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Indiana Department of Environmental Management

Solid Waste Permits Section - Office of Land Quality

Land Application Monthly Report - Biosolids and Industrial Waste Products

>>Complete and submit this form to IDEM each report month<<

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Month:	Oct	**Year:**	2016
Permittee	Tyson Foods, Inc.	**L.A. Permit No. IN LA:**	700

Methods of Disposal Utilized:

Indicate by an "X" which disposal methods were utilized this month and provide volumes for each method.

NOTE: Only include amounts for those materials which you are PERMITTED to land apply.

BIOSOLIDS:		Dry Tons
	No biosolids were disposed, by land application or other methods, this month	NA
	Biosolids were land applied this month	
	Dewatered biosolids were used at the treatment works grounds this month	
	Biosolids were landfilled this month	
	Biosolids were disposed by the method listed below this month	
Method:		
Of the total volume listed above, what volume was transported out of Indiana?		

INDUSTRIAL WASTE PRODUCTS:		Dry Tons
	No industrial waste products were disposed, by land application or other methods, this month	NA
X	Industrial waste products were land applied this month	132.00
	Industrial waste products were landfilled this month	
X	Industrial waste products were disposed by the method listed below this month	1.97
Method:	Corydon Regional Biosolids Facility	
Of the total volume listed above, what volume was transported out of Indiana?		

I hereby certify that to the best of my knowledge and understanding this report is complete and accurate.

Signature: [signature] Printed Name: Todd Oster

Title: Certified Operator Date: 11/21/16

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Solid Waste Permits Section - Office of Land Quality

Land Application Site Activity Report - Biosolids and Industrial Waste Products

>>Complete and submit this form to IDEM for each application site used during a report month<<

Month:	Oct	**Year:**	2016	Place "X" below if first use of site by this permittee
Permittee:	Tyson Foods, Inc.	**Site ID:**	HF-28	
L.A. Permit No. IN LA:	700	**Acres Available:**	13.5	
Type of Material Applied This Month:	3	**Acres Used This Month:**	13.47	

Types of Material: 1 = Anaerobically Digested Biosolids, 2 = Aerobically Digested Biosolids, 3 = Industrial Waste Product

Loading Data:

Date:	Dry Tons Applied	% Total Solids	Acres Used	Method Used* 1, 2, or 3	Metal Analysis 1 or 2	Nutrient Analysis 1 or 2
1						
2						
3						
4						
5						
6						
7	3.69	6.70	.970	2	1	2
8	3.38	5.90	.890	2	1	2
9	3.17	5.50	.830	2	1	2
10						
11	6.22	7.30	1.640	2	1	2
12	6.36	7.50	1.670	2	1	2
13	7.68	6.80	2.02	2	1	2
14	5.99	7.10	1.580	2	1	2
15	2.12	7.40	.56	2	1	2
16	5.28	6.20	1.39	2	1	2
17	1.27	5.80	.33	2	1	2
18	6.03	7.40	1.59	2	1	2
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

*Methods of Application: 1 = Surface, 2 = Injection, 3 = Incorporation

Lab Data:

Heavy Metal Analysis: **DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!**

ANALYSIS #		1	2	
Sample Report Date		09/16/16	11/10/16	
% Total Solids		10.80		
Arsenic	(As)	0.57		mg/kg dry wt.
Cadmium	(Cd)	0.57		mg/kg dry wt.
Copper	(Cu)	29.30		mg/kg dry wt.
Lead	(Pb)	0.71		mg/kg dry wt.
Mercury	(Hg)	0.67		mg/kg dry wt.
Molybdenum	(Mo)	1.15		mg/kg dry wt.
Nickel	(Ni)	3.93		mg/kg dry wt.
Selenium	(Se)	1.33		mg/kg dry wt.
Zinc	(Zn)	120.00		mg/kg dry wt.

Nutrient Analysis: **DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!**

ANALYSIS #		1	2	
% Total Solids			7.07	
Total N	(TN)		5.49	% dry wt.
Ammonium N	(NH4-N)		0.68	% dry wt.
Nitrate N	(NO3-N)		0.00	% dry wt.
Phosphorus	(P)		2.60	% dry wt.
Potassium	(K)		0.24	% dry wt.

Other Analysis:

ANALYSIS #		1	2	
PCB				mg/kg dry wt.
Other				
Other				

What is the projected crop(s) for which the above application(s) was intended to fertilize? Corn

If more than one crop is listed, indicate on the site-use map the areas planted, or to be planted, in each different type of crop.

