range of 0.6

---

[1] websoilsurvey.nrcs.usda.gov, Conway County, Arkansas.
[2] USDA, 1980. Soil Survey of Conway County, Arkansas.

to 2.0 inches per hour, or $4x10^{-4}$ to $1.4x10^{-3}$ centimeters per second (cm/s). In the central to western portion of land application sites HC-1 and HC-2 the near-surface soils, such as the Gallion soil series, are formed in finer textured alluvial deposits, which are described as silt loam to clay loam. According to the Soil Survey these soils would be classified as silt (ML), clayey silt (CL-ML) or clay (CL) in the USCS.

The USDA information identifies a number of soil features that will retard the vertical movement of metals from the land application of the AKD organic residuals. Sandy loam soil may contain up to 20 percent clay and silt loam soil up to 30 percent clay. The USDA Soil Geochemical Characterization Report for the Roxana soil identifies a clay content of 16% to 19%. The clay fraction of soil is chemically active, as it is negatively charged and has the capability to retain positively charged metals. The soil is formed in alluvial, or water-lain deposits that are layered. These layers are classified as massive, which means there is little or no secondary vertical hydraulic conductivity associated with vertical pathways (fractures or planestructural planes). Percolation of water through such layered deposits is relatively slow compared to a well-structured soil and the opportunity for retaining metals is greater.

Two wells have been identified in the area of the land application site; their locations are provided in Table 1 and can be seen in an aerial photograph in Figure 1. The well logs are attached and the data contained in the logs is summarized in Table 2. Well 2 is classified as an irrigation well. It is located northwest of land application sites HC-3 and HC-4. Well 8 is classified as a monitoring well and is located northwest of land application site HC-1 and HC-2. It should be noted that potable well logs were not identified for the vicinity of the land application sites.

Table 1 - Well Identification and Locations

Well ID	Latitude	Longitude	Section	Town	Range
Well 2	35 07 40	92 45 57	36	6N	17W
Well 8	35 05 12	92 44 09	18	5N	16W

Figure 1 - Aerial Photograph with Well Locations

Table 2 - Well Log Data

Well ID	Surficial Deposit	Depth to Shale (ft)	Depth to Medium or Coarse Sand (ft)	Depth to Water (ft)	Saturated Thickness of Sand (ft)
Well 2	Clay sand	60	25	10	50
Well 8	Clayey silt and clay	21	Not Applicable	14.3	Not Applicable

According to the log for Well 2, fine textured soil extends to a depth of 25 feet at which point medium and coarse sand is encountered. The clay sand noted in the well log is interpreted to be synonymous with the silt (ML) to clayey silt (CL-ML) substratum noted in the Soil Survey information for land application sites HC-3 and HC-4. The depth to the static water level is reported at 10 feet and shale is encountered at 60 feet. The log for Well 8 indicates the soil is clayey silt to clay that is 21 feet thick over shale bedrock. The fine textured soil coincides with the finer textured surficial soils described in the Soil Survey for the western portion of land application sites HC-1 and 2. The depth to static water is reported to be at a depth of 14.3 feet.

The well log data builds upon the information available through the USDA. Fine-textured soil, containing clay, extends to a depth of 21 to 25 feet below the surface. The deep fine-textured soils retain metals and limit vertical percolation of water.

Hydraulic data for the sand and gravel aquifer gleaned from the log for Well 2 is summarized in Table 3. Well 8 did not penetrate sand and gravel deposits. The hydraulic conductivity of the deep sand and gravel is estimated at about 0.63 cm/s, which is representative of such coarse deposits.

Table 3 - Well 2 Shallow Aquifer Hydraulic Characteristics

Well ID	Saturated Thickness of Sand (ft)	Borehole Diameter (ft)	Yield (gpm)	Cross-sectional Saturated Zone (sf)	Hydraulic Conductivity	
					g/d/sf	cm/s
Well 2	50	1.5	700	75	13440	0.63

In this portion of the United States the groundwater table is generally a reflection of the surface topography. Groundwater flow is from upland areas to discharge points such as the Arkansas River and its tributaries. The natural groundwater flow from land application sites HC-1 and HC-2 is expected to be primarily east to the river with a minor flow component to a tributary located west of the sites. The natural groundwater flow path from land application sites HC-3 and HC-4 is expected to generally be in a southeasterly direction toward the river.

Irrigation occurs on the alluvial deposits based on the aerial photograph in Figure 1. Irrigation withdrawals modify the groundwater flow path and gradient. Pivot irrigation systems located west, south and east of land application sites HC-3 and HC-4 likely direct and intercept groundwater flowing below these sites. Also, a levee is constructed along the river in this area, which provides bank storage during and shortly after flood stages. Combined, these factors reduce the rate of groundwater flow to the river and increase the dilution of deep percolation entering the groundwater. Dilution is recognized as a positive factor in US EPA risk-based assessments, as it reduces contaminant concentrations.[3]

WATER USE

Table 4 provides water use information for Conway County, which was gathered from the Arkansas Geological Survey website[4]. The data indicates over 90% of water use in Conway County consists of surface water withdrawals. Groundwater withdrawals are primarily from alluvial deposits, such as those at the land application sites. Over 90% of the groundwater usage in Conway County is agricultural. As noted, the withdrawals in the area of the land application sites are largely for crop irrigation. Potable well logs were not identified in the vicinity of the land application sites based on a file review of available well information.

Table 4 - Water Use in Conway County, Arkansas

Water Withdrawal	Use (million gallons per day)				
	Public Supply	Commercial	Industrial	Agricultural	Total
Surface Water	1.08	0.03	7.33	1.99	10.43
Groundwater	0.05	0.0	0.0	0.70	0.75

[3] To be cited

[4] http://www.geology.ar.gov/catalog/mapsdata.htm.

CHARACTERIZATION OF ORGANIC RESIDUALS AND SOILS

The WMP included analytical results for the soils and organic residuals. Subsequent to the submittal of the WMP application site soils were analyzed for chromium (hexavalent), barium and silver. Tables 5 and 6 include a summary of the regulated metals in the land application site soils and the organic residuals, respectively. The regulated metals in these tables are the metals referenced in both 40 C.F.R. Part 503 and Part 257.3-4.

The results for regulated metals in the land application site soils are summarized in Table 5. It should be noted that the analytical results in Table 5 include more than one sample event and average concentrations are presented for analytes analyzed more than once; details are provided in the attachments. Also included in Table 5 are soil background data from the USEPA[5] and the USGS[6].

Table 5 - Metals in Soils

Analyte	Soil Test Results (mg/kg)				Background			
					USEPA		USGS	
	HC-1	HC-2	HC-3	HC-4	Min.	Max.	Min.	Max.
Arsenic	5.68	6.67	<5	<5	1	50	1.6	36
Barium	46	46	63	65	100	3,000	700	1,000
Cadmium	0.255	0.290	<0.4	<0.4	0.01	0.7	<1	1.0
Chromium			<0.4	<0.4	1	1,000	20	70
Copper	4.79	5.21	3.5	4.2	2	100	7	30
Lead	14	18.3	4.2	<4	2	200	15	20
Mercury	<0.0133	<0.0133	<0.1	<0.1	0.01	0.3	0.02	0.26
Nickel	6.61	7.13	5.4	6.2	5	500	5	15
Selenium	<1.0	<1.0	<7	<7	0.1	2	0.1	0.7
Silver	<0.7	<0.7	<0.7	<0.7	0.01	5	<0.5	3
Zinc	14.9	16	16	19	10	300	20	147

The organic residuals were analyzed for the 40 C.F.R. Part 503 and Part 257.3-4 metals, with the exception of barium and silver. The analysis of the organic residuals included total chromium; the hexavalent chromium concentration is expected to be a small fraction of the total. The assumed barium and silver concentrations presented in Table 6 are set at 50% of the maximum USEPA soil background concentrations. These concentrations are consistent with the barium and silver concentrations of paper industry residuals reported in the literature[7]. The 40 C.F.R. 40 Part 503 Class A limits are also included in Table 6. As documented in the WMP, the metal concentrations in the organic residuals are less than the Class A limits. These limits have been established by the USEPA as being protective of human health and the environment, including the groundwater resource.

---

[5] USEPA, 1983. Hazardous Waste Land Treatment. Publication SW-874; page 273.

[6] USGS, 1975. Background Geochemistry of Some Rocks, Soils, Plants and Vegetables in the Conterminous United States. Professional Paper 574-F; Plow zone, pasture field, floodplain, MO

[7] NCASI, 1999. A Summary of Available Data on the Chemical Composition of Forest Products Industry Solid Wastes. Special Report No. 99-04.

Table 6 - Metals in Organic Residuals and Biosolids Limits

Analyte	Organic Residuals Results (mg/kg)				Class A Biosolids Limit
	ASB	SHP	SSP	NSP	
Arsenic	<5	<5	<5	<5	41
Barium (assumed)	1,500	1,500	1,500	1,500	No Limit
Cadmium	4	3	3.5	4.8	39
Chromium (total)	32	40	36	22	No Limit
Copper	67	250	49	30	1,500
Lead	20	43	11	34	300
Mercury	0.18	0.13	<0.1	<0.1	17
Nickel	24	53	86	24	420
Selenium	<7	<7	<7	<7	100
Silver (assumed)	2.5	2.5	2.5	2.5	No Limit
Zinc	650	520	350	760	2,800

ASSESSMENT OF METALS AT LAND APPLICATION SITES

Site Characteristics: Soil profiles are included in the attachments that were prepared to illustrate the subsurface conditions at the land application sites. One profile was prepared showing the USDA information on the Roxana soil series and the information included in the log for Well 2. This profile typifies the areas with fine-grained soils over the sand and gravel aquifer found in the area of land application sites HA-3 and 4. Another profile was prepared showing the USDA information of the finer-textured Gallion soil series and information from the log for Well 8, which typifies the area near the southern extent of the sand and gravel aquifer and is expected to represent the western portion of land application sites HA-1 and 2.

As noted above, the surficial soils at the land application sites are alluvial in origin and consist of bedded planes generally meeting the USCS designation of silt (ML) to clayey silt (ML-CL). The substratum of the surficial soils are classified as massive indicating there is little or no secondary hydraulic conductivity associated with vertical pathways (fractures or structural planes). The clay in the fine-textured soil and massive layered soil both provide negatively charged exchange sites to retain metals and limit the rate of deep percolation. The mechanism of metal retention is further discussed in the following section on cation exchange capacity. The logs for Wells 2 and 8 indicate there are greater than 20 feet of the fine-textured soil over the sand and gravel aquifer. Approximately 10 feet of the fine-textured soil is not saturated and considered oxidized, which prevents the mobilization of metals that may occur under reduced conditions. The thick fine-textured soil provides a substantial protective layer over the groundwater resource and the useable aquifer (saturated sand and gravel deposits).

Although the overlying soil provides a substantial protective layer, it should be noted that groundwater in the vicinity of the land application sites is used primarily for crop irrigation and is not relied upon as a potable water source. Further, the concentration of any constituent in deep percolation will be diluted in the saturated sand and gravel deposits making up the local aquifer.

Background and 40 C.F.R. Part 503 Metal Concentrations: The soils of the land application sites have metal concentrations that are generally in the lower portion of the background range presented by the USEPA and USGS. The detected metals in the organic residuals are within the reported range of soil background concentrations with the exception of cadmium, copper and zinc. With the exception of these

three metals, the land application of organic residuals will not introduce metals at concentrations greater than normally found in the natural environment. Cadmium, copper and zinc concentrations above soil background are not a threat to the groundwater resource based on the USEPA 40 C.F.R. Part 503 Class A limits.

Arsenic, cadmium, copper, lead, mercury, nickel, selenium and zinc are well within the limits set for Class A biosolids. These metal limits were developed through a risk-based assessment and USEPA considers these limits to be protective of both human health and the environment[8]. The land application of organic residuals with metal concentrations below the Class A limits will not adversely affect the groundwater resource, based on the USEPA judgment. This will be further reinforced in the discussion of cation exchange capacity in a following section.

Crop Uptake: Crop metal uptake was determined as summarized in Table 7. It was assumed the average application rate of the organic residuals will be on the order of 5 dry tons per acre. Although not anticipated, this assessment conservatively assumes the organic residuals would be applied to the four application sites over a period of 20 years, resulting in a total approximate load of about 100 dry tons per acre. The average metal concentration from the four sources was utilized because the various organic residuals would be applied to all four sites. The metal nutrient uptake is based on the sufficiency range to produce a crop, in this case corn.[9] The actual uptake can be greater. Also, metals that are not considered nutrients, especially selenium, are taken up by crops, but 'typical' uptake values are not established. The 20 year crop uptake of the metals ranges from 0.1 pound of nickel to 11.2 pounds of zinc. This equates to 1% (nickel) to 23% (copper) of the metal nutrients applied with the organic residuals are removed by the crop.

Table 7 - Metal Uptake by Crops

Analyte	Concentration mg/kg	App Rate dt/ac	Analyte lbs/ac	20 Years of Corn Uptake lbs/ac	Remaining after Cropping lbs/ac	Percent Reduction
Copper	99	100	19.8	4.48	15.3	23
Nickel	47		9.4	0.112	9.3	1
Zinc	570		114.0	11.2	102.8	10

Precipitation: The organic residuals have an elevated pH as a result of calcium carbonates and oxides. These factors increase metal retention and cause precipitation when the organic residuals are land applied. The metals most strongly influenced by an increase in pH are lead, nickel, zinc and copper[10]. These metals are also prone to form precipitates with calcium carbonates. Although not readily quantifiable, the precipitation of metals is an added safeguard for groundwater protection.

Cation Exchange: The soil's ability to retain positively charges ions, or cations, is referred to as the cation exchange capacity. The CEC is a measure of the exchangeable cations in soil, primarily calcium, magnesium, potassium and sodium. It is measured in milli-equivalence per 100 grams (meq/100g) of soil relative to hydrogen. The CEC of the soil at the land application sites is a quantifiable property. The

---

[8] USEPA, 1995. A Guide to the Biosolids Risk Assessments for the EPA Part 503 Rule. Publication EPA/832-B-93-005.
[9] www.ncagr.gov/agronomi/saaesd/scsb394.pdf and www2.ca.uky.edu/agc/pubs/agr/agr92/agr92.pd
[10] USEPA, 1992. Behavior of Metals in Soils. Publication 540/S-92/018

CEC of the land application site topsoil was determined and it averages 9.4 meq/100g. It is possible to calculate the capacity of the soil to retain metals that are land applied with the organic residuals. An Excel Worksheet with the calculations and results is provided in the attachments. A summary is provided in Table 8. In this summary it has been conservatively assumed that organic residuals have been applied to an application site at a rate of 5 dry tons per acre for 20 consecutive years. The average metal concentration of the organic residuals was utilized and if the metal was not detected a value of 50% of the detection limit was included in the calculation.

The calculation shows a relatively small amount of the CEC in the topsoil of the land application site is required to retain the metals that will be applied with the organic residuals. Only 0.46 meq/100g of the topsoil's CEC is required to retain the metals applied over the course of 20 years, in this example. The calculation also shows there is still a substantial (95%) of the topsoil's CEC remaining. Therefore, it is not expected metals would move beyond the topsoil layer. Additionally, the subsoil and substratum provide for significant retention of metals. A loamy mineral substratum will have a CEC on the order of 5 meq/100g[11]. A 10-foot thickness of unsaturated fine-grained soil, as shown in the log of Well 2, would provide approximately 6 times the CEC of the topsoil. This illustrates significant protection of groundwater offered by the soils at the land application sites.

Table 8 - Reduction of CEC with Organic Residuals Amendment

Metal and Concentration in mg/kg		Metals added to Soil with Organic Residuals in lbs/ac	Pounds of Metal per Acre to Equal 1meq/100g	meq/100g Occupied by Applied Metal	Pre-Application Soil CEC in meq/100g	Remaining CEC meq/100g
Arsenic	*2.5 (no detect)*	0.5	499	0.00100		
Barium	1,500 (assumed)	300.0	1373	0.21850		
Cadmium	3.8	0.8	1124	0.00068		
Chromium	32.5	6.5	347	0.01875		
Copper	99	19.8	635	0.03118		
Lead	27	5.4	2072	0.00261		
Mercury	0.1	0.02	2006	0.00001		
Nickel	47	9.4	587	0.01601		
Selenium	*3.5 (no detect)*	0.7	395	0.00177		
Silver	2.5 (assumed)	0.5	2158	0.00023		
Zinc	570	114.0	664	0.17169		
Sum				0.4624	9.4	8.938

[11] http://documents.crinet.com/AgSource-Cooperative-Services/Locations/F-04241-12---CEC-FS-Lincoln.pdf

COMPLIANCE DOCUMENTATION SUMMARY

The following document compliance with both 40 C.F.R. Part 503 and Part 257.3-4.

- *The groundwater from the local aquifer is used primarily for crop irrigation; not potable water. The local aquifer is located below 20 feet of finer-grained surficial soils, which provides mechanisms to retain the regulated metals that may be applied with the organic residuals.*
- *The detected metals in the organic residuals are within the reported range of soil background concentrations with the exception of cadmium, copper and zinc. With the exception of these three metals, the land application of organic residuals will not introduce metals at concentrations greater than normally found in the natural environment. Cadmium, copper and zinc concentrations above soil background are not a threat to the groundwater resource based on the USEPA 40 C.F.R. Part 503 Class A limits and the evaluation of soil CEC at the land application sites. All metals detected in the organic residuals are at concentrations that are well within the limits set 40 C.F.R. Part 503. The USEPA considers these limits to be protective of both human health and the environment, including the groundwater resource.*
- *Copper, nickel, selenium, and zinc are removed by crops that will be grown on the land application sites. It is estimated as much as 20% of the applied copper will be removed by crops.*
- *The organic residuals have an elevated pH as a result of calcium carbonates and oxides. These factors will increase metal retention and cause precipitation. The metals most strongly influenced by an increase in pH are lead, nickel, zinc and copper. These metals are also prone to form precipitates with calcium carbonates. Although not quantified, this mechanism provides added assurance the ground water resource is protected.*
- *Calculations have shown the CEC of the topsoil at the land application sites is sufficient to retain metals that may be applied with the organic residuals. The subsoil and substratum provide for significant additional retention of metals. The retention of metals in the topsoil, and also in the subsoil and substratum will prevent adverse impacts to the groundwater resource.*

ATTACHMENTS

Well Logs 2 and 8

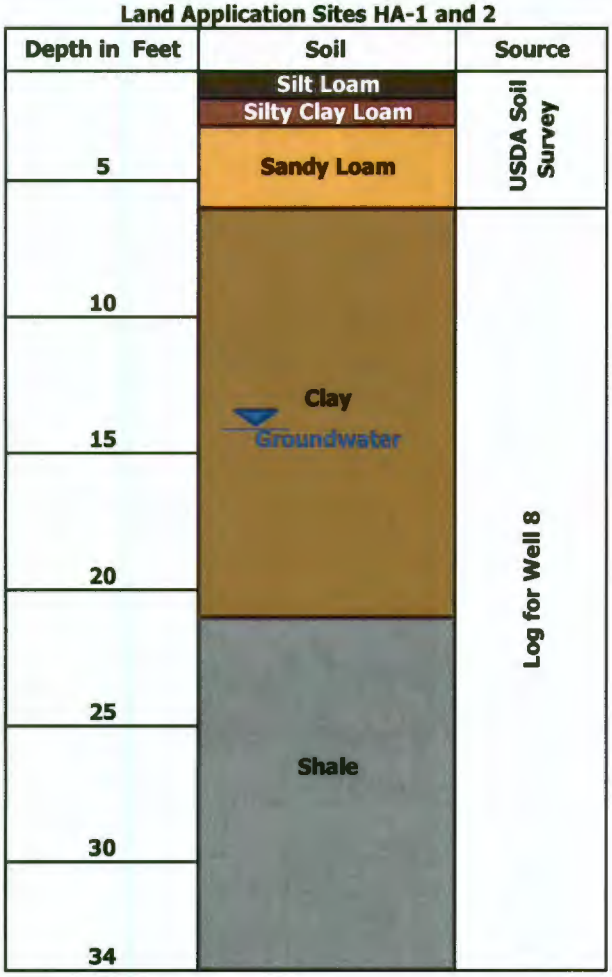
Soil Profiles

Analytical Summaries

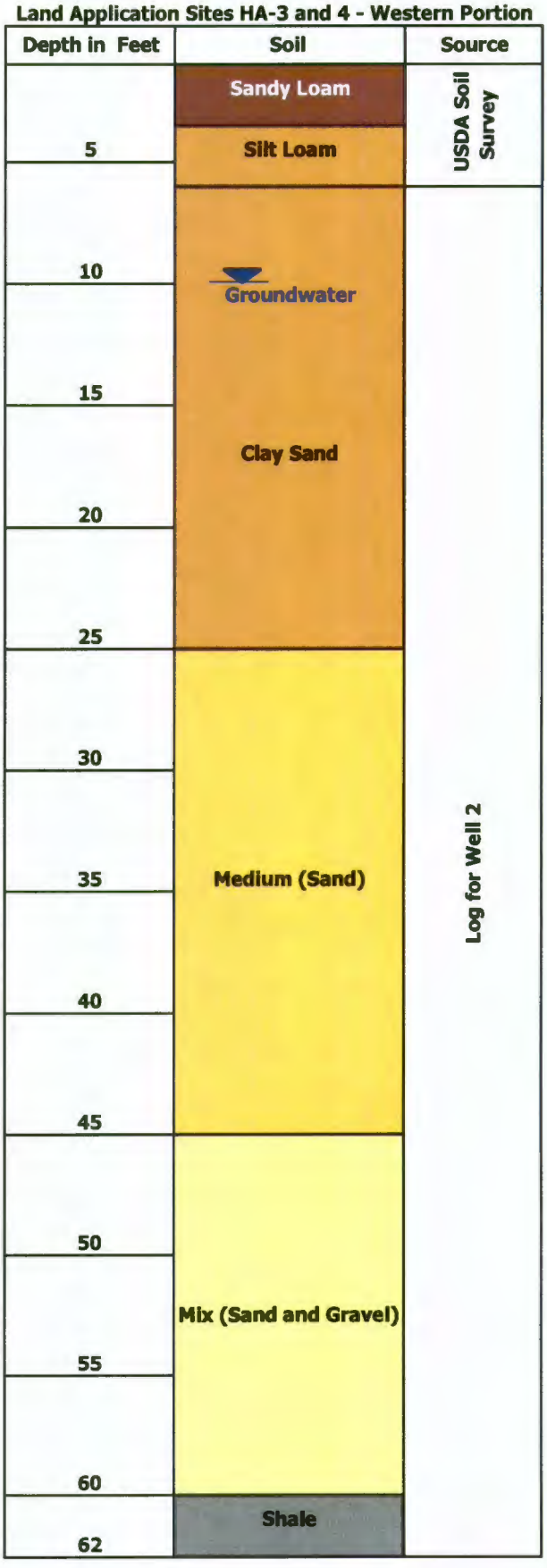
Crop Uptake and Retention Calculation Worksheet

Approximated Soil Profiles at Land Application Sites and Local Well Logs

Land Application Sites HA-1 and 2



Land Application Sites HA-3 and 4 - Western Portion



STATE OF ARKANSAS
REPORT ON WATER WELL CONSTRUCTION & PUMP INSTALLATION

A

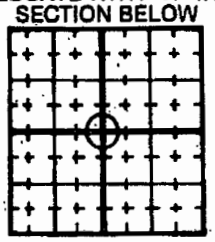
1 Contractor Name & Number: HAgger Well Service C# 1137

2 Driller Name & Number: James Hagger D# 2151

3 Pump Installer Name & Number: James Hagger P# 4371

4 Date Well Completed: 6/16/05 New Well ☑ Replace or Work-over ☐

10 LOCATE WITH 'X' IN SECTION BELOW



5 COUNTY	6 FRACTION	7 SECTION	8 TOWNSHIP	9 RANGE
CONWAY	NW ¼ of NW ¼ of	36	6N	17W

LONGITUDE 11 35 ° 07 · 40 "

LATITUDE 11 92 ° 45 · 57 "

B 1 DESCRIPTION OF FORMATION: DEPTHS IN FEET

	FROM	TO
Clay Sand	0	25
Med	25	45
Coarse Mix	45	60
Rock (Shale)	60	62

ATTACH ADDITIONAL SHEETS IF NECESSARY

2 TOTAL DEPTH OF WELL 60 ft

3 DEPTHS TO WATER PRODUCING FORMATIONS. 10'

4 STATIC WATER LEVEL 10' Ft below land surface

5 YIELD 700 gallons per ☐ min ☐ hr

6 DIAMETER OF BORE HOLE 18 IN

C PUMP REPORT

1 TYPE PUMP: SUBMERSIBLE ☑ TURBINE ☐ JET ☐

2 SETTING DEPTH: 55 FEET

3 BRAND NAME AND SERIAL NUMBERS: Ideal L-700 - 10 H.P.

4 RATED CAPACITY 700 gallons per minute

5 TYPE LUBRICATION Water

6 DROP PIPE OR COLUMN PIPE SIZE 6" PVC

7 WIRE SIZE #6 Copper

8 PRESSURE TANK . . . SIZE, MAKE, MODEL

9 DATE OF INSTALLATION OR REPAIR

10 Is there an abandoned water well on the property?

D 1 LAND OWNER OR OTHER CONTACT PERSON:

NAME Phillip Lentz

STREET ADDRESS 185 Sardis Rd

CITY Morrilton, AR. 72110

2 CASING FROM 0 TO 60 W/ 10 "ID

FROM TO W/ "ID

TYPE CASING: PVC

3 SCREEN

TYPE: PVC DIA 10 SLOT/GA 050

SET FROM 60 FT TO 40 FT

TYPE: DIA SLOT/GA

SET FROM FT TO FT

4 GRAVEL PACK FROM 0 FT TO 60 FT

5 BACK FILLED WITH: Sand & pea gravel

FROM FT TO FT

6 SEALED WITH: Bentonite & Cement

FROM FT TO FT

FROM FT TO FT

7 DISINFECTED WITH:

8 USE OF WELL:

DOMESTIC	☐	COMMERCIAL	☐
IRRIGATION	☑	MONITOR	☐
LIVESTOCK/POULTRY	☐	TEST WELL	☐
OIL/GAS SUPPLY	☐	SEMI-PUBLIC	☐
PUBLIC SUPPLY	☐	OTHER	

(A/C HEATPUMP TYPE WELLS)

SOURCE	☐	RETURN	☐
CLOSED LOOP	☐		

9 (For A/C only) Will system also be used for purposes other than Heating or Air Conditioning?

If yes, name use: yes ☐ no ☐

10 (For A/C open-loop only) Into what medium is water returned?

11 REMARKS

12 SIGNED James Hagger DATE 6-26-05

AWD-7 JAN 69 ACI-5946

Arkansas Water Well Construction Commission, 101 East Capitol, Suite 350, Little Rock, AR 72201

NOV 22 2010

0000231

STATE OF ARKANSAS
REPORT ON WATER WELL CONSTRUCTION & PUMP INSTALLATION

RESET

A

1 Contractor Name & Number: Grubbs Hoskyn Barton & Wyatt, Inc. C# 1144

2 Driller Name & Number: Charles Draper D# 2320

3 Pump Installer Name & Number: N/A P#

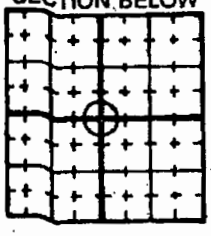
4 Date Well Completed: Installation date not known/ well abandoned on 1/3/07 New Well ☐ Replace or Work-over ☐

5 COUNTY	6 FRACTION	7 SECTION	8 TOWNSHIP	9 RANGE
Conway	¼ of	¼ of 18	5N	16W

LONGITUDE 11 35 ° 05 ' 12.4 "

LATITUDE 11 92 ° 44 ' 09 "

10 LOCATE WITH 'X' IN SECTION BELOW



B 1 DESCRIPTION OF FORMATION: DEPTHS IN FEET

	FROM	TO
Brown to tan clayey silt	0	2.5
Reddish tan, tan and gray clay	2.5	21
Dark gray shale	21	34
ATTACH ADDITIONAL SHEETS IF NECESSARY		

2 TOTAL DEPTH OF WELL 34 ft

3 DEPTHS TO WATER PRODUCING FORMATIONS:

4 STATIC WATER LEVEL 14.3 Ft below land surface

5 YIELD N/A gallons per ☐ min ☐ hr

6 DIAMETER OF BORE HOLE IN

C PUMP REPORT

1 TYPE PUMP: SUBMERSIBLE ☐ TURBINE ☐ JET ☐

2 SETTING DEPTH: FEET

3 BRAND NAME AND SERIAL NUMBERS:

4 RATED CAPACITY gallons per minute

5 TYPE LUBRICATION

6 DROP PIPE OR COLUMN PIPE SIZE

7 WIRE SIZE

8 PRESSURE TANK . . . SIZE, MAKE, MODEL

9 DATE OF INSTALLATION OR REPAIR

10 Is there an abandoned water well on the property? Not known

D 1 LAND OWNER OR OTHER CONTACT PERSON:

NAME Green Bay Packaging Plant

STREET ADDRESS 3610 Highway 64

CITY Plumerville, AR 72127

2 CASING FROM TO W/ "ID

FROM TO W/ "ID

TYPE CASING: PVC, 2-inch O.D.

3 SCREEN

TYPE: Not known DIA SLOT/GA

SET FROM FT TO FT

TYPE: DIA SLOT/GA

SET FROM FT TO FT

4 GRAVEL PACK FROM Not known FT TO Not known FT

5 BACK FILLED WITH: Cement/bentonite grout

FROM 0 FT TO 34 FT

6 SEALED WITH: Cement/bentonite grout

FROM 0 FT TO 34 FT

FROM FT TO FT

7 DISINFECTED WITH: N/A

8 USE OF WELL:

DOMESTIC	☐	COMMERCIAL	☐
IRRIGATION	☐	MONITOR	☒
LIVESTOCK/POULTRY	☐	TEST WELL	☐
OIL/GAS SUPPLY	☐	SEMI-PUBLIC	☐
PUBLIC SUPPLY	☐	OTHER	

(A/C HEATPUMP TYPE WELLS) SOURCE ☐ CLOSED LOOP ☐ RETURN ☐

9 (For A/C only) Will system also be used for purposes other than Heating or Air Conditioning? yes ☐ no ☐

If yes, name use:

10 (For A/C open-loop only) Into what medium is water returned?

11 REMARKS

Well installed by others; well was abandoned on 1/3/07.

12 SIGNED DATE

AWD-7 JAN 89 ACI--6945

Arkansas Water Well Construction Commission, 101 East Capitol, Suite 350, Little Rock, AR 72201

NOV 22 2010

000041

ETC
www.etcmemphis.com
ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Lab No : **99098**
Sample ID : **1**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.773**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**9.09**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**4.43**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**11.4**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.10**	mg/Kg	1.00	1	05/24/13 03:56	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**172**	mg/Kg	5.00	1	05/29/13 11:41	JTR	6010B	
Total Arsenic	**5.68**	mg/Kg	1.00	1	05/24/13 08:11	BKN	6010B	
Total Calcium	**1040**	mg/Kg	5.00	1	05/24/13 08:11	BKN	6010B	
Total Cadmium	**0.255**	mg/Kg	0.100	1	05/24/13 08:11	BKN	6010B	
Total Copper	**4.79**	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Lead	**14.0**	mg/Kg	0.300	1	05/24/13 08:11	BKN	6010B	
Total Magnesium	**1260**	mg/Kg	5.00	1	05/24/13 08:11	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:24	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Nickel	**6.61**	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Potassium	**554**	mg/Kg	5.00	1	05/29/13 11:41	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 08:11	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 08:11	BKN	6010B	
Total Zinc	**14.9**	mg/Kg	0.500	1	05/24/13 08:11	BKN	6010B	
Cation Exchange Capacity	**15.9**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.04**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

ETC
www.etcmemphis.com

ENVIRONMENTAL TESTING & CONSULTING, INC.

2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440

"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Lab No : **99099**
Sample ID : **2(1)**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.992**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**2.53**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**2.13**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**8.86**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.51**	mg/Kg	1.00	1	05/24/13 04:48	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**188**	mg/Kg	5.00	1	05/29/13 11:44	JTR	6010B	
Total Arsenic	**7.22**	mg/Kg	1.00	1	05/24/13 08:04	BKN	6010B	
Total Calcium	**1070**	mg/Kg	5.00	1	05/24/13 08:04	BKN	6010B	
Total Cadmium	**0.286**	mg/Kg	0.100	1	05/24/13 08:04	BKN	6010B	
Total Copper	**5.21**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Lead	**19.1**	mg/Kg	0.300	1	05/24/13 08:04	BKN	6010B	
Total Magnesium	**1250**	mg/Kg	5.00	1	05/24/13 08:04	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:26	TDJ	7471A	
Total Molybdenum	**0.278**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Nickel	**6.67**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Potassium	**544**	mg/Kg	5.00	1	05/29/13 11:44	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 08:04	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 08:04	BKN	6010B	
Total Zinc	**15.4**	mg/Kg	0.500	1	05/24/13 08:04	BKN	6010B	
Cation Exchange Capacity	**18.5**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.05**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions

* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

ETC
www.etcmemphis.com
ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Lab No : **99100**
Sample ID : **2(2)**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.890**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**6.32**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**2.94**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**10.8**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.44**	mg/Kg	1.00	1	05/24/13 05:05	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**203**	mg/Kg	5.00	1	05/29/13 11:48	JTR	6010B	
Total Arsenic	**6.12**	mg/Kg	1.00	1	05/24/13 07:50	BKN	6010B	
Total Calcium	**1130**	mg/Kg	5.00	1	05/24/13 07:50	BKN	6010B	
Total Cadmium	**0.293**	mg/Kg	0.100	1	05/24/13 07:50	BKN	6010B	
Total Copper	**5.20**	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Lead	**17.4**	mg/Kg	0.300	1	05/24/13 07:50	BKN	6010B	
Total Magnesium	**1290**	mg/Kg	5.00	1	05/24/13 07:50	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:28	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Nickel	**7.58**	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Potassium	**585**	mg/Kg	5.00	1	05/29/13 11:48	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 07:50	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 07:50	BKN	6010B	
Total Zinc	**16.6**	mg/Kg	0.500	1	05/24/13 07:50	BKN	6010B	
Cation Exchange Capacity	**15.5**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.05**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

www.allabs.com

A&L Analytical Laboratories, Inc.

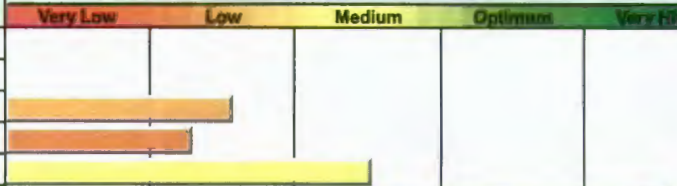
2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay- Pkg	Report No: 13-141-0512 Cust No: 20513 Date Printed: 05/22/2013 Date Received : 05/21/2013 PO: Page : 4 of 6

Lab Number : 05414 **Field Id :** **Sample Id :** 1

Test	Method	Results
Soil pH	1:1	6.4
Buffer pH	BPH	6.74
Phosphorus (P)	M3	9 ppm
Potassium (K)	M3	62 ppm
Calcium (Ca)	M3	1180 ppm
Magnesium (Mg)	M3	284 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.6 % ENR 76
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.7 meq/100g	
Calculated Cation Saturation	
%K	1.9
%Ca	60.5
%Mg	28.3
%H	9.0
Hmeq	0.7
K : Mg Ratio	
0.07	
Ca : Mg Ratio	
2.14	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

www.allabs.com

A&L Analytical Laboratories, Inc.

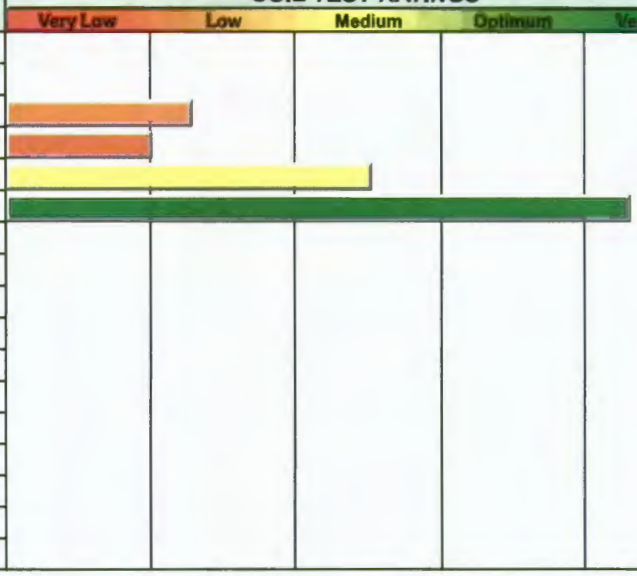
2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay- Pkg	Report No: 13-141-0512 Cust No: 20513 Date Printed: 05/22/2013 Date Received : 05/21/2013 PO: Page : 5 of 6

Lab Number : 05415 **Field Id :** **Sample Id :** 2 (1)

Test	Method	Results
Soil pH	1:1	6.3
Buffer pH	BPH	6.79
Phosphorus (P)	M3	6 ppm
Potassium (K)	M3	50 ppm
Calcium (Ca)	M3	1108 ppm
Magnesium (Mg)	M3	248 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.7 % ENR 78
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.1 meq/100g	
Calculated Cation Saturation	
%K	1.7
%Ca	61.6
%Mg	26.8
%H	10.6
Hmeq	0.8
K : Mg Ratio	
0.06	
Ca : Mg Ratio	
2.30	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

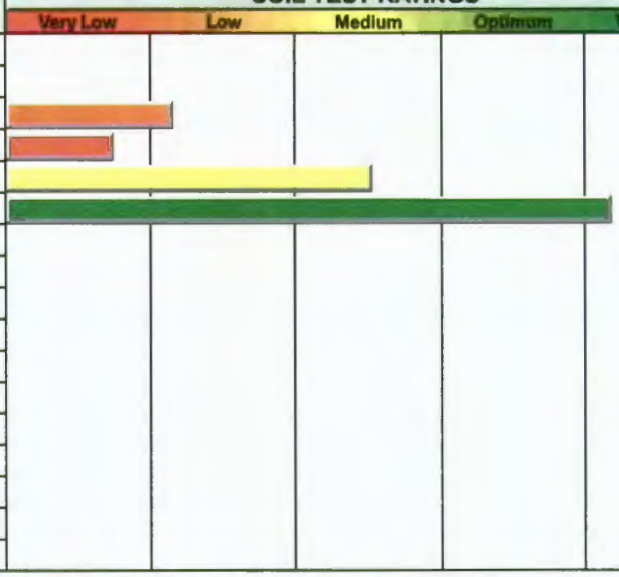
www.allabs.com

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay- Pkg	Report No: 13-141-0512 Cust No: 20513 Date Printed: 05/22/2013 Date Received : 05/21/2013 PO: Page : 6 of 6

Lab Number : 05416 **Field Id :** **Sample Id :** 2 (2)

Test	Method	Results
Soil pH	1:1	6.3
Buffer pH	BPH	6.76
Phosphorus (P)	M3	5 ppm
Potassium (K)	M3	39 ppm
Calcium (Ca)	M3	995 ppm
Magnesium (Mg)	M3	219 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	2.4 % ENR 92
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
6.4 meq/100g	
Calculated Cation Saturation	
%K	1.5
%Ca	61.4
%Mg	26.2
%H	10.5
Hmeq	0.7
K : Mg Ratio	
0.05	
Ca : Mg Ratio	
2.34	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Mr. Stan Chivers
338 HWY 113 South
Morrilton, AR 72110

This report replaces American Interplex Corporation (AIC) Control No. 169957 originally sent on August 28, 2013. This report contains the analytical results and supporting information for samples submitted on August 22, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Revised to include results for Chromium.

Steve Bradford
Deputy Laboratory Director

This document has been distributed to the following:

PDF cc: Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Ms. Debbie Benson
dbenson@gbp.com

Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Mr. Stan Chivers
schivers@gbp.com

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

SAMPLE INFORMATION

Project Description:
Two (2) soil sample(s) received on August 22, 2013
P.O. No. 110995

Receipt Details:
A Chain of Custody was not provided with the sample(s).

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
169957-1	HC-3		
169957-2	HC-4		

Qualifiers:
X Spiking level is invalid due to the high concentration of analyte in the spiked sample

Case Narrative:
Analysis of soils/sludges are reported on a dry-weight basis unless otherwise specified.