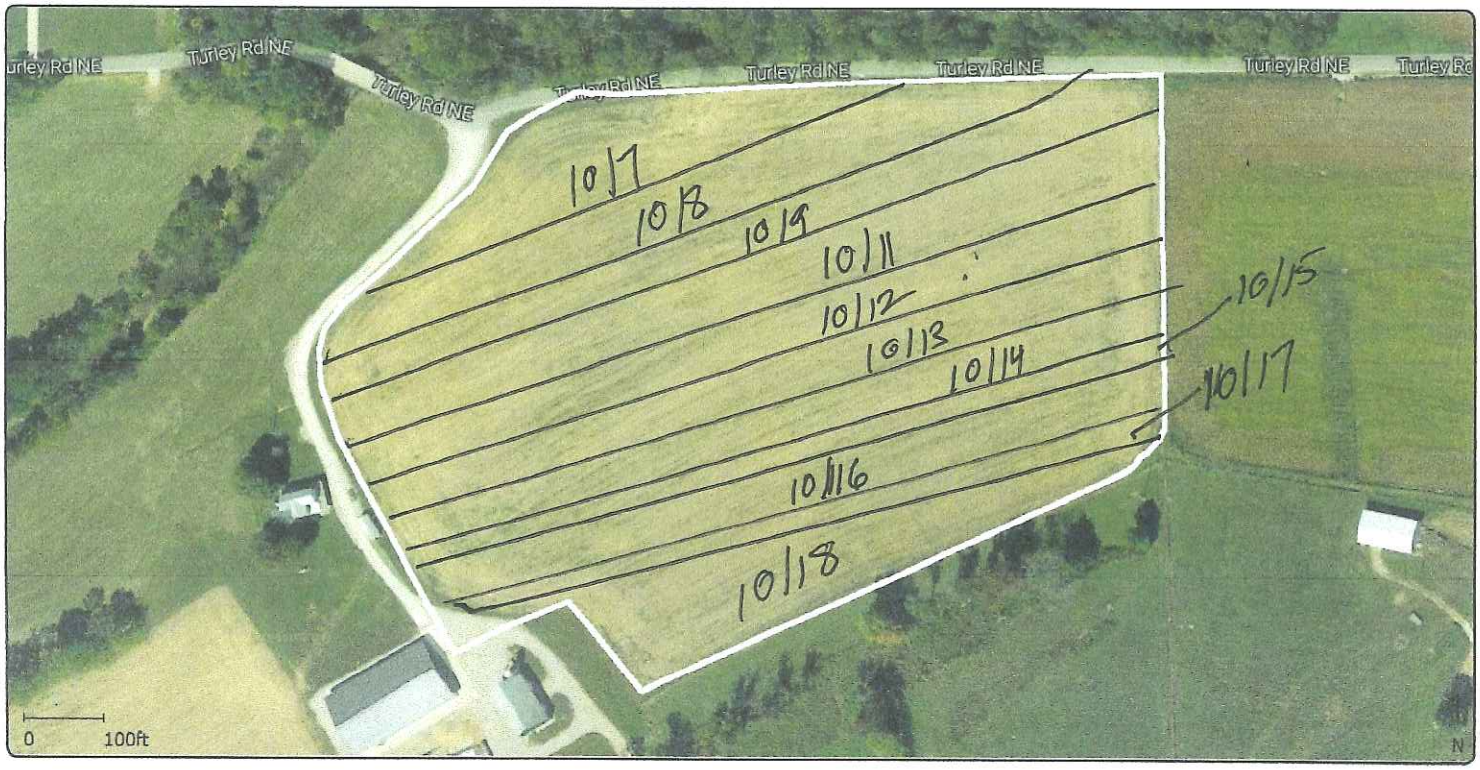
Has this application site been used for land application of any biosolids or industrial waste products from any other facility within the past 365 day period? Yes [ ] No [X] If yes, by whom?

Date of last soil analysis of this site	11/03/14
pH range from last soil analysis of this site	5.5 - 6.0
Date on which last soil pH adjustment was made on this site	06/04/15
Minimum CEC from last soil analysis of this site *(does not apply to sites where biosolids are applied)*	9.12

Tyson Foods, Inc.
545 Valley Rd.
Corydon, IN 47112
812-738-5853

Field - Name
HF-28(13.54 ac)

Failed GPS



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Solid Waste Permits Section - Office of Land Quality

Land Application Site Activity Report - Biosolids and Industrial Waste Products

>>Complete and submit this form to IDEM for each application site used during a report month<<

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Month:	Oct	**Year:**	2016	Place "X" below if first use of site by this permittee
Permittee:	Tyson Foods, Inc.	**Site ID:**	HF-29	
L.A. Permit No. IN LA:	700	**Acres Available:**	25	
Type of Material Applied This Month:	3	**Acres Used This Month:**	7.94	

Types of Material: 1 = Anaerobically Digested Biosolids, 2 = Aerobically Digested Biosolids, 3 = Industrial Waste Product

Loading Data:

Date:	Dry Tons Applied	% Total Solids	Acres Used	Method Used* 1, 2, or 3	Metal Analysis 1 or 2	Nutrient Analysis 1 or 2
1	8.58	6.00	2.644	2	1	2
2	1.38	5.00	.445	2	1	2
3	1.44	5.00	.475	2	1	2
4	3.37	6.00	1.061	2	1	2
5	6.88	8.20	2.013	2	1	2
6	3.96	7.10	1.306	2	1	2
7						
8						
9						
10						
11						
12						
13						
14						
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16						
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18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

*Methods of Application: 1 = Surface, 2 = Injection, 3 = Incorporation

Lab Data:

Heavy Metal Analysis: DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!

ANALYSIS #		1	2	
Sample Report Date		09/16/16	11/10/16	
% Total Solids		10.60		
Arsenic	(As)	0.57		mg/kg dry wt.
Cadmium	(Cd)	0.57		mg/kg dry wt.
Copper	(Cu)	29.30		mg/kg dry wt.
Lead	(Pb)	0.71		mg/kg dry wt.
Mercury	(Hg)	0.67		mg/kg dry wt.
Molybdenum	(Mo)	1.15		mg/kg dry wt.
Nickel	(Ni)	3.93		mg/kg dry wt.
Selenium	(Se)	1.33		mg/kg dry wt.
Zinc	(Zn)	120.00		mg/kg dry wt.