References:
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).
"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.
"Standard Methods for the Examination of Water and Wastewaters", 21st edition.
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

ANALYTICAL RESULTS

AIC No. 169957-1
Sample Identification: HC-3

Analyte		Result	RL	Units	Qualifier
Chromium, Hexavalent		**< 0.4**	0.4	**mg/Kg**	
EPA 3060A, 7196A	Prep: 26-Aug-2013 1039 by 93	Analyzed: 26-Aug-2013 1630 by 93		Batch: W44681	
Total Solids		**97**	0.01	**wt %**	
SM 2540 G	Prep: 27-Aug-2013 1031 by 285	Analyzed: 28-Aug-2013 1131 by 285		Batch: W44692	
Arsenic		**< 5**	5	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Barium		**41**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Cadmium		**< 0.4**	0.4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Chromium		**9.0**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Copper		**3.5**	0.6	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Lead		**4.2**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Molybdenum		**< 0.8**	0.8	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Nickel		**5.4**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Selenium		**< 7**	7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Silver		**< 0.7**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Zinc		**16**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1530 by 305		Batch: S35273	
Mercury		**< 0.1**	0.1	**mg/Kg**	
EPA 7471B	Prep: 23-Aug-2013 1135 by 311	Analyzed: 26-Aug-2013 1148 by 311		Batch: S35279	

AIC No. 169957-2
Sample Identification: HC-4

Analyte		Result	RL	Units	Qualifier
Chromium, Hexavalent		**< 0.4**	0.4	**mg/Kg**	
EPA 3060A, 7196A	Prep: 26-Aug-2013 1039 by 93	Analyzed: 26-Aug-2013 1630 by 93		Batch: W44681	
Total Solids		**96**	0.01	**wt %**	
SM 2540 G	Prep: 27-Aug-2013 1031 by 285	Analyzed: 28-Aug-2013 1131 by 285		Batch: W44692	
Arsenic		**< 5**	5	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Barium		**45**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

ANALYTICAL RESULTS

AIC No. 169957-2 (Continued)
Sample Identification: HC-4

Analyte		Result	RL	Units	Qualifier
Cadmium		**< 0.4**	0.4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Chromium		**9.4**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Copper		**4.2**	0.6	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Lead		**< 4**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Molybdenum		**< 0.8**	0.8	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Nickel		**6.2**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Selenium		**< 7**	7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Silver		**< 0.7**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Zinc		**19**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 23-Aug-2013 0915 by 271	Analyzed: 23-Aug-2013 1534 by 305		Batch: S35273	
Mercury		**< 0.1**	0.1	**mg/Kg**	
EPA 7471B	Prep: 23-Aug-2013 1135 by 311	Analyzed: 26-Aug-2013 1151 by 311		Batch: S35279	

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

DUPLICATE RESULTS

Analyte	AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Total Solids	169957-1	97 wt %			27Aug13 1031 by 285	28Aug13 1131 by 285		
Batch: W44692	Duplicate	97 wt %	0.0737	10.0	27Aug13 1032 by 285	28Aug13 1131 by 285		

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Chromium, Hexavalent	40.0 mg/Kg	102	80.0-120			W44681	26Aug13 1040 by 93	26Aug13 1630 by 93		
Arsenic	500 mg/Kg	98.0	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Barium	50.0 mg/Kg	102	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Cadmium	500 mg/Kg	91.2	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Chromium	50.0 mg/Kg	96.7	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Copper	50.0 mg/Kg	92.7	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Lead	500 mg/Kg	99.7	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Molybdenum	50.0 mg/Kg	98.1	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Nickel	50.0 mg/Kg	97.7	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Selenium	500 mg/Kg	92.1	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Silver	10.0 mg/Kg	91.9	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Zinc	50.0 mg/Kg	94.3	85.0-115			S35273	23Aug13 0915 by 271	23Aug13 1520 by 305		
Mercury	1.25 mg/Kg	96.9	85.0-115			S35279	23Aug13 1136 by 311	26Aug13 1138 by 311		

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Chromium, Hexavalent	169957-1	1 mg/Kg	75.9	75.0-125	W44681	26Aug13 1040 by 93	26Aug13 1630 by 93		
	169957-1	1 mg/Kg	79.5	75.0-125	W44681	26Aug13 1040 by 93	26Aug13 1630 by 93		
	Relative Percent Difference:		4.54	25.0	W44681				
Arsenic	169957-1	497 mg/Kg	92.4	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	493 mg/Kg	92.9	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.594	20.0	S35273				
Barium	169957-1	49.7 mg/Kg	-	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		X
	169957-1	49.3 mg/Kg	-	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		X
	Relative Percent Difference:		0.147	20.0	S35273				
Cadmium	169957-1	497 mg/Kg	89.2	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	493 mg/Kg	89.5	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.392	20.0	S35273				
Chromium	169957-1	49.7 mg/Kg	95.1	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	49.3 mg/Kg	95.4	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.277	20.0	S35273				
Copper	169957-1	49.7 mg/Kg	102	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	49.3 mg/Kg	103	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.931	20.0	S35273				
Lead	169957-1	497 mg/Kg	95.5	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	493 mg/Kg	95.8	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.372	20.0	S35273				
Molybdenum	169957-1	49.7 mg/Kg	93.9	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	49.3 mg/Kg	94.6	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.759	20.0	S35273				
Nickel	169957-1	49.7 mg/Kg	92.4	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	49.3 mg/Kg	92.6	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.268	20.0	S35273				
Selenium	169957-1	497 mg/Kg	82.1	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	493 mg/Kg	82.1	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.174	20.0	S35273				
Silver	169957-1	9.95 mg/Kg	87.4	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	9.87 mg/Kg	87.9	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.690	20.0	S35273				
Zinc	169957-1	49.7 mg/Kg	88.8	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1523 by 305		
	169957-1	49.3 mg/Kg	88.9	75.0-125	S35273	23Aug13 0915 by 271	23Aug13 1527 by 305		
	Relative Percent Difference:		0.209	20.0	S35273				
Mercury	169957-1	1.20 mg/Kg	92.9	70.0-130	S35279	23Aug13 1136 by 311	26Aug13 1141 by 311		
	169957-1	1.21 mg/Kg	92.7	70.0-130	S35279	23Aug13 1136 by 311	26Aug13 1144 by 311		
	Relative Percent Difference:		0.354	20.0	S35279				

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

LABORATORY BLANK RESULTS

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Chromium, Hexavalent	< 0.3 mg/Kg	0.3	0.3	W44681-1	26Aug13 1040 by 93	26Aug13 1630 by 93	
Total Solids	< 0.01 wt %	0.01	0.01	W44692-1	27Aug13 1032 by 285	28Aug13 1131 by 285	
Arsenic	< 5 mg/Kg	5	5	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Barium	< 0.2 mg/Kg	0.2	0.2	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Cadmium	< 0.4 mg/Kg	0.4	0.4	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Chromium	< 0.7 mg/Kg	0.7	0.7	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Copper	< 0.6 mg/Kg	0.6	0.6	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Lead	< 4 mg/Kg	4	4	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Molybdenum	< 0.8 mg/Kg	0.8	0.8	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Nickel	< 1 mg/Kg	1	1	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Selenium	< 7 mg/Kg	7	7	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Silver	< 0.7 mg/Kg	0.7	0.7	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Zinc	< 0.2 mg/Kg	0.2	0.2	S35273-1	23Aug13 0915 by 271	23Aug13 1517 by 305	
Mercury	< 0.1 mg/Kg	0.1	0.1	S35279-1	23Aug13 1136 by 311	26Aug13 1135 by 311	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client:
Project Reference:
Project Manager:
Sampled By:

PO No.

SAMPLE MATRIX

NO OF BOTTLES

ANALYSES REQUESTED[1]

AIC CONTROL NO:
AIC PROPOSAL NO:
Carrier:/Tracking No.
Received Temperature C

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL		NO OF BOTTLES												Remarks
		Container Type																		Field pH calibration
		Preservative																		on _____ @ _____ Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: _____
Phone: _____ Fax: _____
Report Attention to:
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
Relinquished By:	Date/Time	Received in Lab By:	Date/Time

Comments:

19-Oct-09

FORM 0060

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

www.allabs.com

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay Pkg	Report No: 13-163-0567 Cust No: 20513 Date Printed: 06/13/2013 Date Received : 06/12/2013 PO: Page : 1 of 2

Lab Number : 14081 **Field Id :** **Sample Id :** HC-3

Test	Method	Results
Soil pH	1:1	5.6
Buffer pH	BPH	6.81
Phosphorus (P)	M3	13 ppm
Potassium (K)	M3	60 ppm
Calcium (Ca)	M3	557 ppm
Magnesium (Mg)	M3	134 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	20 ppm
Soluble Salts		
Organic Matter	LOI	1.1 % ENR 66
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
4.5 meq/100g	
Calculated Cation Saturation	
%K	3.2
%Ca	48.9
%Mg	22.8
%H	23.6
Hmeq	1.1
%Na	1.9
K : Mg Ratio	
0.14	
Ca : Mg Ratio	
2.14	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

www.allabs.com

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay Pkg	Report No: 13-163-0567 Cust No: 20513 Date Printed: 06/13/2013 Date Received : 06/12/2013 PO: Page : 2 of 2

Lab Number : 14082 **Field Id :** **Sample Id :** HC-4

Test	Method	Results
Soil pH	1:1	5.5
Buffer pH	BPH	6.82
Phosphorus (P)	M3	24 ppm
Potassium (K)	M3	69 ppm
Calcium (Ca)	M3	553 ppm
Magnesium (Mg)	M3	138 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	18 ppm
Soluble Salts		
Organic Matter	LOI	1.1 % ENR 66
Nitrate Nitrogen		

Calculated Cation Exchange Capacity	
4.7 meq/100g	
Calculated Cation Saturation	
%K	3.5
%Ca	46.5
%Mg	22.5
%H	26.1
Hmeq	1.2
%Na	1.7
K : Mg Ratio	
0.15	
Ca : Mg Ratio	
2.07	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Mr. Stan Chivers
338 HWY 113 South
Morrilton, AR 72110

This report contains the analytical results and supporting information for samples submitted on August 2, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

John Overbey
Laboratory Director

This document has been distributed to the following:

PDF cc: Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Ms. Debbie Benson
dbenson@gbp.com

Green Bay Packaging Inc., Arkansas Kraft Div.
ATTN: Mr. Stan Chivers
schivers@gbp.com

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

SAMPLE INFORMATION

Project Description:
Two (2) soil sample(s) received on August 2, 2013
P.O. No. 110995

Receipt Details:
A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
169459-1	Soil Composite HC 1-2		
169459-2	Soil Composite 3-4		

Qualifiers:
X Spiking level is invalid due to the high concentration of analyte in the spiked sample

Case Narrative:
Analysis of soils/sludges are reported on a dry-weight basis unless otherwise specified.

References:
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).
"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.
"Standard Methods for the Examination of Water and Wastewaters", 21st edition.
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

SAMPLE INFORMATION

Project Description:
Two (2) soil sample(s) received on August 2, 2013
P.O. No. 110995

Receipt Details:
A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
169459-1	Soil Composite HC 1-2		
169459-2	Soil Composite 3-4		

Qualifiers:
X Spiking level is invalid due to the high concentration of analyte in the spiked sample

Case Narrative:
Analysis of soils/sludges are reported on a dry-weight basis unless otherwise specified.

References:
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).
"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.
"Standard Methods for the Examination of Water and Wastewaters", 21st edition.
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

ANALYTICAL RESULTS

AIC No. 169459-1
Sample Identification: Soil Composite HC 1-2

Analyte		Result	RL	Units	Qualifier
Barium		**46**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 05-Aug-2013 1006 by 100	Analyzed: 06-Aug-2013 1647 by 305		Batch: S35141	
Silver		**< 0.7**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 05-Aug-2013 1006 by 100	Analyzed: 06-Aug-2013 1647 by 305		Batch: S35141	

AIC No. 169459-2
Sample Identification: Soil Composite 3-4

Analyte		Result	RL	Units	Qualifier
Barium		**84**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 05-Aug-2013 1006 by 100	Analyzed: 06-Aug-2013 1652 by 305		Batch: S35141	
Silver		**< 0.7**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 05-Aug-2013 1006 by 100	Analyzed: 06-Aug-2013 1652 by 305		Batch: S35141	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Barium	50.0 mg/Kg	100	85.0-115			S35141	05Aug13 1007 by 100	06Aug13 1549 by 305		
Silver	10.0 mg/Kg	92.4	85.0-115			S35141	05Aug13 1007 by 100	06Aug13 1549 by 305		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Barium	169457-1	99.6 mg/Kg	-	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1552 by 305		X
	169457-1	99.4 mg/Kg	-	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1557 by 305		X
	Relative Percent Difference:		0.0270	20.0	S35141				
Silver	169457-1	19.9 mg/Kg	83.9	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1552 by 305		
	169457-1	19.9 mg/Kg	84.5	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1557 by 305		
	Relative Percent Difference:		0.708	20.0	S35141				

LABORATORY BLANK RESULTS

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Barium	< 0.2 mg/Kg	0.2	0.2	S35141-1	05Aug13 1007 by 100	06Aug13 1545 by 305	
Silver	< 0.7 mg/Kg	0.7	0.7	S35141-1	05Aug13 1007 by 100	06Aug13 1545 by 305	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Green Bay Packaging Inc., Arkansas Kraft Div.
338 HWY 113 South
Morrilton, AR 72110

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
Barium	50.0 mg/Kg	100	85.0-115			S35141	05Aug13 1007 by 100	06Aug13 1549 by 305		
Silver	10.0 mg/Kg	92.4	85.0-115			S35141	05Aug13 1007 by 100	06Aug13 1549 by 305		

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Barium	169457-1	99.6 mg/Kg	-	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1552 by 305		X
	169457-1	99.4 mg/Kg	-	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1557 by 305		X
	Relative Percent Difference:		0.0270	20.0	S35141				
Silver	169457-1	19.9 mg/Kg	83.9	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1552 by 305		
	169457-1	19.9 mg/Kg	84.5	75.0-125	S35141	05Aug13 1007 by 100	06Aug13 1557 by 305		
	Relative Percent Difference:		0.708	20.0	S35141				

LABORATORY BLANK RESULTS

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Barium	< 0.2 mg/Kg	0.2	0.2	S35141-1	05Aug13 1007 by 100	06Aug13 1545 by 305	
Silver	< 0.7 mg/Kg	0.7	0.7	S35141-1	05Aug13 1007 by 100	06Aug13 1545 by 305	

AMERICAN INTERPLEX CORPORATION LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
(501) 224-5060
FAX (501) 224-5072

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: Green Bay Packaging
Project Reference:
Project Manager:
Sampled By:

PO No. 110995

AIC CONTROL NO: 169459
AIC PROPOSAL NO:
Carrier:
Received on Ice (4°C)? YES 29.3 (NO)

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL		NO OF BOTTLES	SILVER	BARIUM											Remarks
	SOIL COMPOSITE HC 1-2					X		1	X	X											
	SOIL COMPOSITE 3-4					X		1	X	X											
																					Field pH calibration
		Container Type							P	P											on ________ @ ______
		Preservative							N	NA											Buffer:

G = Glass (P) = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: ____________
Who should AIC contact with questions: ____________
Phone: ____________ Fax: ____________
Report Attention to: ____________
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
T. Hilte	5/2/13 16.05		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
		[signature]	8-2-13 1605

Comments:

Green Bay Packaging, Inc. - Arkansas Kraft Division
Organic Residuals Analytical Summary

Crop Uptake

Analyte	Concentration[1] mg/kg	App Rate dt/ac	Analyte lbs/ac	Conc in Corn[2] mg/kg	Annual Corn Uptake[3] lbs/ac	20 Year Corn Uptake lbs/ac	Remaing after Cropping lbs/ac	Percent Reduction
Copper	99	100	19.80	20	0.224	4.48	15.32	22.6
Nickel	47	100	9.40	0.5	0.0056	0.112	9.29	1.2
Zinc	570	100	114.00	50	0.56	11.2	102.80	9.8

1) Average of four by-products.

2) www.ncagr.gov/agronomi/saaesd/scsb394.pdf and www2.ca.uky.edu/agc/pubs/agr/agr92/agr92.pdf.

3) 5.6 ton yield per acre (200 bushels of grain).

Data Entry

Adsorption

Analyte	Concentration[1] mg/kg	App Rate dt/ac	Analyte in Soil lbs/ac	Atomic Weight (AW)	Charge (C)	AW/C	Lbs of Analyte/acre to Equal 1 meq/100g	Analyte Equiv meq/100g	Soil CEC[2] meq/100g	Remaining CEC meq/100g
Arsenic[3]	*2.5*	100	0.50	74.9	3	25.0	499	0.00100		
Barium[4]	1,500	100	300.00	137.3	2	68.7	1373	0.21850		
Cadmium	3.8	100	0.76	112.4	2	56.2	1124	0.00068		
Chromium	32.5	100	6.50	52.0	3	17.3	347	0.01875		
Copper	99	100	19.80	63.5	2	31.8	635	0.03118		
Lead	27	100	5.40	207.2	2	103.6	2072	0.00261		
Mercury	0.1	100	0.02	200.6	2	100.3	2006	0.00001		
Nickel	47	100	9.40	58.7	2	29.4	587	0.01601		
Selenium[3]	*3.5*	100	0.70	79.0	4	19.8	395	0.00177		
Silver[4]	2.5	100	0.50	107.9	1	107.9	2158	0.00023		
Zinc	570	100	114.00	66.4	2	33.2	664	0.17169		
Sum								0.4624	9.4	8.938

1) Average of four by-products. Utilize 50% of detection limit for non-detects. Barium and silver assumed concentrations equivalent to average soil concentrations.

2) Average of A&L reports 13-141-0512 and 13-163-0567.

3) Data in itallics represents no detects and concentration is 50% of detection level

4) Assumed concentration

Data Entry

Arkansas Department of Environmental Quality
No-Discharge Section Permit Application
Waste Storage/Land Application

Permit No.:	AFIN:	SIC Code:	NAICS Code:
(Office Use Only)	(Office Use Only)		

1. Permit Action and Type *(Please check one of the following)*:

Operator Type: ☒ Corporation (State of Incorporation: Wisconsin) ☐ Limited Liability Company (State of LLC: _____)

☐ Partnership ☐ Sole Proprietorship/Private ☐ Other _____

☒ New Permit ☐ Renewal ☐ Modification of Permit, Describe: _____

☐ Biosolids ☒ Industrial Waste ☐ Oil and Gas Waste ☐ Treated Effluent Residuals

☐ Water Treatment Residuals ☐ Water Based Drilling Fluids ☐ Other _____

2. Permittee Legal Name and Mailing Address: *(Must Match Arkansas's Secretary of State)*

Owner Name: Green Bay Packaging, Inc., Arkansas Kraft Division			
Address: 338 Hwy 113		Phone Number: 501-354-4521	
City: Morrilton	State: AR	Zip Code: 72110	
Contact Person: (Mr) / Mrs. / Ms.) Thomas Holte		Email: tholte@gbp.com	
Title: Environmental Manager	Phone Number: 501-354-9289	Cell Number:	

3. Facility Location *(physical address is required; NO P.O. BOX)*:

Facility Name: Green Bay Packaging Inc., Arkansas Kraft Division			
Address *(911 Address)*: 338 Hwy 113		Phone Number: 501-354-4521	
City: Morrilton		State: AR	Zip Code: 72110
1/4 Sec.: NW	Section: 17	Township: T-5-N	Range: R-16-W
Latitude: 35 Deg 5 Min 11.7 Sec.		Longitude 92 Deg 43 Min 43.8 Sec.	Source Datum:
County: CONWAY		Nearest Town: MORRILTON	
Nearest Stream: ARKANSAS RIVER		Distance: (ft)	Stream Segment:

4. Consultant Information:

Name: John Pipkin		Consulting Firm: Terra Renewal
Email: johnp@terrarenewal.com		Phone Number: 479-668-4034
Address: 15797 East State Hwy 155		Cell Number: 479-264-5383
City: Dardanelle	State: AR	Zip Code: 72834

Please read the following carefully and sign below.

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, which may include fines and/or imprisonment.

SIGNATORY REQUIREMENTS:

The information contained in this form must be certified by a **responsible official** as defined below:

Corporation: principal officer at least the level of vice president (must be an officer or register agent with the secretary of state)
Partnership: a general partner
Sole Proprietorship: the proprietor/owner
Municipal, state, federal, or other public facility: principal executive officer, or ranking elected official

Responsible Official: Matthew A. Szymanski Title: V.P. and General Manager

Responsible Telephone: 501-354-4521 Email: _____

Responsible Signature: _____ Date: 6/11/13

Cognizant Official is an individual that is given signature authority from the Responsible Official

Cognizant Official: _____ Title: _____

Cognizant Telephone: _____ Email: _____

Cognizant Signature: _____ Date: _____

PERMIT REQUIREMENT VERIFICATION (Please check the following to verify the completion of permit requirements.)

Yes	No	
☒	☐	Submittal of Complete Application Does the Owner name match the Secretary of State (Corporation or Limited Liability Company)? Does the Responsible Official match the Secretary of State?
☒	☐	Submittal of Waste Management Plan Stamped & Signed by an Arkansas Registered PE/ ADH Designated Representative Are maps and site description included?
☐	☒	Submittal of Closure Plan (Oil and Gas/Water Based Drilling Fluids) Is the cost estimate included?
☒	☐	Submittal of Disclosure Statement (completed and executed) Not required for public entity
☒	☐	Submittal of Land use Contract/Deed/Lease
☒	☐	Arkansas Department of Health notification letter (letter transmitting documents to ADH) (New permits or modified permits)
☒	☐	Provide Certificate of Good Standings with the Arkansas Secretary of State (If foreign corporation, provide Certificate of Good Standings from the state of Origin)

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
DISCLOSURE STATEMENT

Instructions for the Completion of this Document:

A. Individuals, firms or other legal entities with no changes to an ADEQ Disclosure Statement, complete items 1 through 5 and 18.

B. Individuals who never submitted an ADEQ Disclosure Statement, complete items 1 through 4, 6, 7, and 16 through 18.

C. Firms or other legal entities who never submitted an ADEQ Disclosure Statement, complete 1 through 4, and 6 through 18.

Mail to:
ADEQ
DISCLOSURE STATEMENT
[*List Proper Division(s)*]
5301 Northshore Drive
North Little Rock, AR 72118-5317

Hand Deliver to:
ADEQ
DISCLOSURE STATEMENT
[*List Proper Division (s)*]
5301 Northshore Drive
North Little Rock, AR 72118-5317

1. APPLICANT: (Full Name)
GREEN BAY PACKAGING, ARKANSAS KRAFT DIVISION

2. MAILING ADDRESS (Number and Street, P.O.Box Or Rural Route):
338 HWY 113

3. CITY, STATE, AND ZIPCODE:
MORRILTON, AR 72110

4. (check all that apply.)

☐ Individual ☒ Corporate or Other Entity

☒ Permit ☐ License ☐ Certification ☐ Operational Authority

☐ New Application ☐ Modification ☐ Renewal Application (If no changes from previous disclosure statement, complete number 5 and 18.)

☐ Air ☒ Water ☐ Hazardous Waste ☐ Regulated Storage Tank ☐ Mining ☐ Solid Waste

☐ Environmental Preservation and Technical Service

5. Declaration of No Changes:
The violation history, experience and credentials, involvement in current or pending environmental lawsuits, civil and criminal, have not changed since the last Disclosure Statement I filed with ADEQ on _____

_____

Signature of Individual or Authorized Representative of Firm or Legal Entity
(Also complete #18.)

6. Describe the experience and credentials of the Applicant, including the receipt of any past or present permits, licenses, certifications or operational authorization relating to environmental regulation. (Attach additional pages, if necessary.)

ARKANSAS KRAFT IS A DIVISION OF GREEN BAY PACKAGING LOCATED IN MORRILTON, AR AND HAS BEEN A MANUFACTURER OF LINERBOARD AND MEDIUM SINCE 1965. ATTACHED IS A LIST (4.3.2.2 ENVIRONMENTAL PERMITS/REGISTRATIONS)OF CURRENT AND PAST ENVIRONMENTAL PERMITS, ETC. APPLICABLE TO THE MILL.

7. List and explain all civil or criminal legal actions by government agencies involving environmental protection laws or regulations against the Applicant * in the last ten (10) years including:

1. Administrative enforcement actions resulting in the imposition of sanctions;
2. Permit or license revocations or denials issued by any state or federal authority;
3. Actions that have resulted in a finding or a settlement of a violation; and
4. Pending actions.

(Attach additional pages, if necessary.)

N/A

* Firms or other legal entities shall also include this information for all persons and legal entities identified in sections 8-16 of this Disclosure Statement.

Permit Data System
Specific Facility Summary

Close this window Print this page

Note: Click on the AFIN number for Facility Details

AFIN	Facility Name	City	County
15-00001	GREEN BAY PACKAGING/ARK KRAFT	MORRILTON	CONWAY

List of All Permits Issued to This Facility

Note: Click underlined Permit Numbers for detailed permit information.

Permit Nbr	Media	Status	Permit Type	Issued	Revised	Expired
0147-A	Air	Voided	SIP-Implementation Plan	03/28/1973		
0224-AOP-R0	Air	Voided	Title V	08/06/1997		
0224-AOP-R1	Air	Voided	Title V	04/21/2000		
0224-AOP-R10	Air	Voided	Title V	04/14/2008		08/23/2009
0224-AOP-R11	Air	Voided	Title V	10/14/2008		08/23/2009
0224-AOP-R12	Air	Voided	Title V	04/18/2011		04/17/2016
0224-AOP-R13	Air	Voided	Title V	02/14/2012		04/17/2016
0224-AOP-R14	Air	Voided	Title V	11/08/2012		04/17/2016
0224-AOP-R15	Air	Active	Title V	10/21/2013		04/17/2016
0224-AOP-R2	Air	Voided	Title V	01/02/2002		
0224-AOP-R3	Air	Voided	Title V	08/24/2004		
0224-AOP-R4	Air	Voided	Title V	07/01/2005		
0224-AOP-R5	Air	Voided	Title V	10/21/2005		
0224-AOP-R6	Air	Voided	Title V	03/15/2006		
0224-AOP-R7	Air	Voided	Title V	05/18/2006		
0224-AOP-R8	Air	Voided	Title V	08/17/2006		08/23/2009
0224-AOP-R9	Air	Voided	Title V	06/04/2007		08/23/2009
0224-AR-4	Air	Voided	SIP-Implementation Plan	05/17/1974		
0224-AR-5	Air	Voided	NSPS-New Source Perf.Standards	06/08/1994		
0443-A	Air	Voided	SIP-Implementation Plan	11/18/1977		
ARD006561740	Haz Waste EPAID	Active				
15001617	RST					
0176-SR-1	Solid Waste	Voided	Class III Non-Commercial	07/01/1992		
0176-SR-2	Solid Waste	Voided	Class III Non-Commercial	10/22/1991		
0284-S3N	Solid Waste	Active	Class III Non-Commercial	11/08/1996		
0284-SC	Solid Waste	Voided	Organic Compost	11/08/1996		
AR0001830	Water-NPDES	Active	Industrial	12/01/2012	07/01/2008	11/30/2017
ARR00A634	Water-NPDES	Active	Storm Runoff	12/03/2010		06/30/2014
ARR10A988	Water-NPDES	Voided	Storm Runoff	10/08/1996		
ARR10B374	Water-NPDES	Voided	Storm Runoff	09/03/1998		
ARR10B794	Water-NPDES	Voided	Storm Runoff	07/10/2000		
ARR152088	Water-NPDES	Voided	Storm Runoff	12/06/2006		
ARR153055	Water-NPDES	Voided	Storm Runoff	08/12/2009		12/31/2011
ARR153336	Water-NPDES	Active	Storm Runoff	08/23/2010	03/27/2012	10/31/2016
1483-W	Water-SPB	Voided	Domestic			
4450-W	Water-SPB	Voided	Industrial	05/16/1996		05/16/2001
5199-W	Water-SPB	Pending	Industrial			
5201-W	Water-SPB	Not issued	Industrial			

back to top

Close this window Print this page

8. List all officers of the Applicant. (Add additional pages, if necessary.)

NAME: Matthew A. Szymanski TITLE: V.P. and GENERAL MANAGER
STREET: 338 HWY 113
CITY, STATE, ZIP: MORRILTON, AR 72110

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

9. List all directors of the Applicant. (Add additional pages, if necessary.)

NAME: N/A TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

10. List all partners of the Applicant. (Add additional pages, if necessary.)

NAME: N/A TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

11. List all persons employed by the Applicant in a supervisory capacity or with authority over operations of the facility subject to this application.

NAME: N/A TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

12. List all persons or legal entities, who own or control more than five percent (5%) of the Applicant's debt or equity.

NAME: N/A TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

13. List all legal entities, in which the Applicant holds a debt or equity interest of more than five percent (5%).

NAME: N/A TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____

STREET: _____

CITY, STATE, ZIP: _____

14. List any parent company of the Applicant. Describe the parent company's ongoing organizational relationship with the Applicant.

NAME: N/A

STREET: _____

CITY, STATE, ZIP: _____

Organizational Relationship:

15. List any subsidiary of the Applicant. Describe the subsidiary's ongoing organizational relationship with the Applicant.

NAME: N/A

STREET: _____

CITY, STATE, ZIP: _____

Organizational Relationship:

16. List any person who is not now in compliance or has a history of noncompliance with the environmental laws or regulations of this state or any other jurisdiction and who through relationship by blood or marriage or through any other relationship could be reasonably expected to significantly influence the Applicant in a manner which could adversely affect the environment.

NAME: N/A TITLE:

STREET:

CITY, STATE, ZIP:

NAME: TITLE:

STREET:

CITY, STATE, ZIP:

17. List all federal environmental agencies and any other environmental agencies outside this state that have or have had regulatory responsibility over the Applicant.

N/A

18. VERIFICATION AND ACKNOWLEDGEMENT

The Applicant agrees to provide any other information the director of the Arkansas Department of Environmental Quality may require at any time to comply with the provisions of the Disclosure Law and any regulations promulgated thereto. The Applicant further agrees to provide the Arkansas Department of Environmental Quality with any changes, modifications, deletions, additions or amendments to any part of this Disclosure Statement as they occur by filing an amended Disclosure Statement.

DELIBERATE FALSIFICATION OR OMISSION OF RELEVANT INFORMATION FROM DISCLOSURE STATEMENTS SHALL BE GROUNDS FOR CIVIL OR CRIMINAL ENFORCEMENT ACTION OR ADMINISTRATIVE DENIAL OF A PERMIT, LICENSE, CERTIFICATION OR OPERATIONAL AUTHORIZATION.

State of ARKANSAS

County of CONWAY

I, MATTHEW A. SZYMANSKI, swear and affirm that the information contained in this Disclosure Statement is true and correct to the best of my knowledge, information and belief.

APPLICANT SIGNATURE: _____

COMPANY TITLE: GREEN BAY PACKAGING, ARKANSAS KRAFT DIVISION

DATE: 6/12/2013

SUBSCRIBED AND SWORN TO BEFORE ME THIS 12 DAY OF June 20 13

BRANDI A. WATERS Commission No. [illegible] NOTARY PUBLIC Commission Expires [illegible] CONWAY CO., ARKANSAS

Brandi A Waters

NOTARY PUBLIC

MY COMMISSION EXPIRES:

6/20/2017

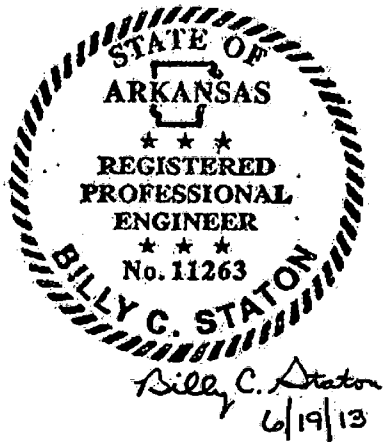
Green Bay Packaging, Inc.
Arkansas Kraft Division

338 Hwy 113
Morrilton, AR 72110

Waste Management Plan
For
Land Application of Organic Residuals

Conway County, Arkansas
New Permit

June 19, 2013



Plan Prepared By:

John Pipkin
Terra Renewal Services, Inc.
201 South Denver, 2nd Floor
P.O. Box 3036
Russellville, AR 72811
(479) 664-4034

I. INTRODUCTION

This management plan is submitted for Green Bay Packaging – Arkansas Kraft Division to the Arkansas Department of Environmental Quality (ADEQ) along with a no-discharge state water permit application to land apply lagoon wastewater residuals in Conway County, Arkansas.

II. ORGANIC RESIDUALS WASTE CHARACTERISTICS

The Green Bay Packaging, Arkansas Kraft Division (GBP-AR Kraft) operates a pulp and corrugated container and liner board mill near Morrilton, Arkansas and the wastewater from the process is sent to a primary clarifier for treatment and then to an Aeration Stabilization Basin (ASB) for further treatment. A portion of the solids from the clarifier are sent to a Sludge Holding Pond (SHP) for storage. There are additional storage basins to store wastewater solids from the plant processing at the north end of the facility called the North Spill Pond (NSP), and a storage basin at the south end of the facility called the South Spill Pond (SSP) that is used to store wastewater residuals from the plant process.

Samples from each wastewater holding basin were analyzed for the required parameters and are presented in Appendix A.

III. LAND APPLICATION

In the case of liquid organic residuals, the material will be pulled directly from the source. The residuals will be transported to the land application sites via sealed tanker trucks and temporarily placed in frac tanks or land applied directly from the trucks. Residuals temporarily placed in the tanks will be pulled from the frac tanks and subsoil injected via a terra-gator or a tractor and buggy, or if a material is to be surface applied, the residuals will be transported directly to the field and land applied via tractor and buggy or pump truck.

In the case of dewatered residuals, the material will be collected from the source and hauled in open top container trucks to the land application site. The residuals will be offloaded at the approved land application site and loaded into a spreader buggy for surface application. Depending on the cropping pattern for the field site, the dewatered residuals may be disked into the field depending on the crop type and field conditions.

GBP-AR Kraft will adhere to the following management practices.

1. The material will be applied evenly at good agronomic rates, not to exceed the Plant Available Nitrogen uptake of the cover crop, or other limits imposed by the permit.

2. Residuals shall not be spread within; 50 feet of property lines and rock outcrops; 100 feet of lakes, ponds, springs, wetlands, streams, and sinkholes; 200 feet of drinking water wells; 300 feet of occupied buildings or bodies of water classified as "extraordinary resource body of water."

3. Residuals will not be land applied to soils that are saturated, frozen or covered with snow, during rain or when precipitation is imminent, meaning a substantial natural occurrence of precipitation that could cause significant damage to property or threaten human life in the near future.

4. Liquid residuals will be subsoil injected on slopes up to 12%. In the event of top spreading, residuals will be land applied on slopes up to 6% unless it is a closed drainage basin or extensive runoff controls are used, and then they may be spread on slopes up to 12%. The farm sites in this permit application have an average slope of 0-1%.

5. Dewatered residuals can be applied on slopes up to 12%.

6. When land application occurs, the soil pH will be adjusted from time to time in accordance with the University of Arkansas Cooperative Extensive Service. Representative soil samples will be taken and analyzed in accordance with the permit requirements. If the resulting pH is 5.7 or lower, lime will be applied in accordance with the soils test recommendations.

7. Any spills will be cleaned up immediately by vacuum and land applied in accordance with the permit.

IV. LOADING RATES

Representative samples of the materials to be land applied will be analyzed for the following parameters. Results will be expressed in dry basis in mg/kg, except as otherwise indicated:

Arsenic	Cadmium
Copper	Lead
Mercury	Molybdenum
Nickel	Selenium
Zinc	Chromium
Total Solids (%)	Oil & Grease
Nitrate – Nitrites	Ammonia Nitrogen
TKN	Phosphorus
Potassium	pH (S.U.)

Loading rate tabulations will be calculated based upon the limiting parameter. Generally the limiting parameter will be Plant Available Nitrogen. (PAN)

For surface application, PAN is calculated as follows:

$PAN = 0.3(TKN-NH3) + 0.5(NH3) + NO3 + NO2$

For subsurface application, PAN is calculated as follows:

$PAN = 0.3(TKN-NH3) + NH3 + NO3 + NO2$

If material from more than one source is to be land applied to the same field in the same year, the total nutrients and metals applied from the previous applications during that year will be considered when calculating rates. Application rates will be such that the nutrient uptake rates of the cover crop are not exceeded. Should there be a limiting parameter other than PAN; the application rate will be adjusted accordingly.

V. LAND APPLICATION SITES

GBP-AR Kraft is permitting approximately 124 acres to land apply organic residuals in Conway County. The new landowner agreement is presented in Appendix B. Land application site information which includes the acreage available, section, township, range, latitude, longitude, and nearest stream is presented in Appendix C, along with topographic maps and an area map. Soil survey maps, soil descriptions, and soil testing data are presented in Appendix D.

Appendix A

Analytical Information

AMERICAN INTERPLEX CORPORATION
LABORATORIES

May 16, 2013
Control No. 167206

Terra Renewal, LLC.
ATTN: Ms. Natalie Whitehead
Post Office Box 3036
Russellville, AR 72811

This report contains the analytical results and supporting information for samples submitted on May 8, 2013. Attached please find a copy of the Chain of Custody and/or other documents received. Note that any remaining sample will be discarded two weeks from the original report date unless other arrangements are made.

This report is intended for the sole use of the client listed above. Assessment of the data requires access to the entire document.

This report has been reviewed by the Laboratory Director or a qualified designee.

Steve Bradford
Deputy Laboratory Director

This document has been distributed to the following:

PDF cc: Terra Renewal, LLC.
ATTN: ATTN: Mr. Billy Staton
billys@terrarenewal.com

Terra Renewal, LLC.
ATTN: Mr. John Pipkin
johnp@terrarenewal.com

Terra Renewal, LLC.
ATTN: Vanya Colburn
vanya.colburn@terrarenewal.com

Terra Renewal, LLC.
ATTN: Mr. Marcus J Tilley
marcus.tilley@terrarenewal.com

Terra Renewal, LLC.
ATTN: ATTN: Mr. David Coyle
david.coyle@terrarenewal.com

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

SAMPLE INFORMATION

Project Description:
Four (4) sludge sample(s) received on May 8, 2013
Green Bay-Morrilton,AR
P.O. No. T24519

Receipt Details:
A Chain of Custody was provided. The samples were delivered in one (1) ice chest.

Each sample container was checked for proper labeling, including date and time sampled. Sample containers were reviewed for proper type, adequate volume, integrity, temperature, preservation, and holding times. Any exceptions are noted below:

Sample Identification:

Laboratory ID	Client Sample ID	Sampled Date/Time	Notes
167206-1	ASB		1
167206-2	SH-Pond		1
167206-3	SSP		1
167206-4	NSP		1

Notes:
1. Sample label was incomplete in regard to date/time of sampling

Qualifiers:
H Analytical holding time exceeded regulatory requirements
W Result is presented on a Wet Weight Basis
X Spiking level is invalid due to the high concentration of analyte in the spiked sample

Case Narrative:
Analysis of soils/sludges are reported on a dry-weight basis unless otherwise specified.

References:
"Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79-020 (Mar 1983) with updates and supplements EPA/600/5-91-010 (Jun 1991), EPA/600/R-92-129 (Aug 1992) and EPA/600/R-93-100 (Aug 1993).
"Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)", Third Edition.
"Standard Methods for the Examination of Water and Wastewaters", 21st edition.
"American Society for Testing and Materials" (ASTM).
"Association of Analytical Chemists" (AOAC).

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

ANALYTICAL RESULTS

AIC No. 167206-1
Sample Identification: ASB

Analyte		Result	RL	Units	Qualifier
pH		**7.3**		**Units**	
EPA 9045C	Prep: 08-May-2013 1432 by 308	Analyzed: 08-May-2013 1545 by 308		Batch: W43488	
Total Solids		**5.2**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1554 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Volatile Solids		**59**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1555 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Ammonia as N		**2400**	500	**mg/Kg**	
SM 4500-NH3 B,G	Prep: 10-May-2013 0928 by 93	Analyzed: 13-May-2013 1528 by 93		Batch: W43518	
Total Kjeldahl Nitrogen		**24000**	4000	**mg/Kg**	
SM 4500-Norg D	Prep: 10-May-2013 0929 by 93	Analyzed: 14-May-2013 1847 by 93		Batch: W43519	
BOD 5-day		**8500**	50	**mg/Kg**	
SM 5210 B	Prep: 10-May-2013 1121 by 285	Analyzed: 15-May-2013 0938 by 285		Batch: W43522	
Arsenic		**< 5**	5	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Cadmium		**4.0**	0.4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Chromium		**32**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Copper		**67**	0.6	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Lead		**20**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Molybdenum		**10**	0.8	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Nickel		**24**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Phosphorus		**2900**	10	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Potassium		**2400**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Selenium		**< 7**	7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Sodium		**5000**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Sodium Absorption Ratio		**4.9**			
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 270		Batch: S34602	
Zinc		**650**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1415 by 305		Batch: S34602	
Soluble Phosphorus		**17**	10	**mg/Kg**	
EPA 6010C	Prep: 13-May-2013 0942 by 270	Analyzed: 13-May-2013 1536 by 305		Batch: S34613	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

ANALYTICAL RESULTS

AIC No. 167206-1 (Continued)
Sample Identification: ASB

Analyte		Result	RL	Units	Qualifier
Mercury		**0.18**	0.1	**mg/Kg**	
EPA 7471B	Prep: 09-May-2013 1149 by 271	Analyzed: 10-May-2013 1634 by 271		Batch: S34599	
Nitrate + Nitrite as N		**< 10**	10	**mg/Kg**	
EPA 9056A	Prep: 08-May-2013 1407 by 07	Analyzed: 09-May-2013 0150 by 07		Batch: S34583	
Oil and Grease		**0.13**	0.03	**%**	W
AR OG		Analyzed: 09-May-2013 1041 by 295		Batch: B8331	

AIC No. 167206-2
Sample Identification: SH-Pond

Analyte		Result	RL	Units	Qualifier
pH		**7.4**		**Units**	
EPA 9045C	Prep: 08-May-2013 1432 by 308	Analyzed: 08-May-2013 1545 by 308		Batch: W43488	
Total Solids		**6.8**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1554 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Volatile Solids		**46**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1555 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Ammonia as N		**85**	80	**mg/Kg**	
SM 4500-NH3 B,G	Prep: 10-May-2013 0928 by 93	Analyzed: 13-May-2013 1448 by 93		Batch: W43518	
Total Kjeldahl Nitrogen		**1600**	500	**mg/Kg**	
SM 4500-Norg D	Prep: 10-May-2013 0929 by 93	Analyzed: 14-May-2013 1849 by 93		Batch: W43519	
BOD 5-day		**51000**	200	**mg/Kg**	
SM 5210 B	Prep: 10-May-2013 1121 by 285	Analyzed: 15-May-2013 0943 by 285		Batch: W43522	
Arsenic		**< 5**	5	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Cadmium		**3.0**	0.4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Chromium		**40**	0.7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Copper		**250**	0.6	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Lead		**43**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Molybdenum		**9.1**	0.8	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Nickel		**53**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Phosphorus		**990**	10	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	
Potassium		**2800**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1420 by 305		Batch: S34602	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

ANALYTICAL RESULTS

AIC No. 167206-2 (Continued)
Sample Identification: SH-Pond

Analyte		Result	RL	Units	Qualifier
Selenium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**< 7** Analyzed: 10-May-2013 1420 by 305	7	**mg/Kg** Batch: S34602	
Sodium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**20000** Analyzed: 10-May-2013 1455 by 305	1000	**mg/Kg** Batch: S34602	
Sodium Absorption Ratio EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**19** Analyzed: 10-May-2013 1420 by 270		Batch: S34602	
Zinc EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**520** Analyzed: 10-May-2013 1420 by 305	0.2	**mg/Kg** Batch: S34602	
Soluble Phosphorus EPA 6010C	Prep: 13-May-2013 0942 by 270	**27** Analyzed: 13-May-2013 1538 by 305	10	**mg/Kg** Batch: S34613	
Mercury EPA 7471B	Prep: 09-May-2013 1149 by 271	**0.13** Analyzed: 10-May-2013 1638 by 271	0.1	**mg/Kg** Batch: S34599	
Nitrate + Nitrite as N EPA 9056A	Prep: 08-May-2013 1407 by 07	**< 7** Analyzed: 09-May-2013 0216 by 07	7	**mg/Kg** Batch: S34583	
Oil and Grease AR OG		**0.39** Analyzed: 09-May-2013 1041 by 295	0.03	**%** Batch: B8331	W

AIC No. 167206-3
Sample Identification: SSP

Analyte		Result	RL	Units	Qualifier
pH EPA 9045C	Prep: 08-May-2013 1432 by 308	**8.0** Analyzed: 08-May-2013 1545 by 308		**Units** Batch: W43488	
Total Solids SM 2540 G	Prep: 09-May-2013 1554 by 302	**17** Analyzed: 13-May-2013 1323 by 302	0.01	**%** Batch: W43505	
Volatile Solids SM 2540 G	Prep: 09-May-2013 1555 by 302	**32** Analyzed: 13-May-2013 1323 by 302	0.01	**%** Batch: W43505	
Ammonia as N SM 4500-NH3 B,G	Prep: 10-May-2013 0928 by 93	**34** Analyzed: 13-May-2013 1450 by 93	30	**mg/Kg** Batch: W43518	
Total Kjeldahl Nitrogen SM 4500-Norg D	Prep: 10-May-2013 0929 by 93	**2000** Analyzed: 14-May-2013 1927 by 93	400	**mg/Kg** Batch: W43519	
BOD 5-day SM 5210 B	Prep: 10-May-2013 1121 by 285	**11000** Analyzed: 15-May-2013 0945 by 285	40	**mg/Kg** Batch: W43522	
Arsenic EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**< 5** Analyzed: 10-May-2013 1426 by 305	5	**mg/Kg** Batch: S34602	
Cadmium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**3.5** Analyzed: 10-May-2013 1426 by 305	0.4	**mg/Kg** Batch: S34602	
Chromium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**36** Analyzed: 10-May-2013 1426 by 305	0.7	**mg/Kg** Batch: S34602	
Copper EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**49** Analyzed: 10-May-2013 1426 by 305	0.6	**mg/Kg** Batch: S34602	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