Nutrient Analysis: DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!

ANALYSIS #		1	2	
% Total Solids			7.07	
Total N	(TN)		5.49	% dry wt.
Ammonium N	(NH4-N)		0.68	% dry wt.
Nitrate N	(NO3-N)		0.00	% dry wt.
Phosphorus	(P)		2.60	% dry wt.
Potassium	(K)		0.24	% dry wt.

Other Analysis:

ANALYSIS #		1	2	
PCB				mg/kg dry wt.
Other				
Other				

What is the projected crop(s) for which the above application(s) was intended to fertilize? Corn

If more than one crop is listed, indicate on the site-use map the areas planted, or to be planted, in each different type of crop.

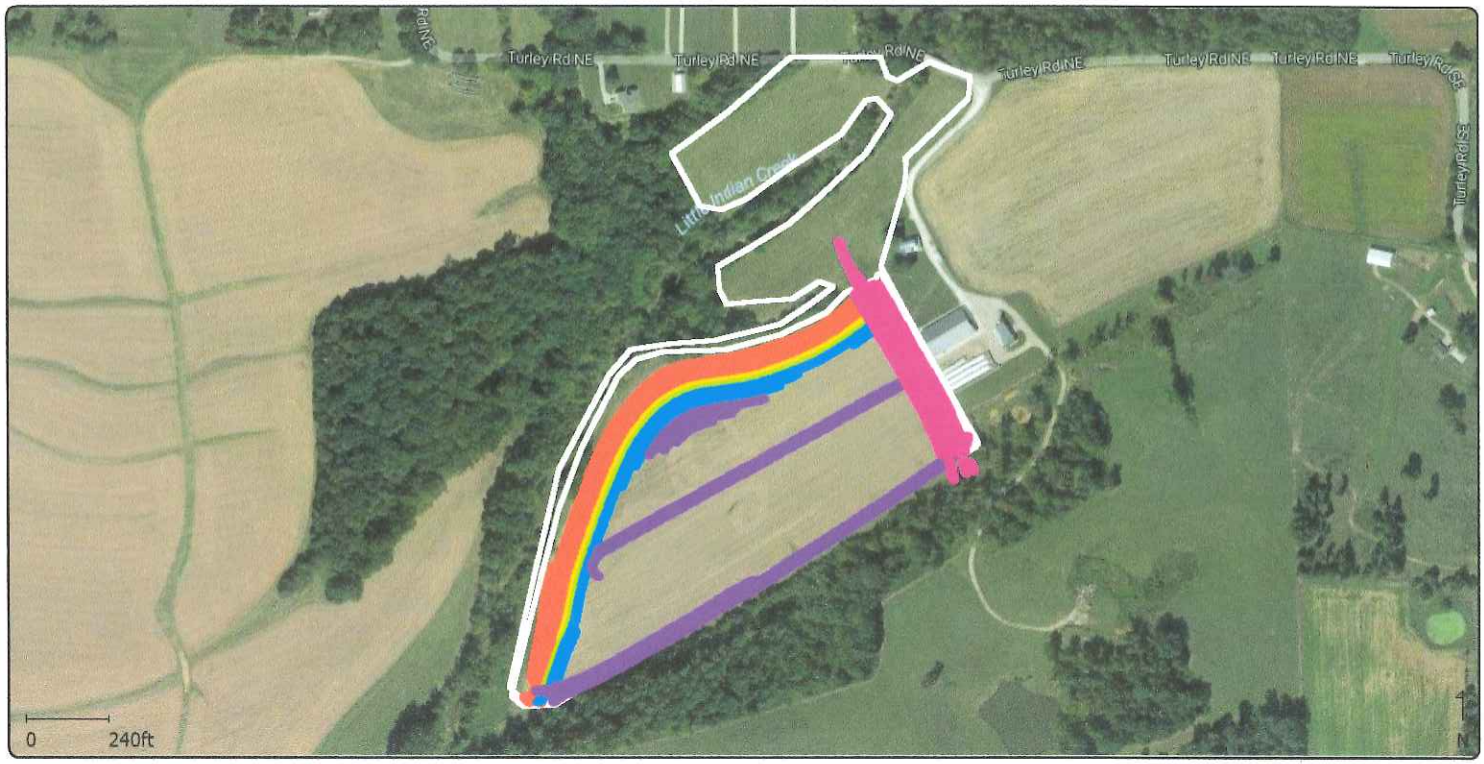
Has this application site been used for land application of any biosolids or industrial waste products from any other facility within the past 365 day period? Yes [ ] No [X] If yes, by whom?

Date of last soil analysis of this site	11/03/14
pH range from last soil analysis of this site	5.2 - 6.3
Date on which last soil pH adjustment was made on this site	07/15/16
Minimum CEC from last soil analysis of this site *(does not apply to sites where biosolids are applied)*	10.8

Tyson Foods, Inc.
545 Valley Rd.
Corydon, IN 47112
812-738-5853

Field - Name
HF-29(44.28 ac)

Full Name
- 10-1-16(2.644 ac)
- 10-2-16(0.445 ac)
- 10-3-16(0.475 ac)
- 10-4-16(1.061 ac)
- 10-5-16(2.013 ac)
- 10-6-16(1.306 ac)