ANALYTICAL RESULTS

AIC No. 167206-3 (Continued)
Sample Identification: SSP

Analyte		Result	RL	Units	Qualifier
Lead		**11**	4	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Molybdenum		**18**	0.8	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Nickel		**86**	1	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Phosphorus		**1500**	10	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Potassium		**6600**	100	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Selenium		**< 7**	7	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Sodium		**17000**	1000	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1555 by 305		Batch: S34602	
Sodium Absorption Ratio		**20**			
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 270		Batch: S34602	
Zinc		**350**	0.2	**mg/Kg**	
EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	Analyzed: 10-May-2013 1426 by 305		Batch: S34602	
Soluble Phosphorus		**100**	10	**mg/Kg**	
EPA 6010C	Prep: 13-May-2013 0942 by 270	Analyzed: 13-May-2013 1541 by 305		Batch: S34613	
Mercury		**< 0.1**	0.1	**mg/Kg**	
EPA 7471B	Prep: 09-May-2013 1149 by 271	Analyzed: 10-May-2013 1643 by 271		Batch: S34599	
Nitrate + Nitrite as N		**< 3**	3	**mg/Kg**	
EPA 9056A	Prep: 08-May-2013 1407 by 07	Analyzed: 09-May-2013 0242 by 07		Batch: S34583	
Oil and Grease		**0.22**	0.03	**%**	W
AR OG		Analyzed: 09-May-2013 1041 by 295		Batch: B8331	

AIC No. 167206-4
Sample Identification: NSP

Analyte		Result	RL	Units	Qualifier
pH		**7.9**		**Units**	
EPA 9045C	Prep: 08-May-2013 1432 by 308	Analyzed: 08-May-2013 1545 by 308		Batch: W43488	
Total Solids		**19**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1554 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Volatile Solids		**23**	0.01	**%**	
SM 2540 G	Prep: 09-May-2013 1555 by 302	Analyzed: 13-May-2013 1323 by 302		Batch: W43505	
Ammonia as N		**73**	30	**mg/Kg**	
SM 4500-NH3 B,G	Prep: 10-May-2013 0928 by 93	Analyzed: 13-May-2013 1455 by 93		Batch: W43518	
Total Kjeldahl Nitrogen		**1500**	200	**mg/Kg**	
SM 4500-Norg D	Prep: 10-May-2013 0929 by 93	Analyzed: 14-May-2013 1854 by 93		Batch: W43519	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

ANALYTICAL RESULTS

AIC No. 167206-4 (Continued)
Sample Identification: NSP

Analyte		Result	RL	Units	Qualifier
BOD 5-day SM 5210 B	Prep: 10-May-2013 1121 by 285	**88000** Analyzed: 15-May-2013 0947 by 285	800	**mg/Kg** Batch: W43522	
Arsenic EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**< 5** Analyzed: 10-May-2013 1432 by 305	5	**mg/Kg** Batch: S34602	
Cadmium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**4.8** Analyzed: 10-May-2013 1432 by 305	0.4	**mg/Kg** Batch: S34602	
Chromium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**22** Analyzed: 10-May-2013 1432 by 305	0.7	**mg/Kg** Batch: S34602	
Copper EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**30** Analyzed: 10-May-2013 1432 by 305	0.6	**mg/Kg** Batch: S34602	
Lead EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**34** Analyzed: 10-May-2013 1432 by 305	4	**mg/Kg** Batch: S34602	
Molybdenum EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**6.7** Analyzed: 10-May-2013 1432 by 305	0.8	**mg/Kg** Batch: S34602	
Nickel EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**24** Analyzed: 10-May-2013 1432 by 305	1	**mg/Kg** Batch: S34602	
Phosphorus EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**2200** Analyzed: 10-May-2013 1432 by 305	10	**mg/Kg** Batch: S34602	
Potassium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**4700** Analyzed: 10-May-2013 1432 by 305	100	**mg/Kg** Batch: S34602	
Selenium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**< 7** Analyzed: 10-May-2013 1432 by 305	7	**mg/Kg** Batch: S34602	
Sodium EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**55000** Analyzed: 10-May-2013 1612 by 305	1000	**mg/Kg** Batch: S34602	
Sodium Absorption Ratio EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**41** Analyzed: 10-May-2013 1432 by 270		Batch: S34602	
Zinc EPA 3051A, 6010C	Prep: 09-May-2013 1454 by 100	**760** Analyzed: 10-May-2013 1432 by 305	0.2	**mg/Kg** Batch: S34602	
Soluble Phosphorus EPA 6010C	Prep: 13-May-2013 0942 by 270	**39** Analyzed: 13-May-2013 1544 by 305	10	**mg/Kg** Batch: S34613	
Mercury EPA 7471B	Prep: 09-May-2013 1149 by 271	**< 0.1** Analyzed: 10-May-2013 1647 by 271	0.1	**mg/Kg** Batch: S34599	
Nitrate + Nitrite as N EPA 9056A	Prep: 08-May-2013 1407 by 07	**< 3** Analyzed: 09-May-2013 0308 by 07	3	**mg/Kg** Batch: S34583	
Oil and Grease AR OG		**1.0** Analyzed: 09-May-2013 1041 by 295	0.03	**%** Batch: B8331	W

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

DUPLICATE RESULTS

Analyte		AIC No.	Result	RPD	RPD Limit	Preparation Date	Analysis Date	Dil	Qual
Oil and Grease		167206-1	0.13 %				09May13 1041 by 295		W
	Batch: B8331	Duplicate	0.13 %	0.00	18.0		09May13 1042 by 295		W
Soluble Phosphorus		167206-1	17 mg/Kg			13May13 0942 by 270	13May13 1536 by 305		
	Batch: S34613	Duplicate	17 mg/Kg	0.580	19.5	13May13 1054 by 100	13May13 1533 by 305		
pH		167198-1	4.3 Units			08May13 1324 by 308	08May13 1545 by 308		H
	Batch: W43488	Duplicate	4.3 Units	0.935	5.00	08May13 1324 by 308	08May13 1545 by 308		H
Total Solids		167206-1	5.2 %			09May13 1554 by 302	13May13 1323 by 302		
	Batch: W43505	Duplicate	5.1 %	2.23	10.0	09May13 1554 by 302	13May13 1323 by 302		
Volatile Solids		167206-1	59 %			09May13 1555 by 302	13May13 1323 by 302		
	Batch: W43505	Duplicate	57 %	3.71	20.0	09May13 1554 by 302	13May13 1323 by 302		
BOD 5-day		167206-1	8500 mg/Kg			10May13 1121 by 285	15May13 0938 by 285		
	Batch: W43522	Duplicate	8200 mg/Kg	3.66	20.0	10May13 1121 by 285	15May13 0941 by 285		

LABORATORY CONTROL SAMPLE RESULTS

Analyte	Spike Amount	%	Limits	RPD	Limit	Batch	Preparation Date	Analysis Date	Dil	Qual
pH	-	100	98.0-102			W43488	08May13 1324 by 308	08May13 1545 by 308		
Ammonia as N	20.0 mg/Kg	107	80.0-120			W43518	10May13 0928 by 93	13May13 1436 by 93		
Total Kjeldahl Nitrogen	50.0 mg/Kg	110	80.0-120			W43519	10May13 0929 by 93	14May13 1839 by 93		
BOD 5-day	200 mg/l	104	84.5-115			W43522	10May13 1121 by 285	15May13 0936 by 285		
Arsenic	500 mg/Kg	104	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Cadmium	500 mg/Kg	98.9	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Chromium	50.0 mg/Kg	103	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Copper	50.0 mg/Kg	101	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Lead	500 mg/Kg	98.4	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Molybdenum	50.0 mg/Kg	103	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Nickel	50.0 mg/Kg	97.0	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Phosphorus	500 mg/Kg	106	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Potassium	1000 mg/Kg	101	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Selenium	500 mg/Kg	99.3	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Sodium	1000 mg/Kg	100	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Zinc	50.0 mg/Kg	97.2	85.0-115			S34602	09May13 1454 by 100	10May13 1335 by 305		
Mercury	1.25 mg/Kg	92.2	85.0-115			S34599	09May13 1149 by 271	10May13 1521 by 271		
Nitrate + Nitrite as N	80.0 mg/Kg	106	90.0-110			S34583	08May13 1337 by 07	08May13 1745 by 07		
Oil and Grease	800 mg/Kg	99.2	95.0-105			B8331		09May13 1042 by 295		
	800 mg/Kg	99.0	95.0-105	0.252	20.0	B8331		09May13 1042 by 295		

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

MATRIX SPIKE SAMPLE RESULTS

Analyte	Sample	Spike Amount	%	Limits	Batch	Preparation Date	Analysis Date	Dil	Qual
Ammonia as N	167196-1	24.0 mg/Kg	102	80.0-120	W43518	10May13 0928 by 93	13May13 1525 by 93		
	167196-1	23.8 mg/Kg	104	80.0-120	W43518	10May13 0928 by 93	13May13 1441 by 93		
	Relative Percent Difference:		1.10	25.0	W43518				
Total Kjeldahl Nitrogen	167196-1	64.3 mg/Kg	-	80.0-120	W43519	10May13 0929 by 93	15May13 1405 by 93		X
	167196-1	63.5 mg/Kg	-	80.0-120	W43519	10May13 0929 by 93	15May13 1406 by 93		X
	Relative Percent Difference:		4.01	20.0	W43519				
Arsenic	167174-1	499 mg/Kg	93.0	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	499 mg/Kg	93.3	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.345	20.0	S34602				
Cadmium	167174-1	499 mg/Kg	85.6	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	499 mg/Kg	86.1	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.596	20.0	S34602				
Chromium	167174-1	49.9 mg/Kg	98.8	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	49.9 mg/Kg	99.7	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.616	20.0	S34602				
Copper	167174-1	49.9 mg/Kg	100	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	49.9 mg/Kg	101	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.300	20.0	S34602				
Lead	167174-1	499 mg/Kg	84.0	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	499 mg/Kg	90.6	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		7.48	20.0	S34602				
Molybdenum	167174-1	49.9 mg/Kg	95.9	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	49.9 mg/Kg	96.5	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.567	20.0	S34602				
Nickel	167174-1	49.9 mg/Kg	90.9	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	49.9 mg/Kg	91.5	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.449	20.0	S34602				
Phosphorus	167174-1	499 mg/Kg	-	75.0-125	S34602	09May13 1454 by 100	10May13 1534 by 305		X
	167174-1	499 mg/Kg	-	75.0-125	S34602	09May13 1454 by 100	10May13 1538 by 305		X
	Relative Percent Difference:		0.443	20.0	S34602				
Potassium	167174-1	998 mg/Kg	102	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	998 mg/Kg	99.9	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.302	20.0	S34602				
Selenium	167174-1	499 mg/Kg	79.2	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	499 mg/Kg	79.5	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.358	20.0	S34602				
Sodium	167174-1	998 mg/Kg	95.8	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		
	167174-1	998 mg/Kg	95.4	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		
	Relative Percent Difference:		0.276	20.0	S34602				
Zinc	167174-1	49.9 mg/Kg	-	75.0-125	S34602	09May13 1454 by 100	10May13 1243 by 305		X
	167174-1	49.9 mg/Kg	-	75.0-125	S34602	09May13 1454 by 100	10May13 1248 by 305		X
	Relative Percent Difference:		0.824	20.0	S34602				
Mercury	167174-1	1.23 mg/Kg	98.7	70.0-130	S34599	09May13 1149 by 271	10May13 1526 by 271		
	167174-1	1.21 mg/Kg	106	70.0-130	S34599	09May13 1149 by 271	10May13 1530 by 271		
	Relative Percent Difference:		5.86	20.0	S34599				
Nitrate + Nitrite as N	167174-1	80.0 mg/Kg	101	80.0-120	S34583	08May13 1337 by 07	08May13 1923 by 07		
	167174-1	80.0 mg/Kg	99.9	80.0-120	S34583	08May13 1337 by 07	08May13 1948 by 07		
	Relative Percent Difference:		0.677	10.0	S34583				

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Terra Renewal, LLC.
Post Office Box 3036
Russellville, AR 72811

LABORATORY BLANK RESULTS

Analyte	Result	RL	PQL	QC Sample	Preparation Date	Analysis Date	Qual
Total Solids	< 0.01 %	0.01	0.01	W43505-1	09May13 1554 by 302	13May13 1323 by 302	
Volatile Solids	< 0.01 %	0.01	0.01	W43505-1	09May13 1554 by 302	13May13 1323 by 302	
Ammonia as N	< 2 mg/Kg	2	2	W43518-1	10May13 0928 by 93	13May13 1434 by 93	
Total Kjeldahl Nitrogen	< 10 mg/Kg	10	10	W43519-1	10May13 0929 by 93	14May13 1837 by 93	
BOD 5-day	< 2 mg/Kg	2	2	W43522-1	10May13 1121 by 285	15May13 0935 by 285	
Arsenic	< 5 mg/Kg	5	5	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Cadmium	< 0.4 mg/Kg	0.4	0.4	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Chromium	< 0.7 mg/Kg	0.7	0.7	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Copper	< 0.6 mg/Kg	0.6	0.6	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Lead	< 4 mg/Kg	4	4	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Molybdenum	< 0.8 mg/Kg	0.8	0.8	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Nickel	< 1 mg/Kg	1	1	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Phosphorus	< 10 mg/Kg	10	10	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Potassium	< 100 mg/Kg	100	100	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Selenium	< 7 mg/Kg	7	7	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Sodium	< 100 mg/Kg	100	100	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Zinc	< 0.2 mg/Kg	0.2	0.2	S34602-1	09May13 1454 by 100	10May13 1234 by 305	
Soluble Phosphorus	< 10 mg/Kg	10	10	S34613-1	13May13 1054 by 100	13May13 1530 by 305	
Mercury	< 0.1 mg/Kg	0.1	0.1	S34599-1	09May13 1149 by 271	10May13 1517 by 271	
Nitrate + Nitrite as N	< 0.5 mg/Kg	0.5	0.5	S34583-1	08May13 1337 by 07	08May13 1723 by 07	
Oil and Grease	< 28 mg/Kg	28	28	B8331-1		09May13 1042 by 295	

AMERICAN INTERPLEX CORPORATION
LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
(501) 224-5060
FAX (501) 224-5072

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: Terra Renewal
Project Reference: Green Bay-Morrilton, AR
Project Manager:
Sampled By:
PO No.:

AIC CONTROL NO: 11.7206
AIC PROPOSAL NO:
Carrier: TRS
Received on Ice (4°C)? (YES) 2°c NO

	AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	SAMPLE MATRIX: WATER	SOIL	SLUDGE	NO OF BOTTLES	ANALYSES REQUESTED: AR Parameters	Remarks
1		ASB		✓				✓	1	✓	
2		SH-Pond		✓				✓	1	✓	
3		SSP		✓				✓	1	✓	
4		NSP		✓				✓	1	✓	
			Container Type						G		Field pH calibration
			Preservative						NO		on ____ @ ____ Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
(NORMAL) or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: _____
Phone: _____ Fax: _____
Report Attention to: _____
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
Relinquished By:	**Date/Time**	**Received in Lab By:**	**Date/Time**
		[signature]	5-8-13 1330

Comments:

5/01 FORM 0060

Loading Rate Tabulation

Environmental

TERRA renewal

Facility: Green Bay-Morrilton, AR
Analysis Date: 5/16/2013
Analysis Note: ASB

Product: Sludge
State: AR
Application Type: Surface
AIC Control #: 167206
LRT #:
Internal ID: 22709

PAN: 30.00%(TKN - Ammonia) + %50.00Ammonia + NO3 + NO2

Parameter	Concentration (mg/kg) dry	wet	Limits
PAN	7,690	399.88	
Ammonia	2,400	124.80	
TKN	24,000	1248.00	
Nitrates/Nitrites	10.00	0.5200	
Organic N	21,600	1123.20	
Arsenic	5.00	0.2600	75 mg/kg
Cadmium	4.00	0.2080	85 mg/kg
Chromium	32.00	1.6640	3000 mg/kg
Copper	67.00	3.4840	4300 mg/kg
Lead	20.00	1.0400	840 mg/kg
Mercury	0.18	0.0094	57 mg/kg
Molybdenum	10.00	0.5200	75 mg/kg
Nickel	24.00	1.2480	420 mg/kg
Phosphorus	2,900	150.80	
Potassium	2,400	124.80	
Selenium	7.00	0.3640	100 mg/kg
Zinc	650.00	33.8000	7500 mg/kg
Iron	0.0000	0.0000	
Soluable P	17	0.8840	
Sodium	5,000	260.0000	
Barium	0.00	0.00	
Silver	0.00	0.00	
Calcium	0.00	0.00	
Magnesium	0.00	0.00	
Manganese	0.00	0.00	
Chloride	0.00	0.00	
Sulfur	0.00	0.00	
Oil & Grease		0	
BOD	8,500		
pcb			
Fecal Coliform			
TCLP			
ph	7.0		
% solidsS	5.20		
% Vol Solids	3.00		
% Moisture	0.00		
lbs/gallon	8.34		
dry tons/load	1.30		

Pounds per 6000 gallon load:

Plant-available nitrogen:	20.0000
Phospate (P2O5):	17.2800
Potash (K2O):	7.4900
SP:	0.04

Max. Allowable App Rate at:

Crop	PAN	App Rate
Bermuda Pasture	300	90,000
Corn	240	72,000
Fescue Hay	175	52,500
Soybeans	180	54,000
Wheat	120	36,000

Loading Rate Tabulation

Environmental

TERRA renewal

Facility: Green Bay-Morrilton, AR
Analysis Date: 5/16/2013
Analysis Note: SH-Pond

Product: Sludge
State: AR
Application Type: Surface
AIC Control #: 167206
LRT #:
Internal ID: 22710

PAN: 30.00%(TKN - Ammonia) + %50.00Ammonia + NO3 + NO2

Parameter	Concentration (mg/kg) dry	wet	Limits
PAN	504	34.27	
Ammonia	85	5.78	
TKN	1,600	108.80	
Nitrates/Nitrites	7.00	0.4760	
Organic N	1,515	103.02	
Arsenic	5.00	0.3400	75 mg/kg
Cadmium	3.00	0.2040	85 mg/kg
Chromium	40.00	2.7200	3000 mg/kg
Copper	250.00	17.0000	4300 mg/kg
Lead	43.00	2.9240	840 mg/kg
Mercury	0.13	0.0088	57 mg/kg
Molybdenum	9.10	0.6188	75 mg/kg
Nickel	53.00	3.6040	420 mg/kg
Phosphorus	990	67.32	
Potassium	2,800	190.40	
Selenium	7.00	0.4760	100 mg/kg
Zinc	520.00	35.3600	7500 mg/kg
Iron	0.0000	0.0000	
Soluable P	27	1.8360	
Sodium	20,000	1360.0000	
Barium	0.00	0.00	
Silver	0.00	0.00	
Calcium	0.00	0.00	
Magnesium	0.00	0.00	
Manganese	0.00	0.00	
Chloride	0.00	0.00	
Sulfur	0.00	0.00	
Oil & Grease		0	
BOD	51,000		
pcb			
Fecal Coliform			
TCLP			
ph	7.0		
% solidsS	6.80		
% Vol Solids	3.10		
% Moisture	0.00		
lbs/gallon	8.34		
dry tons/load	1.70		

Pounds per 6000 gallon load:

Plant-available nitrogen:	2.0000
Phospate (P2O5):	7.7100
Potash (K2O):	11.4300
SP:	0.08

Max. Allowable App Rate at:

Crop	PAN	App Rate
Bermuda Pasture	300	900,000
Corn	240	720,000
Fescue Hay	175	525,000
Soybeans	180	540,000
Wheat	120	360,000

Loading Rate Tabulation

Environmental

TERRA renewal

Facility: Green Bay-Morrilton, AR
Analysis Date: 5/16/2013
Analysis Note: SSP

Product: Sludge
State: AR
Application Type: Surface

AIC Control #: 167206
LRT #:
Internal ID: 22711

PAN: 30.00%(TKN - Ammonia) + %50.00Ammonia + NO3 + NO2

Parameter	Concentration (mg/kg) dry	wet	Limits
PAN	610	103.67	
Ammonia	34	5.78	
TKN	2,000	340.00	
Nitrates/Nitrites	3.00	0.5100	
Organic N	1,966	334.22	
Arsenic	5.00	0.8500	75 mg/kg
Cadmium	4.00	0.5950	85 mg/kg
Chromium	36.00	6.1200	3000 mg/kg
Copper	49.00	8.3300	4300 mg/kg
Lead	11.00	1.8700	840 mg/kg
Mercury	0.10	0.0170	57 mg/kg
Molybdenum	18.00	3.0600	75 mg/kg
Nickel	86.00	14.6200	420 mg/kg
Phosphorus	1,500	255.00	
Potassium	6,600	1122.00	
Selenium	7.00	1.1900	100 mg/kg
Zinc	350.00	59.5000	7500 mg/kg
Iron	0.0000	0.0000	
Soluable P	100	17.0000	
Sodium	17,000	2890.0000	
Barium	0.00	0.00	
Silver	0.00	0.00	
Calcium	0.00	0.00	
Magnesium	0.00	0.00	
Manganese	0.00	0.00	
Chloride	0.00	0.00	
Sulfur	0.00	0.00	
Oil & Grease		0	
BOD	11,000		
pcb			
Fecal Coliform			
TCLP			
ph	8.0		
% solidsS	17.00		
% Vol Solids	5.40		
% Moisture	0.00		
lbs/gallon	8.34		
dry tons/load	4.25		

Pounds per 6000 gallon load:

Plant-available nitrogen:	5.0000
Phospate (P2O5):	29.2200
Potash (K2O):	67.3700
SP:	0.77

Max. Allowable App Rate at:

Crop	PAN	App Rate
Bermuda Pasture	300	360,000
Corn	240	288,000
Fescue Hay	175	210,000
Soybeans	180	216,000
Wheat	120	144,000

Loading Rate Tabulation

Environmental

TERRA renewal

Facility: Green Bay-Morrilton, AR
Analysis Date: 5/16/2013
Analysis Note: NSP

Product: Sludge
State: AR
Application Type: Surface
AIC Control #: 167206
LRT #:
Internal ID: 22712

PAN: 30.00%(TKN - Ammonia) + %50.00Ammonia + NO3 + NO2

Parameter	Concentration (mg/kg) dry	wet	Limits
PAN	468	88.84	
Ammonia	73	13.87	
TKN	1,500	285.00	
Nitrates/Nitrites	3.00	0.5700	
Organic N	1,427	271.13	
Arsenic	5.00	0.9500	75 mg/kg
Cadmium	5.00	0.9120	85 mg/kg
Chromium	22.00	4.1800	3000 mg/kg
Copper	30.00	5.7000	4300 mg/kg
Lead	34.00	6.4600	840 mg/kg
Mercury	0.10	0.0190	57 mg/kg
Molybdenum	6.70	1.2730	75 mg/kg
Nickel	24.00	4.5600	420 mg/kg
Phosphorus	2,200	418.00	
Potassium	4,700	893.00	
Selenium	7.00	1.3300	100 mg/kg
Zinc	760.00	144.4000	7500 mg/kg
Iron	0.0000	0.0000	
Soluable P	39	7.4100	
Sodium	55,000	10450.0000	
Barium	0.00	0.00	
Silver	0.00	0.00	
Calcium	0.00	0.00	
Magnesium	0.00	0.00	
Manganese	0.00	0.00	
Chloride	0.00	0.00	
Sulfur	0.00	0.00	
Oil & Grease		1	
BOD	88,000		
pcb			
Fecal Coliform			
TCLP			
ph	8.0		
% solidsS	19.00		
% Vol Solids	4.40		
% Moisture	0.00		
lbs/gallon	8.34		
dry tons/load	4.75		

Pounds per 6000 gallon load:

Plant-available nitrogen:	4.0000
Phospate (P2O5):	47.9000
Potash (K2O):	53.6200
SP:	0.33

Max. Allowable App Rate at:

Crop	PAN	App Rate
Bermuda Pasture	300	450,000
Corn	240	360,000
Fescue Hay	175	262,500
Soybeans	180	270,000
Wheat	120	180,000

Appendix B

Landowner Agreements

LAND USE CONTRACT

I, Hall Calhoun (Name of Landowner), agree to allow Green Bay Packaging - Morrilton (Name of Permittee) to land apply lagoon residuals (Type of Waste) waste from his/her operation located in the Conway (County of Operation) County to 124 (Total Acreage Available) acres of my property located in Conway (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
HC 1-2	NW	17	5N	16 W	57
HC 3	SE	36	6N	17W	34
HC 4	SE	36	6N	17W	33

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality. In addition to these guidelines, the following requirements must also be satisfied when applying waste to my land:

Stan Schriver — Permittee's Signature

6/25/13 — Date

Hall W. Calhoun — Landowner Signature

Date

Appendix C

Land Application Site Information

Topographic Maps

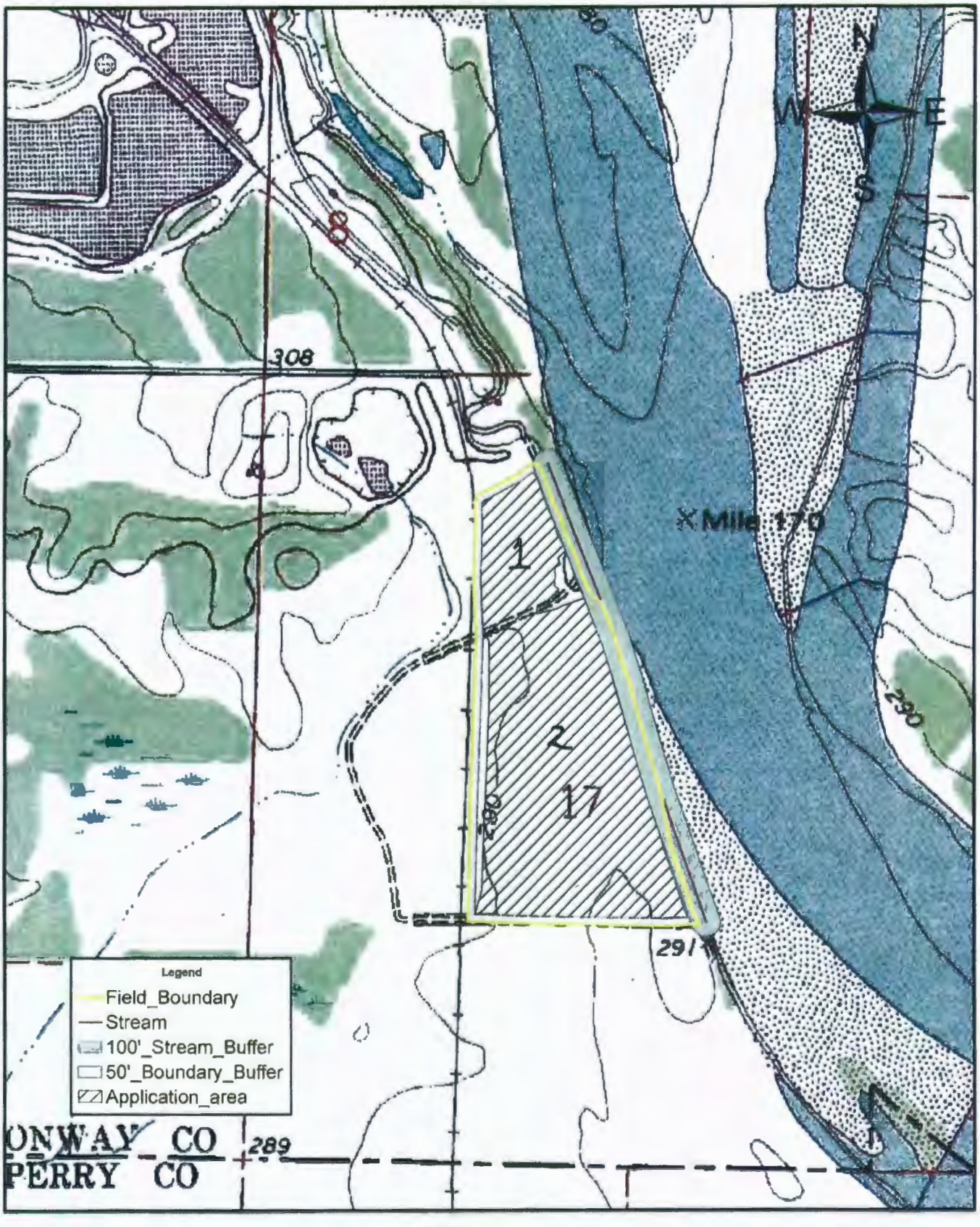
Area Maps

Land Application Site Data

Permit Application - Green Bay Packaging-Morrilton AR

Owner/Tenant Name	*Field ID*	*Section*	*Township*	*Range*	*Lattitude*	*Longitude*	*Acres*	*Crop*	*Nearest Stream / *Distance*
Hall Calhoun	HC 1-2	17	5 N	16 W	35° 04' 54.9" N	92° 43' 39.3" W	57	Corn/Soybeans/Wheat	Arkansas River - 100'
Hall Calhoun	HC 3	36	6 N	17 W	35° 07' 12.1" N	92° 45' 12.4" W	34	Corn/Soybeans/Wheat	Arkansas River Segment - 1/2 mile
Hall Calhoun	HC 4	36	6 N	17 W	35° 07' 2.9" N	92° 45' 12.4" W	33	Corn/Soybeans/Wheat	Arkansas River Segment - 1/2 mile

TOTAL ACRES **124**



HC 1-2

Green Bay Packaging

0 0.05 0.1 0.2 0.3 0.4 Miles

Albers Projection
Central Meridian: -96
1st Std Parallel: 20
2nd Std Parallel: 60
Latitude of Origin: 40

HC 1-2

Green Bay Packaging

0 0.05 0.1 0.2 0.3 0.4 Miles

Albers Projection
Central Meridian: -90
1st Std Parallel: 20
2nd Std Parallel: 60
Latitude of Origin: 40

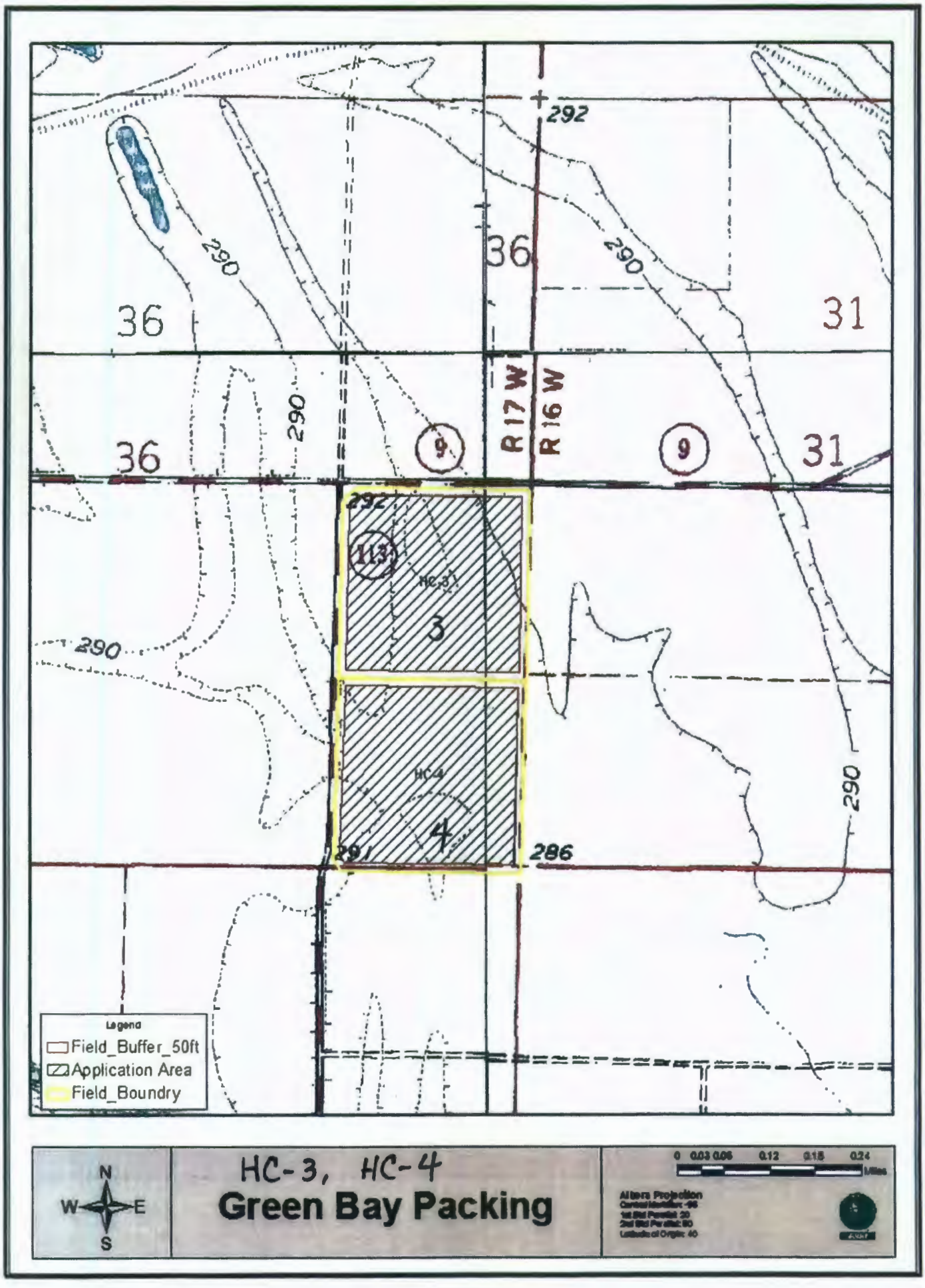
HC 1-2

Green Bay Packaging

0 0.15 0.3 0.6 0.9 1.2 Miles

Albers Projection
Central Meridian: -96
1st Std Parallel: 20
2nd Std Parallel: 60
Latitude of Origin: 40

esri


292
290
36
31
R 17 W
R 16 W
9
113
HC-3
3
HC-4
4
291
286
Legend
Field_Buffer_50ft
Application Area
Field_Boundry
N
W
E
S
HC-3, HC-4
Green Bay Packing
0 0.03 0.06 0.12 0.18 0.24
Miles
Albers Projection


3
4
Legend
Field_Buffer_50ft
Application Area
Field_Boundry
N
W
E
S
HC-3, HC-4
Green Bay Packing
0 0.03 0.06 0.12 0.18 0.24
Albers Projection


Morrilton
9
HC-3
HC-4
113
Oppelo
154
Legend
Field_Boundry
N
W
E
S
Green Bay Packing
0 0.05 0.1 0.2 0.3 0.4
Miles

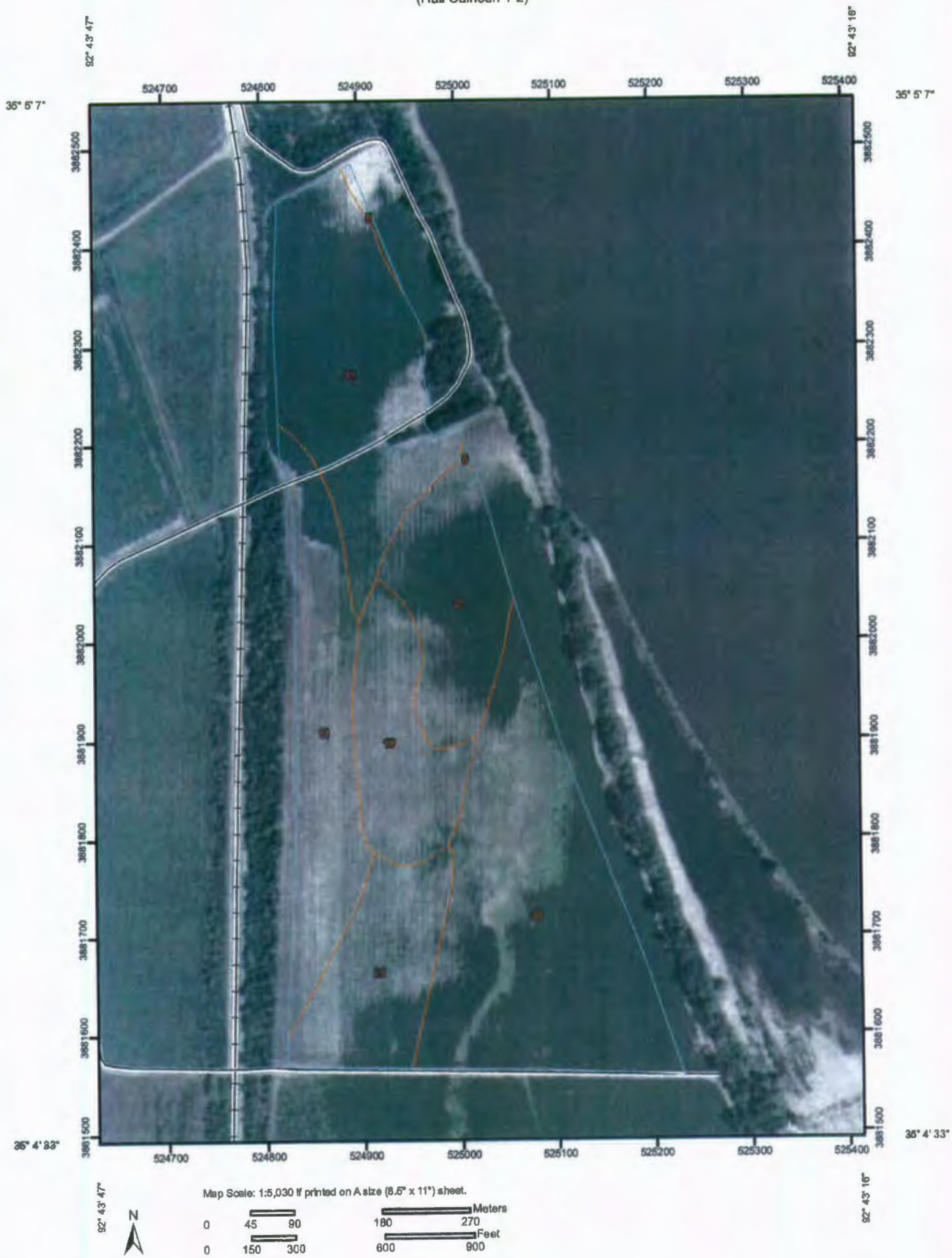
Appendix D

Soil Survey Maps

Soils Descriptions

Soil Testing Data

Soil Map—Conway County, Arkansas
(Hall Calhoun 1-2)



Map Scale: 1:5,030 if printed on A size (8.5" x 11") sheet.

N

0 45 90 180 270 Meters

0 150 300 600 900 Feet

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:5,030 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Conway County, Arkansas (AR029)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
5	Crevasse loamy fine sand, frequently flooded	0.3	0.5%
11	Gallion silt loam	7.9	14.7%
18	McKamie silt loam, 1 to 3 percent slopes	5.4	10.0%
21	Moreland silty clay	11.9	22.1%
30	Roxana very fine sandy loam, occasionally flooded	16.9	31.3%
31	Roxana silt loam	11.6	21.5%
Totals for Area of Interest		**54.0**	**100.0%**

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Conway County, Arkansas

Map Unit: 5—Crevasse loamy fine sand, frequently flooded

Component: Crevasse (90%)

The Crevasse component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of sandy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 5w. This soil does not meet hydric criteria.

Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Map Unit: 11—Gallion silt loam

Component: Gallion (90%)

The Gallion component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Map Unit: 18—McKamie silt loam, 1 to 3 percent slopes

Component: McKamie (95%)

The McKamie component makes up 95 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces. The parent material consists of clayey alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Aqualfs (5%)

Generated brief soil descriptions are created for major components. The Aqualfs soil is a minor component.

Map Unit: 21—Moreland silty clay

Component: Moreland (85%)

The Moreland component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of clayey alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is high. Shrink-swell potential is very high. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 13 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Aquents (5%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Component: Roellen (5%)

Generated brief soil descriptions are created for major components. The Roellen soil is a minor component.

Component: Yorktown (5%)

Generated brief soil descriptions are created for major components. The Yorktown soil is a minor component.

Map Unit: 30—Roxana very fine sandy loam, occasionally flooded

Component: Roxana (90%)

The Roxana component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Map Unit: 31—Roxana silt loam

Component: Roxana (90%)

The Roxana component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

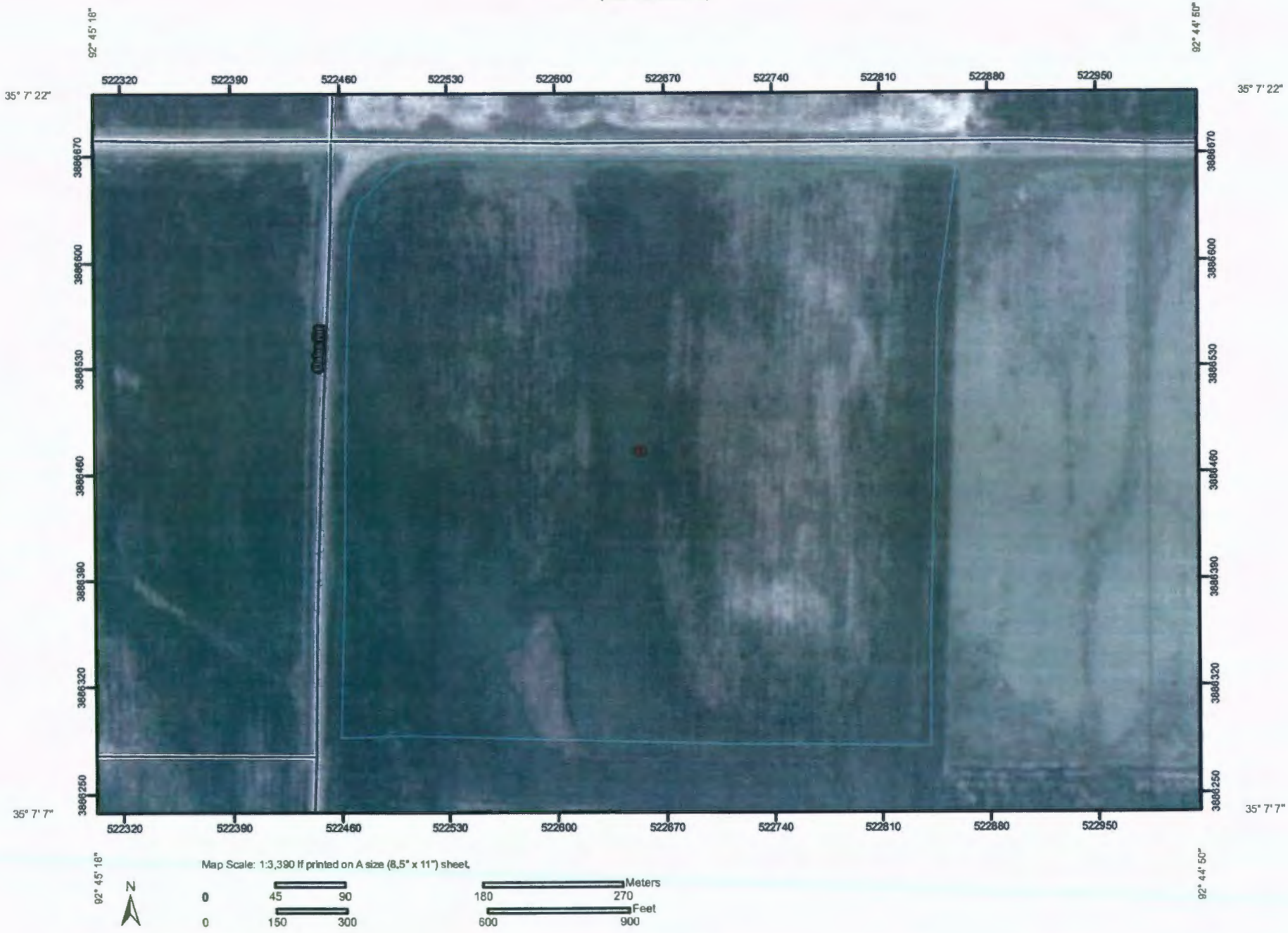
Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Data Source Information