Map Layer 2

Grower : Tyson

Farm : Hauswald Farms

Field : HF-29

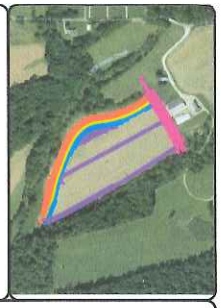
Year : 2016

Operation : Boundary

Crop / Product : NO Product

Op. Instance : Instance - 1

Map Layer 1



Grower : Tyson
Farm : Hauswald Farms
Field : HF-29
Year : 2016
Operation : Fertilizing (Liquid)
Crop / Product : Biosolids
Op. Instance : Multiple
Area : 7.935 ac
Start Date : 10/1/2016
End Date : 10/6/2016
Working Time : 1.342 h
Avg. Productivity : 5.919 ac/h
GPS Count : 4831

Field - Name

HF-29(44.28 ac)

Full Name

- 10-1-16(2.644 ac)
- 10-2-16(0.445 ac)
- 10-3-16(0.475 ac)
- 10-4-16(1.061 ac)
- 10-5-16(2.013 ac)
- 10-6-16(1.306 ac)

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Solid Waste Permits Section - Office of Land Quality

Land Application Site Activity Report - Biosolids and Industrial Waste Products

>>Complete and submit this form to IDEM for each application site used during a report month<<

Month:	Oct	**Year:**	2016	Place "X" below if first use of site by this permittee	
Permittee:	Tyson Foods, Inc.	**Site ID:**	HF-62		
L.A. Permit No. IN LA:	700	**Acres Available:**	25.9		
Type of Material Applied This Month:	3	**Acres Used This Month:**	7.94		X

Types of Material: 1 = Anaerobically Digested Biosolids, 2 = Aerobically Digested Biosolids, 3 = Industrial Waste Product

Loading Data:

Date:	Dry Tons Applied	% Total Solids	Acres Used	Method Used* 1, 2, or 3	Metal Analysis 1 or 2	Nutrient Analysis 1 or 2
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19	8.65	7.60	2.565	2	1	2
20						
21	9.70	6.90	2.924	2	1	2
22	3.44	6.30	1.203	2	1	2
23	1.57	5.50	.466	2	1	2
24	1.45	5.10	.425	2	1	2
25	5.19	6.10	1.575	2	1	2
26	4.08	7.20	1.251	2	1	2
27	6.63	7.80	1.936	2	1	2
28	4.64	8.10	1.385	2	1	2
29	6.31	7.30	1.815	2	1	2
30	1.84	6.50	.546	2	1	2
31	1.44	5.40	.435	2	1	2

*Methods of Application: 1 = Surface, 2 = Injection, 3 = Incorporation

Lab Data:

Heavy Metal Analysis: DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!

ANALYSIS #		1	2	
Sample Report Date		09/16/16	11/10/16	
% Total Solids		10.60		
Arsenic	(As)	0.57		mg/kg dry wt.
Cadmium	(Cd)	0.57		mg/kg dry wt.
Copper	(Cu)	29.30		mg/kg dry wt.
Lead	(Pb)	0.71		mg/kg dry wt.
Mercury	(Hg)	0.67		mg/kg dry wt.
Molybdenum	(Mo)	1.15		mg/kg dry wt.
Nickel	(Ni)	3.93		mg/kg dry wt.
Selenium	(Se)	1.33		mg/kg dry wt.
Zinc	(Zn)	120.00		mg/kg dry wt.

Nutrient Analysis: DO NOT USE < IF NOT DETECTED ENTER DETECTION LIMIT!

ANALYSIS #		1	2	
% Total Solids			7.07	
Total N	(TN)		5.49	% dry wt.
Ammonium N	(NH4-N)		0.68	% dry wt.
Nitrate N	(NO3-N)		0.00	% dry wt.
Phosphorus	(P)		2.60	% dry wt.
Potassium	(K)		0.24	% dry wt.

Other Analysis:

ANALYSIS #		1	2	
PCB				mg/kg dry wt.
Other				
Other				

What is the projected crop(s) for which the above application(s) was intended to fertilize? Corn

If more than one crop is listed, indicate on the site-use map the areas planted, or to be planted, in each different type of crop.

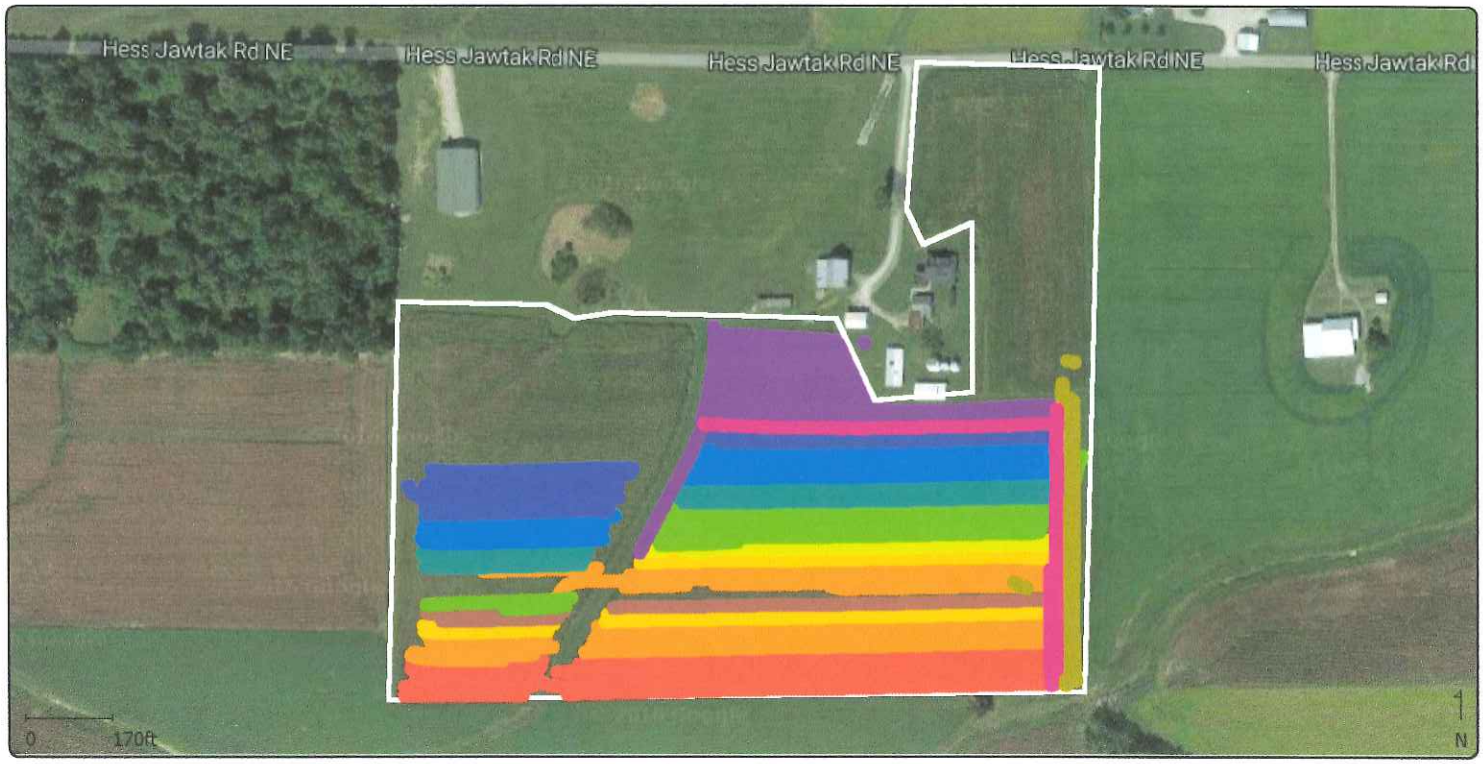
Has this application site been used for land application of any biosolids or industrial waste products from any other facility within the past 365 day period? Yes [ ] No [X] If yes, by whom?

Date of last soil analysis of this site	10/29/15
pH range from last soil analysis of this site	5.4 - 6.6
Date on which last soil pH adjustment was made on this site	09/15/16
Minimum CEC from last soil analysis of this site *(does not apply to sites where biosolids are applied)*	8.18

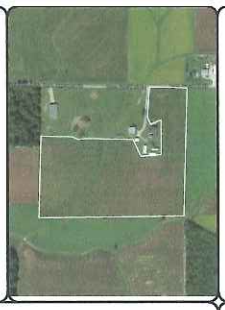
Tyson Foods, Inc.
545 Valley Rd.
Corydon, IN 47112
812-738-5853

Field - Name
HF-62(26.05 ac)

Full Name
- 10-19-16(2.565 ac)
- 10-21-16(2.924 ac)
- 10-22-16(1.203 ac)
- 10-23-16(0.466 ac)
- 10-24-16(0.425 ac)
- 10-25-16(1.575 ac)
- 10-26-16(1.251 ac)
- 10-27-16(1.936 ac)
- 10-28-16(1.385 ac)
- 10-29-16(1.815 ac)
- 10-30-16(0.546 ac)
- 10-31-16(0.435 ac)



Map Layer 2



Grower : Tyson

Farm : Rick Hess

Field : HF-62

Year : 2016

Operation : Boundary

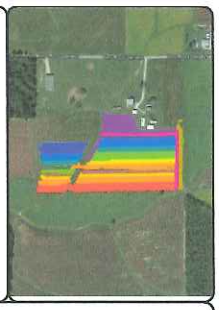
Crop / Product : NO Product

Op. Instance : Instance - 1

Field - Name

HF-62(26.05 ac)

Map Layer 1



Grower : Tyson

Farm : Rick Hess

Field : HF-62

Year : 2016

Operation : Fertilizing (Liquid)

Crop / Product : Biosolids

Op. Instance : Multiple

Area : 16.54 ac

Start Date : 10/19/2016

End Date : 10/31/2016

Working Time : 2.832 h

Avg. Productivity : 5.837 ac/h

GPS Count : 10194

Full Name

- 10-19-16(2.565 ac)
- 10-21-16(2.924 ac)
- 10-22-16(1.203 ac)
- 10-23-16(0.466 ac)
- 10-24-16(0.425 ac)
- 10-25-16(1.575 ac)
- 10-26-16(1.251 ac)
- 10-27-16(1.936 ac)
- 10-28-16(1.385 ac)
- 10-29-16(1.815 ac)
- 10-30-16(0.546 ac)
- 10-31-16(0.435 ac)

APPLICATION SITE INFORMATION FORM

A. SITE INFORMATION	Site ID *(10 characters or less; if renewal, use original ID):*	HF-62
B. DEGREE OF PUBLIC ACCESS	This site meets the definition of "Land with a HIGH potential for public exposure".	☐
	This site meets the definition of "Land with a LOW potential for public exposure".	☒