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

Soil Map—Conway County, Arkansas
(Hall Calhoun - 3)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,380 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Conway County, Arkansas (AR029)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
31	Roxana silt loam	36.0	100.0%
Totals for Area of Interest		**36.0**	**100.0%**

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Conway County, Arkansas

Map Unit: 31—Roxana silt loam

Component: Roxana (90%)

The Roxana component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

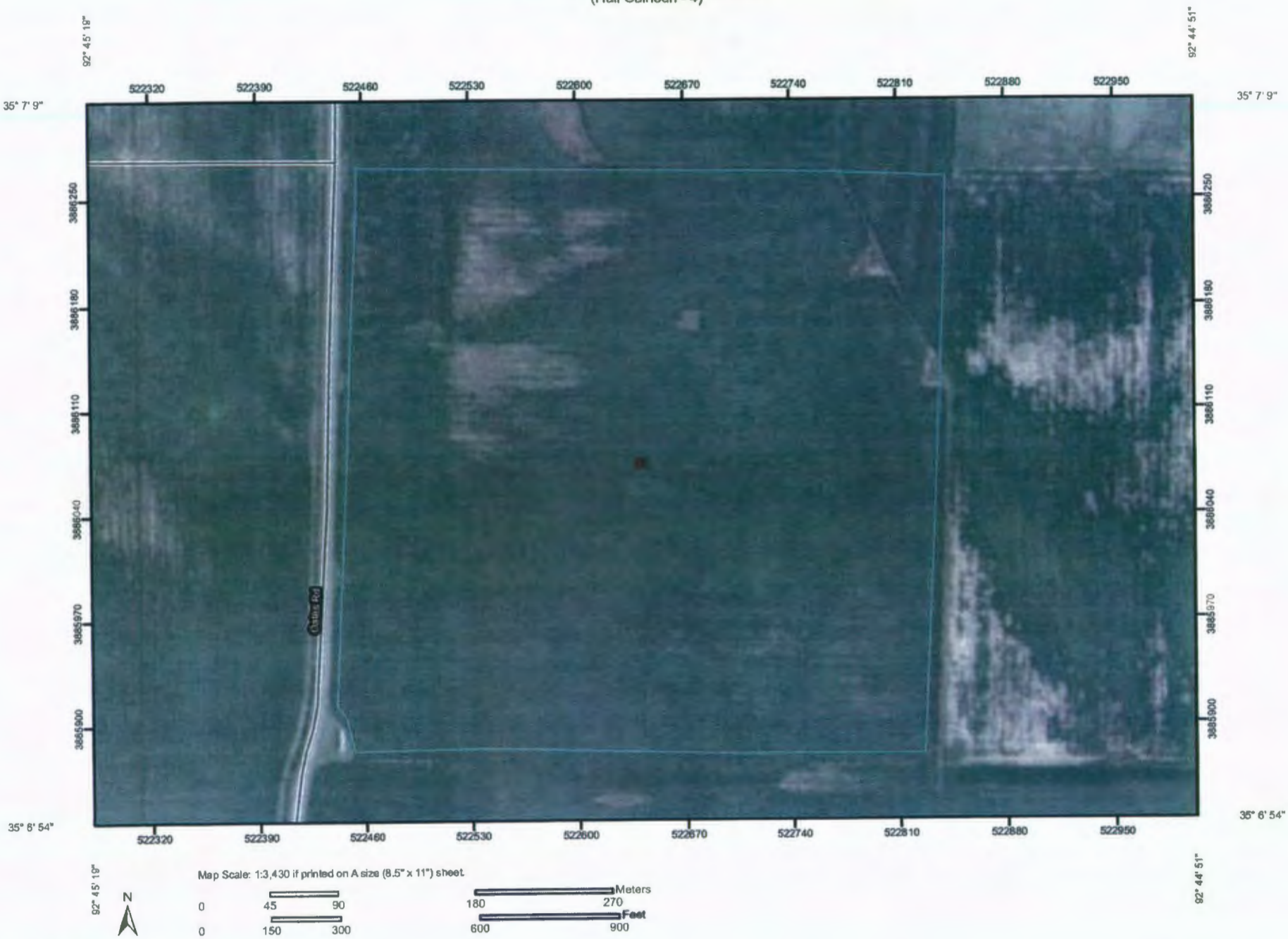
Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Data Source Information

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

Soil Map—Conway County, Arkansas
(Hall Calhoun - 4)



Map Scale: 1:3,430 if printed on A size (8.5" x 11") sheet.

N

0 45 90 180 270 Meters

0 150 300 600 900 Feet

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,430 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Conway County, Arkansas (AR029)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
31	Roxana silt loam	36.9	100.0%
Totals for Area of Interest		**36.9**	**100.0%**

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Conway County, Arkansas

Map Unit: 31—Roxana silt loam

Component: Roxana (90%)

The Roxana component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

Component: Aquents (10%)

Generated brief soil descriptions are created for major components. The Aquents soil is a minor component.

Data Source Information

Soil Survey Area: Conway County, Arkansas
Survey Area Data: Version 11, Sep 28, 2012

ETC
www.etcmemphis.com
ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Hall Calhoun - 1

Lab No : **99098**
Sample ID : **1** HC-1

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.773**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**9.09**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**4.43**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**11.4**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.10**	mg/Kg	1.00	1	05/24/13 03:56	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**172**	mg/Kg	5.00	1	05/29/13 11:41	JTR	6010B	
Total Arsenic	**5.68**	mg/Kg	1.00	1	05/24/13 08:11	BKN	6010B	
Total Calcium	**1040**	mg/Kg	5.00	1	05/24/13 08:11	BKN	6010B	
Total Cadmium	**0.255**	mg/Kg	0.100	1	05/24/13 08:11	BKN	6010B	
Total Copper	**4.79**	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Lead	**14.0**	mg/Kg	0.300	1	05/24/13 08:11	BKN	6010B	
Total Magnesium	**1260**	mg/Kg	5.00	1	05/24/13 08:11	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:24	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Nickel	**6.61**	mg/Kg	0.250	1	05/24/13 08:11	BKN	6010B	
Total Potassium	**554**	mg/Kg	5.00	1	05/29/13 11:41	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 08:11	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 08:11	BKN	6010B	
Total Zinc	**14.9**	mg/Kg	0.500	1	05/24/13 08:11	BKN	6010B	
Cation Exchange Capacity	**15.9**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.04**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

ETC
www.etcmemphis.com
ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Hall Calhoun - 2

Lab No : **99099**
Sample ID : **2(1)** HC-2 (1)

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.992**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**2.53**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**2.13**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**8.86**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.51**	mg/Kg	1.00	1	05/24/13 04:48	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**188**	mg/Kg	5.00	1	05/29/13 11:44	JTR	6010B	
Total Arsenic	**7.22**	mg/Kg	1.00	1	05/24/13 08:04	BKN	6010B	
Total Calcium	**1070**	mg/Kg	5.00	1	05/24/13 08:04	BKN	6010B	
Total Cadmium	**0.286**	mg/Kg	0.100	1	05/24/13 08:04	BKN	6010B	
Total Copper	**5.21**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Lead	**19.1**	mg/Kg	0.300	1	05/24/13 08:04	BKN	6010B	
Total Magnesium	**1250**	mg/Kg	5.00	1	05/24/13 08:04	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:26	TDJ	7471A	
Total Molybdenum	**0.278**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Nickel	**6.67**	mg/Kg	0.250	1	05/24/13 08:04	BKN	6010B	
Total Potassium	**544**	mg/Kg	5.00	1	05/29/13 11:44	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 08:04	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 08:04	BKN	6010B	
Total Zinc	**15.4**	mg/Kg	0.500	1	05/24/13 08:04	BKN	6010B	
Cation Exchange Capacity	**18.5**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.05**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

ETC
www.etcmemphis.com
ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay-Pkg
Morrilton, AR

Report Date : 6/3/2013

Report Number : **13-141-0241**

REPORT OF ANALYSIS

Received : 5/21/2013

Hall Calhoun

Lab No : **99100**
Sample ID : **2(2)** HC - 2(2)

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.890**	Calc		1	05/21/13 15:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**6.32**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**2.94**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**10.8**	ppm	0.050	1	05/21/13 15:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**1.44**	mg/Kg	1.00	1	05/24/13 05:05	ACS	9056	
pH	**6.1**	s.u.		1	05/22/13 13:00	TAW	9045D	
Total Phosphorus	**203**	mg/Kg	5.00	1	05/29/13 11:48	JTR	6010B	
Total Arsenic	**6.12**	mg/Kg	1.00	1	05/24/13 07:50	BKN	6010B	
Total Calcium	**1130**	mg/Kg	5.00	1	05/24/13 07:50	BKN	6010B	
Total Cadmium	**0.293**	mg/Kg	0.100	1	05/24/13 07:50	BKN	6010B	
Total Copper	**5.20**	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Lead	**17.4**	mg/Kg	0.300	1	05/24/13 07:50	BKN	6010B	
Total Magnesium	**1290**	mg/Kg	5.00	1	05/24/13 07:50	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	05/30/13 16:28	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Nickel	**7.58**	mg/Kg	0.250	1	05/24/13 07:50	BKN	6010B	
Total Potassium	**585**	mg/Kg	5.00	1	05/29/13 11:48	JTR	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	05/24/13 07:50	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	05/24/13 07:50	BKN	6010B	
Total Zinc	**16.6**	mg/Kg	0.500	1	05/24/13 07:50	BKN	6010B	
Cation Exchange Capacity	**15.5**	meq/100g	0.100	1	05/29/13 10:40	SNS	SW-9081	
Soluble Salts	**0.05**	mmhos/cm	0.01	1	05/23/13 08:30	JAD	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

www.allabs.com

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

Cooler Receipt Form

Customer Number: **20513**
Customer Name: **Terra Renewal Services**
Report Number: **13-141-0241**

Shipping Method

○ Fed Ex ● UPS ○ US Postal ○ Client ○ Lab ○ Courier ○ Other : [ ]

Shipping container/cooler uncompromised?	● Yes	○ No	
Custody seals intact on shipping container/cooler?	○ Yes	○ No	● Not Required
Custody seals intact on sample bottles?	○ Yes	○ No	● Not Required
Chain of Custody (COC) present?	● Yes	○ No	
COC agrees with sample label(s)?	● Yes	○ No	
COC properly completed	● Yes	○ No	
Samples in proper containers?	● Yes	○ No	
Sample containers intact?	● Yes	○ No	
Sufficient sample volume for indicated test(s)?	● Yes	○ No	
All samples received within holding time?	● Yes	○ No	
Cooler temperature in compliance?	● Yes	○ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	○ Yes	● No	
Water - Sample containers properly preserved	○ Yes	○ No	● N/A
Water - VOA vials free of headspace	○ Yes	○ No	● N/A
Trip Blanks received with VOAs	○ Yes	○ No	● N/A
Soil VOA method 5035 – compliance criteria met	○ Yes	○ No	● N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)

☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	○ Yes	● No

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Rebekah Ross

Date & Time: 05/21/2013 10:31:01

A&L Analytical Laboratories, Inc.

SOIL SAMPLE INFORMATION SHEET

CUSTOMER INFORMATION	GROWER INFORMATION
Terra Renewal 15797 E. State Hwy 155 Dardanelle, AR 72834	Green Bay - Pkg Morrilton, AR
	Send Report to e-mail address
Account # 20513 — Grower ID	Farm ID — Field ID

Terra Renewal Services
Green Bay-Pkg
13-141-0241
20513
05-21-2013
10:29:59

Please check samples in column provided if Herbicide or Nematode analysis requested. If Herbicide, please indicate name of Herbicide in Add'l info b

Lab Number (Lab Use Only)	Sample ID (8 chars. max)	S1M	B	Cu	Fe	Mn	Na	S	Zn	S3M	Soluble Salts	Texture	NO3-N	Additional Tests	Intended Crop Code	Intended Crop Yield	Alternate Crop Code	Alternate Crop Yield
	GB-1	✓					✓				✓		✓	* see attached list				
	GB-2	✓					✓				✓		✓	*				
	GB-3	✓					✓				✓		✓	*				
	1	✓					✓				✓		✓	*				
	2(1)	✓					✓				✓		✓	*				
	2(2)	✓					✓				✓		✓	*				

(The tests B through Zn are listed under the printed heading "S2M - Specify Add'l Tests".)

S1M Organic Matter, Phosphorous, Potassium, Calcium, Magnesium, pH, Buffer pH
S2M S1M plus any two of the following: Sodium, Sulfate-Sulfur, Boron, Zinc, Manganese, Iron, Copper. Each additional test (above two) cost $2.00.
S3M S1M plus all of the following: Sodium, Sulfate-Sulfur, Boron, Zinc, Manganese, Iron, Copper

CROP CODES TO BE USED IF FERTILIZER RECOMMENDATIONS ARE REQUESTED

If the crop for which you would like recommendations is not listed, write the crop name in the crop code boxes.

FIELD CROPS
Barley
Canola
Corn
Corn/Eco [illegible]
Corn [illegible]
Corn Silage
[illegible]
Cotton [illegible]
[illegible]
Ryegrass
Rice
Rye
Soybeans
Soybeans [illegible]
Sugarcane [illegible]
Sugarcane [illegible]
Wheat [illegible]
Wheat [illegible]
Wheat [illegible]
Wheat
Wheat Silage/Cover Silage
Wheat/Beans Double Crop

FORAGE CROPS
101 Alfalfa Hay
103 Alfalfa/Cool Season Grass Hay
105 Alfalfa/Warm Season Grass Hay
116 Bahiagrass Hay
117 Bahiagrass Pasture
121 Common Bermuda Hay
122 Common Bermuda Pasture
123 Common Bermuda/Legume Hay
124 Common Bermuda/Legume Pasture
161 Coastal Bermuda Hay
162 Coastal Bermuda Pasture
172 Cool Season Grass Pasture
173 Cool Season Grass Hay
181 Fescue Hay
182 Fescue Pasture
183 Fescue/Legume Hay
184 Fescue/Legume Pasture
237 Ryegrass

INDICATE TYPE OF GRASS AND/OR LEGUME
297 OTHER HAY
298 OTHER PASTURE
299 CRP

VEGETABLE CROPS
307 Beans - Lima
309 Beans - Snap
320 Cabbage
[illegible] Cantaloupe
[illegible] Cucumbers
[illegible] Garden
[illegible] Peppers
[illegible] Spinach
382 Squash
383 Sweet Corn
[illegible] Sweet Potatoes
[illegible] Sweet Potato (bu)
385 Tomatoes
[illegible] Watermelons

FRUIT & NUT CROPS
400 Apples
410 Blueberries
420 Citrus
430 Grapes
470 Peaches
475 Pecans
480 Strawberries

TURFGRASS
512. Bahiagrass Lawn
513. Bahiagrass Sod Production
517. Bentgrass Green
521. Bermudagrass Athletic Field
522. Bermudagrass Fairway
523. Bermudagrass Green
524. Bermudagrass Lawn
525. Bermudagrass Sod Production
526. Bermudagrass Tee
533. Bluegrass Lawn
534. Bluegrass Sod Production
542. Centipede Lawn
547. Centipede Sod Production
561. Fescue Athletic Field
563. Fescue Lawn
564. Fescue Sod Production
576. St. Augustine Lawn
577. St. Augustine Sod Production
583. Zoysiagrass Lawn
584. Zoysiagrass Sod Production

Additional Tests or Other Information

[illegible]

[illegible]

UPS BCY BR 5/21/13 0924

Test all parameters, thank you.

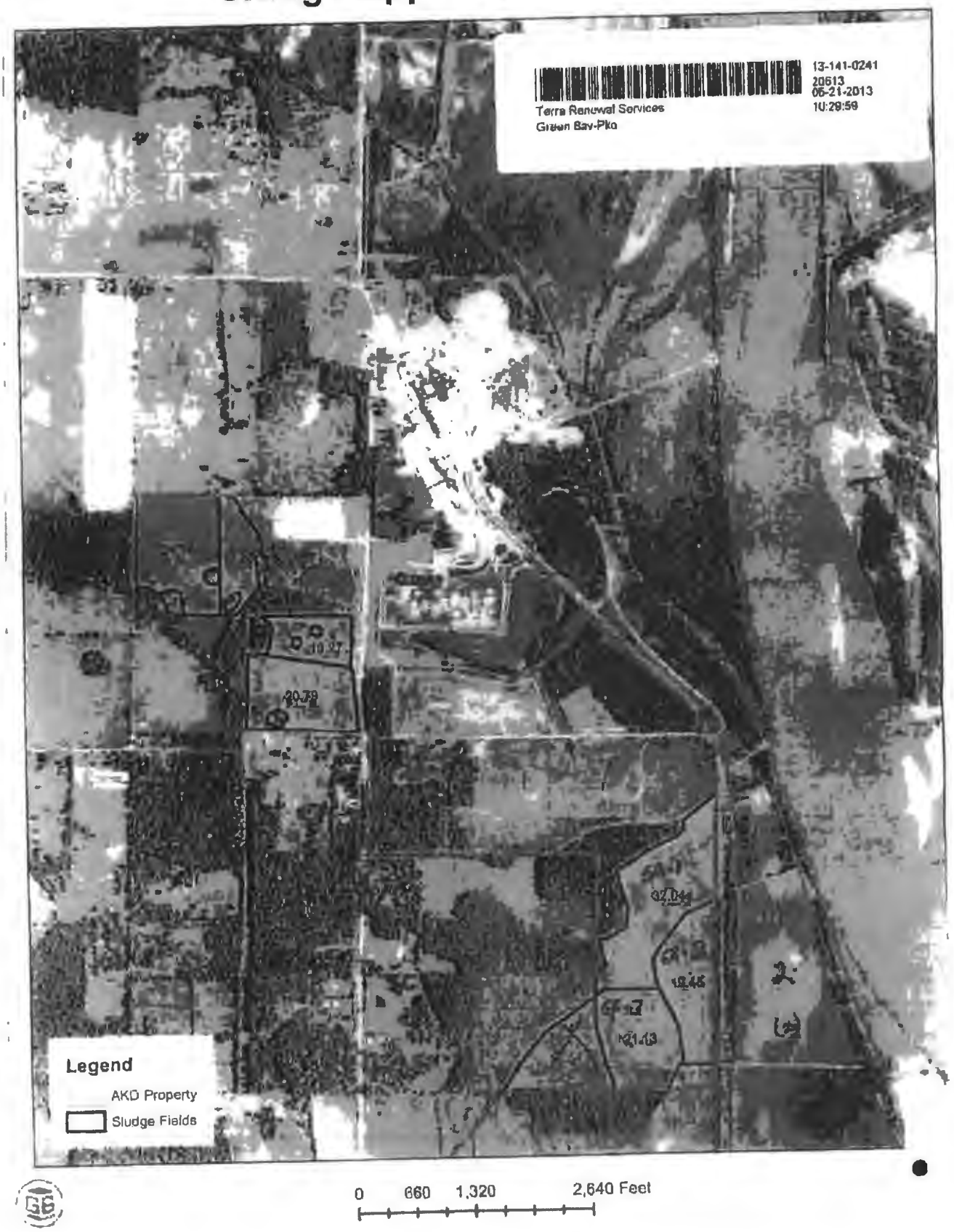
TABLE II		
Soils		
Parameter	Limit (Reporting Units)	Monitoring Frequency
Electrical Conductivity	4 (mmhos/cm)	Annually, Prior to 1st application of the calendar year.
Cation Exchange Capacity	Report (meq/100g)	
pH[1]	Report (S.U.)	
Sodium Adsorption Ratio (SAR)	12.0 (unitless)	
Calcium	Report (mg/kg)	Once every five (5) years
Magnesium		
Sodium		
Nitrate-Nitrogen		
Phosphorus		
Potassium		
Arsenic		
Cadmium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		

[1] If the resulting pH is 5.7 or lower, lime must be applied in accordance with recommendations from the University of Arkansas Cooperative Extension Service.

SECTION B. SCHEDULE OF COMPLIANCE:

1. Compliance with the monitoring requirement of Sodium Adsorption Ratio (SAR) and the constituents used to calculate SAR shall commence on January 1, 2013. Application of waste in 2013 shall not be executed until the waste samples and soil samples are analyzed for the parameters listed in Table I and Table II of Part I of permit no. 4739-WR-5.