C. OWNER INFORMATION

Owner Name:	RICHARD HESS			Phone:	812-596-0270
Mailing Address:	6645 HESS-JAWTAK RD			Extension:	
City:	CORYDON	State:	IN	ZIP:	47112

D. SITE LOCATION/ACREAGE

County:	HARRISON	Civil Township *(name)*:	FRANKLIN		
Range No(s):	5E	Township No(s):	4S	Section No(s):	6
Grant or other alternate surveying unit name/number:					
Tillable acres available for application *(include buffer areas & setbacks)*:				25.90	

E. SOIL ANALYSIS DATA *(attach copy of soil analyses for each site, one composite analysis per 25 acres is required)*	Soil pH *(enter the range from all analyses) (NOT buffer pH)*	5.4 - 6.6
F. USDA NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SOIL SURVEY INFORMATION	List all soil types at site *(NRCS soil map symbols)*	BDOB, CTAB, KUNAW, KXOC2
	List any soil types that have a depth to bedrock of less than 20 inches	
	List any soil types that indicate a potential for flooding	KUNAW
	List any soil types that have a slope in excess of 18%	

G. WELLS *(check as appropriate and show location of on-site wells on site map for this site)*

Does this site contain any type of well?	☐ Yes ☒ No
If yes, is the well...	☐ in use ☐ inactive ☐ capped
If yes, what type?	☐ potable ☐ livestock ☐ irrigation ☐ other *(specify)*

H. PLANNED LAND USE (check one or more)

☒ row crop ☐ set aside ☐ pasture ☐ hay ☐ reclamation ☐ truck/garden crop ☐ turf
☐ other (specify)

I. SITE FEATURES

Is any area of the site within 33 feet of surface waters or the surface conduit to a subsurface feature?	☐ Yes ☒ No
Is any area of the site within 300 feet of surface waters or the surface conduit to a subsurface feature?	☐ Yes ☒ No
Is any area of the site within 300 feet of any residence? *(the structure itself)*	☒ Yes ☐ No
Will land application violate historic preservation requirements (IC 14-20-1 & 310 IAC 15-3)?	☐ Yes ☒ No
Will land application adversely affect threatened or endangered species or critical habitat?	☐ Yes ☒ No
Will land application violate the endangered species regulation (IC 14-22-34)?	☐ Yes ☒ No