Sludge Application Fields



ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
A Laboratory Management Partner

6/24/2013

Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville, AR, 72811

Ref: Analytical Testing
ETC Report Number: 13-163-0254
Client Project Description: Green Bay Pkg
Morrilton, AR

Dear Mr. Marcus Tilley:

Environmental Testing and Consulting, Inc. received sample(s) on 6/12/2013 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Randall H. Thomas

Randy Thomas
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Alabama	#40750	Louisiana	#04015	VA NELAP	#460181	Texas	#T104704180-11-6	Arkansas	#88-0650
Mississippi		California	#09267CA	NC	#415	Oklahoma	#9311	Virginia	#00106
Kentucky	#90047	Tennessee	#TN02027	EPA	#TN00012	Kentucky UST	#41	Kansas	#E-10396

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay Pkg
Morrilton, AR

Report Date : 6/24/2013

Report Number : **13-163-0254**

REPORT OF ANALYSIS

Received : 6/12/2013

Lab No : **92606**
Sample ID : **HC-3**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.173**	Calc		1	06/13/13 12:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**22.3**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**8.38**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**3.79**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**6.30**	mg/Kg	1.00	1	06/19/13 19:06	TDJ	9056	
pH	**5.8**	s.u.		1	06/13/13 10:00	TAW	9045D	
Total Phosphorus	**203**	mg/Kg	5.00	1	06/14/13 16:05	JTR	6010B	
Total Arsenic	**2.18**	mg/Kg	1.00	1	06/14/13 10:02	BKN	6010B	
Total Calcium	**786**	mg/Kg	5.00	1	06/14/13 10:02	BKN	6010B	
Total Cadmium	**0.155**	mg/Kg	0.100	1	06/14/13 10:02	BKN	6010B	
Total Copper	**3.41**	mg/Kg	0.250	1	06/14/13 10:02	BKN	6010B	
Total Lead	**5.08**	mg/Kg	0.300	1	06/14/13 10:02	BKN	6010B	
Total Magnesium	**1630**	mg/Kg	5.00	1	06/14/13 10:02	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	06/18/13 16:22	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	06/14/13 10:02	BKN	6010B	
Total Nickel	**7.42**	mg/Kg	0.250	1	06/14/13 10:02	BKN	6010B	
Total Potassium	**682**	mg/Kg	5.00	1	06/14/13 10:02	BKN	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	06/14/13 10:02	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	06/14/13 10:02	BKN	6010B	
Total Zinc	**18.2**	mg/Kg	0.500	1	06/14/13 10:02	BKN	6010B	
Cation Exchange Capacity	**10.5**	meq/100g	0.100	1	06/13/13 12:45	SNS	SW-9081	
Soluble Salts	**0.07**	mmhos/cm	0.01	1	06/17/13 12:15	SNS	Soluble Salts	~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

ETC ENVIRONMENTAL TESTING & CONSULTING, INC.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

20513
Terra Renewal Services
Mr. Marcus Tilley
P.O. Box 3036
Russellville , AR 72811

Project Information : Green Bay Pkg
Morrilton, AR

Report Date : 6/24/2013

Report Number : **13-163-0254**

REPORT OF ANALYSIS

Received : 6/12/2013

Lab No : **92607**
Sample ID : **HC-4**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method	
Sodium Adsorption Ratio (Sat Paste)	**0.186**	Calc		1	06/13/13 12:00	AEH	Sat Paste	~
Calcium (Sat Paste)	**17.4**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Magnesium (Sat Paste)	**5.44**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Sodium (Sat Paste)	**3.48**	ppm		1	06/13/13 12:00	AEH	Sat Paste	~
Nitrate (NO3-N)	**3.98**	mg/Kg	1.00	1	06/19/13 19:59	TDJ	9056	
pH	**5.7**	s.u.		1	06/13/13 10:00	TAW	9045D	
Total Phosphorus	**227**	mg/Kg	5.00	1	06/14/13 16:09	JTR	6010B	
Total Arsenic	**2.77**	mg/Kg	1.00	1	06/14/13 10:09	BKN	6010B	
Total Calcium	**806**	mg/Kg	5.00	1	06/14/13 10:09	BKN	6010B	
Total Cadmium	**0.139**	mg/Kg	0.100	1	06/14/13 10:09	BKN	6010B	
Total Copper	**3.68**	mg/Kg	0.250	1	06/14/13 10:09	BKN	6010B	
Total Lead	**4.86**	mg/Kg	0.300	1	06/14/13 10:09	BKN	6010B	
Total Magnesium	**1680**	mg/Kg	5.00	1	06/14/13 10:09	BKN	6010B	
Total Mercury	<0.0133	mg/Kg	0.0133	1	06/18/13 16:24	TDJ	7471A	
Total Molybdenum	<0.250	mg/Kg	0.250	1	06/14/13 10:09	BKN	6010B	
Total Nickel	**6.60**	mg/Kg	0.250	1	06/14/13 10:09	BKN	6010B	
Total Potassium	**735**	mg/Kg	5.00	1	06/14/13 10:09	BKN	6010B	
Total Selenium	<1.00	mg/Kg	1.00	1	06/14/13 10:09	BKN	6010B	
Total Sodium	<25.0	mg/Kg	25.0	1	06/14/13 10:09	BKN	6010B	
Total Zinc	**17.9**	mg/Kg	0.500	1	06/14/13 10:09	BKN	6010B	
Cation Exchange Capacity	**10.7**	meq/100g	0.100	1	06/13/13 12:45	SNS	SW-9081	
Soluble Salts	**0.05**	mmhos/cm	0.01	1	06/17/13 12:15	SNS	Soluble Salts	~

Qualifiers/ Definitions

* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

www.allabs.com

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

Cooler Receipt Form

Customer Number: **20513**
Customer Name: **Terra Renewal Services**
Report Number: **13-163-0254**

Shipping Method

○ Fed Ex ● UPS ○ US Postal ○ Client ○ Lab ○ Courier ○ Other :

Shipping container/cooler uncompromised?	● Yes	○ No	
Custody seals intact on shipping container/cooler?	○ Yes	○ No	● Not Required
Custody seals intact on sample bottles?	○ Yes	○ No	● Not Required
Chain of Custody (COC) present?	● Yes	○ No	
COC agrees with sample label(s)?	● Yes	○ No	
COC properly completed	● Yes	○ No	
Samples in proper containers?	● Yes	○ No	
Sample containers intact?	● Yes	○ No	
Sufficient sample volume for indicated test(s)?	● Yes	○ No	
All samples received within holding time?	● Yes	○ No	
Cooler temperature in compliance?	● Yes	○ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	○ Yes	● No	
Water - Sample containers properly preserved	○ Yes	○ No	● N/A
Water - VOA vials free of headspace	○ Yes	○ No	● N/A
Trip Blanks received with VOAs	○ Yes	○ No	● N/A
Soil VOA method 5035 – compliance criteria met	○ Yes	○ No	● N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)

☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	○ Yes	● No

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Rebekah Ross

Date & Time: 06/12/2013 11:33:21

A&L Analytical Laboratories, Inc.

6/11/13 JP

A&L

SOIL SAMPLE INFORMATION SHEET

CUSTOMER INFORMATION	GROWER INFORMATION
Terra Renewal 15797 E. State Hwy 155 Dardanelle, AR 72834	Green Bay Pkg Morrilton, AR
	Send Report to e-mail address
Account # 20513	Grower ID
	Farm ID	Field ID

13-163-0254
20513
06-12-2013
11 25 56
Terra Renewal Services
Green Bay Pkg

Please check samples in column provided if Herbicide or Nematode analysis requested. If Herbicide, please indicate name of Herbicide in Add'l Info box

Lab Number (Lab Use Only)	Sample ID (6 chars. max)	S1M	B	Cu	Fe	Mn	Na	S	Zn	S3M	Soluble Salts	Texture	NO3-N	Additional Tests	Intended Crop Code	Intended Crop Yield	Alternate Crop Code	Alternate Crop Yield
	HC 3	✓					✓				✓		✓	* See attached list				
	HC-4	✓					✓				✓		✓	*				

S1M - Organic Matter, Phosphorous, Potassium, Calcium, Magnesium, pH, Buffer pH
S2M - S1M plus any two of the following: Sodium, Sulfate Sulfur, Boron, Zinc, Manganese, Iron, Copper. Each additional test (above two) cost $2.00
S3M - S1M plus all of the following: Sodium, Sulfate Sulfur, Boron, Zinc, Manganese, Iron, Copper

CROP CODES TO BE USED IF FERTILIZER RECOMMENDATIONS ARE REQUESTED

If the crop for which you would like recommendations is not listed, write the crop name in the crop code boxes.

FIELD CROPS
1 Barley
5 Canola
10 Corn
11 Corn/Soybeans Rotation
12 Corn - No Till
15 Corn Silage
20 Cotton
21 Cotton - No Till
25 Grain Sorghum
30. Oats
32. Peanuts
34 Popcorn
35 Rapeseed
36 Rice
38 Rye
45 Soybeans
46 Soybeans - No Till
51 Sugarcane - Plant
52 Sugarcane - Stubble
62 Tobacco - Burley
63 Tobacco - Dark
64 [illegible]
75 Wheat
[illegible] Wheat for [illegible] Silage
[illegible] Wheat/[illegible] Double Crop

FORAGE CROPS
101 Alfalfa Hay
103 Alfalfa/Cool Season Grass Hay
105 Alfalfa/Warm Season Grass Hay
116 Bahiagrass Hay
117 Bahiagrass Pasture
121 Common Bermuda Hay
122 Common Bermuda Pasture
123 Common Bermuda/Legume Hay
124 Common Bermuda/Legume Pasture
161 Coastal Bermuda Hay
162. Coastal Bermuda Pasture
172 Cool Season Grass Pasture
173. Cool Season Grass Hay
181. Fescue Hay
182. Fescue Pasture
183 Fescue/Legume Hay
184 Fescue/Legume Pasture
237 Ryegrass

INDICATE TYPE OF GRASS AND/OR LEGUME
297 OTHER HAY
298 OTHER PASTURE
299 CROP

VEGETABLE CROPS
307 Beans - Lima
309 Beans - Snap
320 Cabbage
322 Cantaloupe
330 Cucumbers
340 Garden
369 Peppers
381 Spinach
382 Squash
383 Sweet Corn
384 Sweet Potato (plant)
391 Sweet Potato (bu)
[illegible] Tomatoes
398 Watermelons

FRUIT & NUT CROPS
400 Apples
410 Blueberries
420 Citrus
430 Grapes
470 Peaches
475. Pecans
490 Strawberries

TURFGRASS
512 Bahiagrass Lawn
513 Bahiagrass Sod Production
517 Bentgrass Green
521 Bermudagrass Athletic Field
522 Bermudagrass Fairway
523 Bermudagrass Green
524 Bermudagrass Lawn
525 Bermudagrass Sod Production
526 Bermudagrass Tee
533 Bluegrass Lawn
534. Bluegrass Sod Production
546 Centipede Lawn
547 Centipede Sod Production
561 Fescue Athletic Field
563 Fescue Lawn
564 Fescue Sod Production
576 St. Augustine Lawn
577 St. Augustine Sod Production
580 Zoysiagrass Lawn
581. Zoysiagrass Sod Production

Additional Tests or Other Information

Please call John Pipkin, cell 479 264 5383 with any questions.

Thank you, JP

[illegible] acceptance of our terms and conditions. All prices are subject to change without notice. [illegible] sample requires additional [illegible]

RR 6/13/13 0938

TABLE II

Soils

Parameter	Limit (Reporting Units)	Monitoring Frequency
Electrical Conductivity	4 (mmhos/cm)	Annually, Prior to 1st application of the calendar year.
Cation Exchange Capacity	Report (meq/100g)	
pH[1]	Report (S.U.)	
Sodium Adsorption Ratio (SAR)	12.0 (unitless)	
Calcium	Report (mg/kg)	
Magnesium		
Sodium		
Nitrate-Nitrogen		
Phosphorus		
Potassium		
Arsenic		Once every five (5) years
Cadmium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		

[1] If the resulting pH is 5.7 or lower lime must be applied in accordance with recommendations from the University of Arkansas Cooperative Extension Service

SECTION B. SCHEDULE OF COMPLIANCE:

1. Compliance with the monitoring requirement of Sodium Adsorption Ratio (SAR) and the constituents used to calculate SAR shall commence on January 1, 2013. Application of waste in 2013 shall not be executed until the waste samples and soil samples are analyzed for the parameters listed in Table I and Table II of Part I of permit no. 4739-WR-5


13-163-0254
20513
06-12-2013
11:25:56
Terra Removal Services
Green Bay Pike
HC-3
HC-4
Oates Rd
113
©2013 Google
Imagery Date: 10/14/2011 35°07'05.91" N 92°44'58.42" W elev 275 ft

www.allabs.com

A&L Analytical Laboratories, Inc.

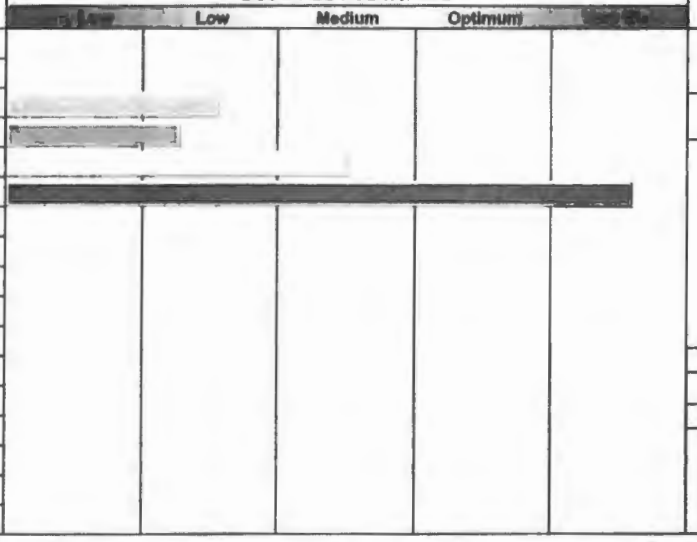
2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

SOIL ANALYSIS

Client :	Grower :	
Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Green Bay- Pkg Hall Calhoun HC-1	Report No: 13-141-0512 Cust No: 20513 Date Printed: 05/22/2013 Date Received : 05/21/2013 PO: Page : 4 of 6

Lab Number : 05414 **Field Id :** **Sample Id :** 1

Test	Method	Results
Soil pH	1:1	6.4
Buffer pH	BPH	6.74
Phosphorus (P)	M3	9 ppm
Potassium (K)	M3	62 ppm
Calcium (Ca)	M3	1180 ppm
Magnesium (Mg)	M3	284 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.6 % ENR 76
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.7 meq/100g	
Calculated Cation Saturation	
%K	1.9
%Ca	60.5
%Mg	28.3
%H	9.0
Hmeq	0.7
K : Mg Ratio	
0.07	
Ca : Mg Ratio	
2.14	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

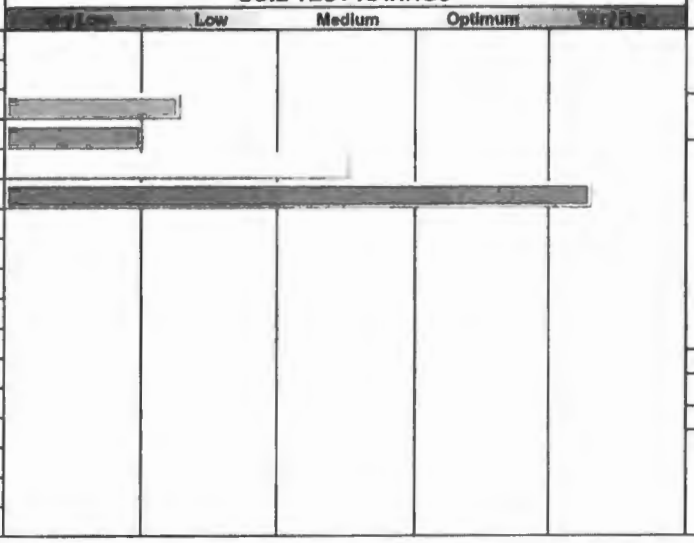
2780 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

SOIL ANALYSIS

Client : Terra Renewal Services Ms. Megan Meredith P.O. Box 3036 Russellville AR 72811	Grower : Green Bay- Pkg Hall Calhoun HC-2(1)	Report No: 13-141-0512 Cust No: 20513 Date Printed: 05/22/2013 Date Received 05/21/2013 PO: Page : 5 of 6

Lab Number : 05415 **Field Id :** **Sample Id :** 2 (1)

Test	Method	Results
Soil pH	1:1	6.3
Buffer pH	BPH	6.79
Phosphorus (P)	M3	6 ppm
Potassium (K)	M3	50 ppm
Calcium (Ca)	M3	1108 ppm
Magnesium (Mg)	M3	248 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.7 % ENR 78
Nitrate Nitrogen		



Calculated Cation Exchange Capacity	
7.1 meq/100g	
Calculated Cation Saturation	
%K	1.7
%Ca	61.6
%Mg	26.8
%H	10.6
Hmeq	0.8
K : Mg Ratio	
0.06	
Ca : Mg Ratio	
2.30	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

SOIL ANALYSIS

Client :
Terra Renewal Services
Ms. Megan Meredith
P.O. Box 3036
Russellville AR 72811

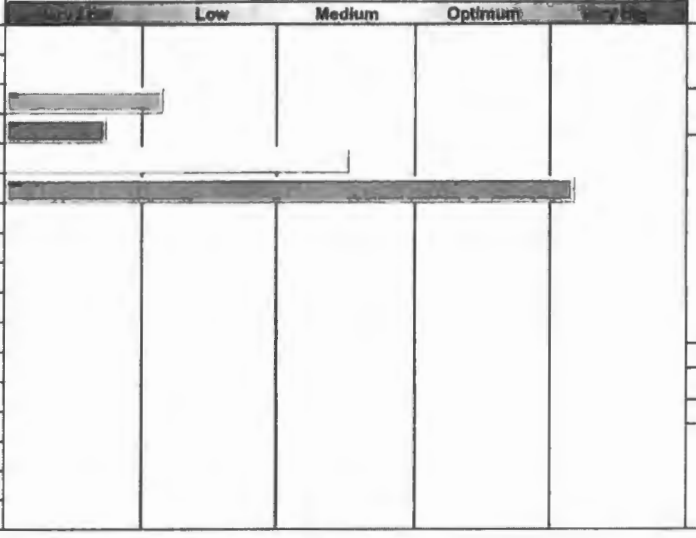
Grower :
Green Bay- Pkg

Hall Calhoun
HC - 2(2)

Report No: 13-141-0512
Cust No: 20513
Date Printed: 05/22/2013
Date Received : 05/21/2013
PO:
Page : 6 of 6

Lab Number : 05416 **Field Id :** **Sample Id :** 2 (2)

Test	Method	Results
Soil pH	1:1	6.3
Buffer pH	BPH	6.76
Phosphorus (P)	M3	5 ppm
Potassium (K)	M3	39 ppm
Calcium (Ca)	M3	995 ppm
Magnesium (Mg)	M3	219 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	2.4 % ENR 92
Nitrate Nitrogen		



Calculated Cation Exchange Capacity
6.4
meq/100g

Calculated Cation Saturation

%K	1.5
%Ca	61.4
%Mg	26.2
%H	10.5
Hmeq	0.7

K : Mg Ratio
0.05

Ca : Mg Ratio
2.34

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

SOIL ANALYSIS

Client :
Terra Renewal Services
Ms. Megan Meredith
P.O. Box 3036
Russellville AR 72811

Grower :
Green Bay Pkg

Hall Calhoun
HC-3

Report No: 13-163-0567
Cust No: 20513
Date Printed: 06/13/2013
Date Received . 06/12/2013
PO:
Page : 1 of 2

Lab Number : 14081 **Field Id :** **Sample Id :** HC-3

Test	Method	Results	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Soil pH	1:1	5.6	
Buffer pH	BPH	6.81	
Phosphorus (P)	M3	13 ppm	
Potassium (K)	M3	60 ppm	
Calcium (Ca)	M3	557 ppm	
Magnesium (Mg)	M3	134 ppm	
Sulfur (S)			
Boron (B)			
Copper (Cu)			
Iron (Fe)			
Manganese (Mn)			
Zinc (Zn)			
Sodium (Na)	M3	20 ppm	
Soluble Salts			
Organic Matter	LOI	1.1 % ENR 66	
Nitrate Nitrogen			

Calculated Cation Exchange Capacity	
4.5 meq/100g	
Calculated Cation Saturation	
%K	3.2
%Ca	48.9
%Mg	22.8
%H	23.6
Hmeq	1.1
%Na	1.9
K : Mg Ratio	
0.14	
Ca : Mg Ratio	
2.14	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

SOIL ANALYSIS

Client :
Terra Renewal Services
Ms. Megan Meredith
P.O. Box 3036
Russellville AR 72811

Grower :
Green Bay Pkg

Hall Calhoun
HC-4

Report No: 13-163-0567
Cust No: 20513
Date Printed: 06/13/2013
Date Received : 06/12/2013
PO:
Page : 2 of 2

Lab Number : 14082 **Field Id :** **Sample Id :** HC-4

Test	Method	Results
Soil pH	1:1	5.5
Buffer pH	BPH	6.82
Phosphorus (P)	M3	24 ppm
Potassium (K)	M3	69 ppm
Calcium (Ca)	M3	553 ppm
Magnesium (Mg)	M3	138 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)	M3	18 ppm
Soluble Salts		
Organic Matter	LOI	1.1 % ENR 66
Nitrate Nitrogen		

SOIL TEST RATINGS

Very Low | Low | Medium | Optimum | Very High

Calculated Cation Exchange Capacity: 4.7 meq/100g

Calculated Cation Saturation

%K	3.5
%Ca	46.5
%Mg	22.5
%H	26.1
Hmeq	1.2
%Na	1.7

K : Mg Ratio: 0.15

Ca : Mg Ratio: 2.07

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

BPH - Lime Index M3 - Mehlich 3 LOI - Loss On Ignition 1:1 - Water pH
Analysis prepared by: A&L Analytical Laboratories, Inc.

CERTIFIED MAIL™

7009 2820 0004 4029 4557

Hasler
12/03/2013
US POSTAGE
PRIORITY MAIL
ComBasPrice
$10.97⁰
ZIP 72110
011D11632024

FROM -

Green Bay Packaging Inc.
Arkansas Kraft Division

338 Hwy. 113
Morrilton, AR 72110-0711

ADDRESS SERVICE REQUESTED

FOR:

ADEQ
ATTN: JOHN BAILEY
WATER DIVISION, PERMIT BRANCH
5301 NORTHSHORE DRIVE
NORTH LITTLE ROCK, AR 72118-5317