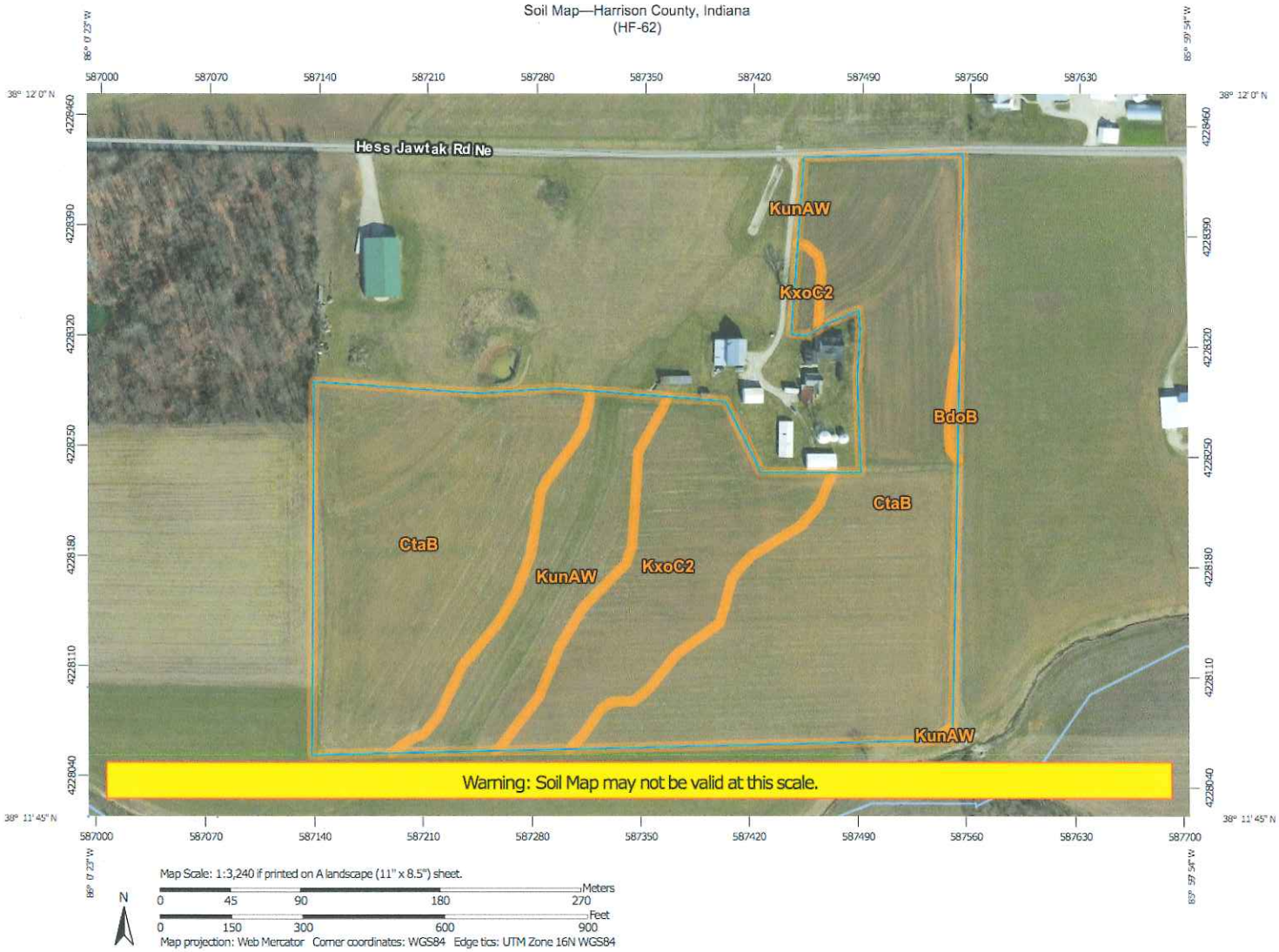
J. SITE-USE HISTORY

Provide below a list of all facilities, other than the applicant, that have applied biosolids, industrial waste products or pollutant-bearing water to this site in the past.

Provide below a list of all facilities, other than the applicant, that currently include this site in their biosolids, industrial waste product or pollutant-bearing water land application program.

Is the site currently involved in a program to receive animal manure or other waste materials? *(If yes, explain below)*	☐ Yes ☒ No

Soil Map—Harrison County, Indiana
(HF-62)



Map Unit Legend

Harrison County, Indiana (IN061)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BdoB	Bedford silt loam, 2 to 6 percent slopes	0.1	0.3%
CtaB	Crider silt loam, karst, undulating	18.1	69.9%
KunAW	Kintner loam, 1 to 3 percent slopes, occasionally flooded, very brief duration	3.1	12.1%
KxoC2	Knobcreek-Navilleton-Haggatt silt loams, karst, rolling, eroded	4.6	17.7%
Totals for Area of Interest		**25.9**	**100.0%**

Application Site Land-Use Agreement

I, RICH HESS (landowner name), hereby give permission for HAUSWALD PARTNERS / Tyson Chicken (facility) to land apply SLUDG (description of material to be applied) to my land as described below.

Site ID	Range(s)	Township(s)	Section(s)
HF-55	5E	3S	31
HF-62	5E	4S	6

Specific conditions agreed upon between the landowner and applicant:

Richard Hess
Landowner Signature

RICHARD HESS
Landowner Printed Name

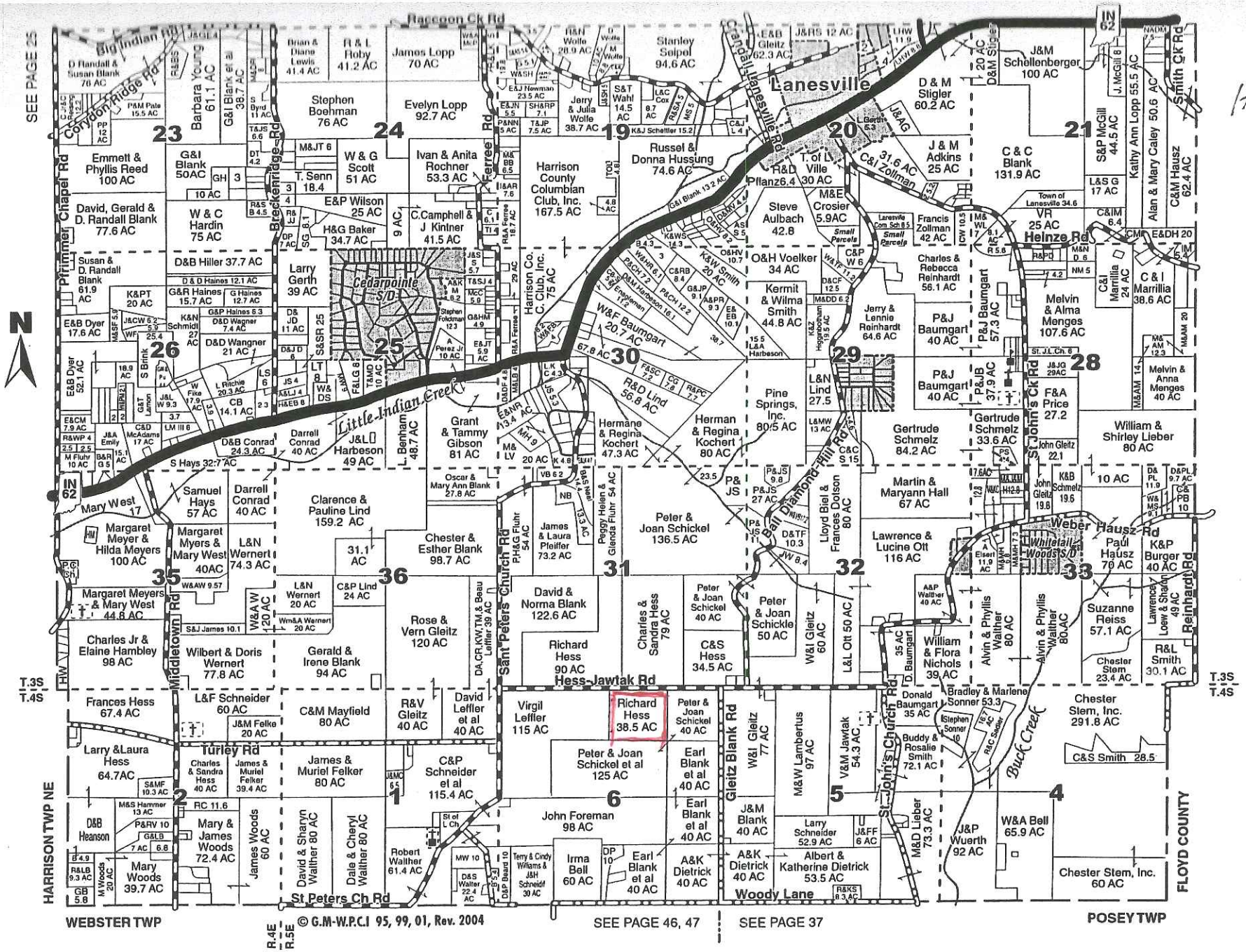
07-01-2013
Date Signed

Paul Howard
Applicant's Signature

Paul Howard
Applicant's Printed Name

7-1-2013

HF-62



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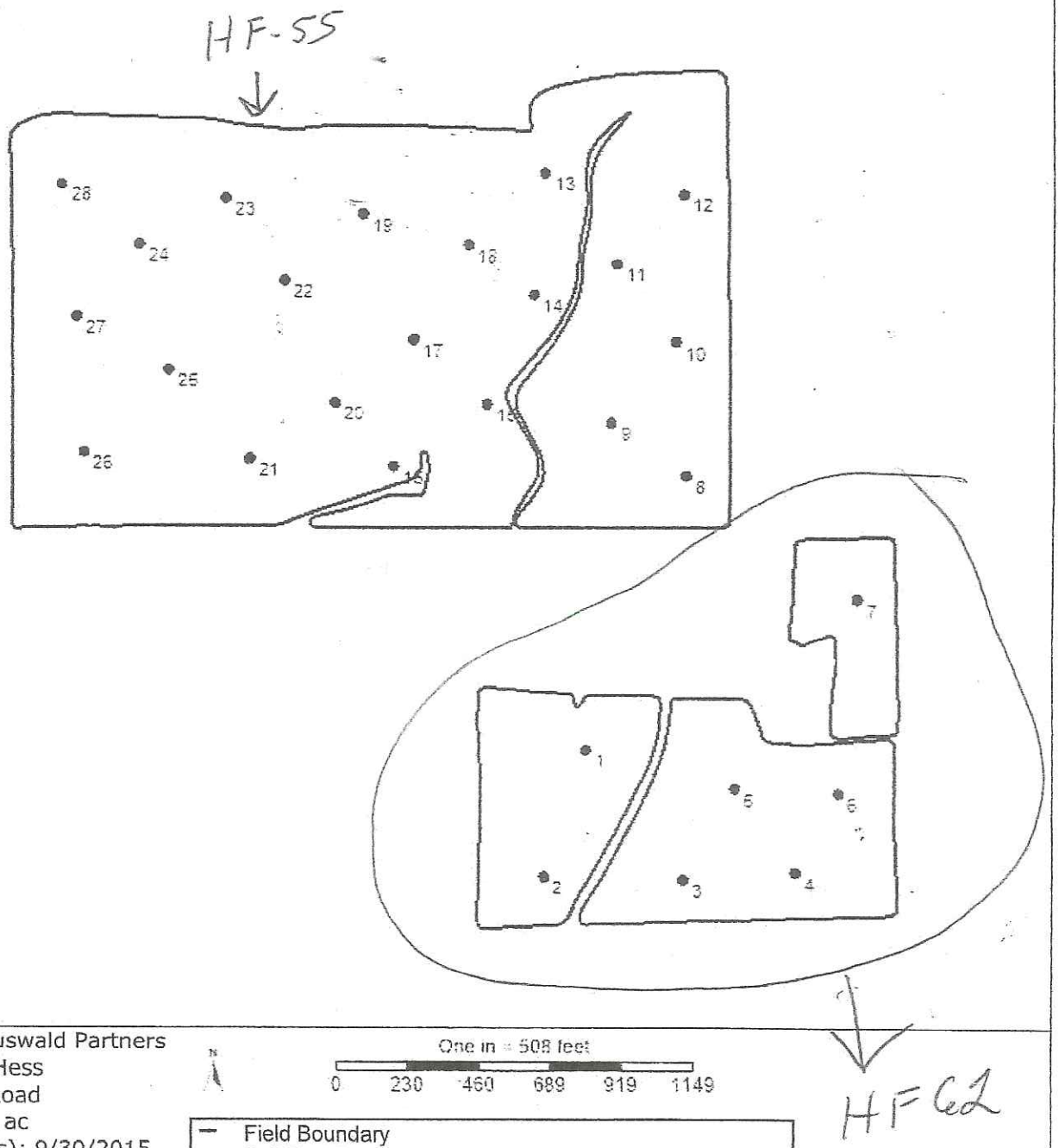
SEE PAGE 46, 47
SEE PAGE 37

Soil Test Points



Grower: Hauswald Partners
Farm: Rick Hess
Field: N of Road
Area: 93.96 ac
Event Date(s): 9/30/2015

N

One in = 508 feet

0 230 460 689 919 1149

Field Boundary
Soil Test Points
1 - 28

Grizzly Ridge, LLC
Geo Consulting Soil Sampling & Mapping
Services

lb/A

73118-6

BROOKSIDE LABORATORIES, INC.

SOIL AUDIT AND INVENTORY REPORT

Name Hauswald Partners City Corydon State IN

Independent Consultant Grizzly Ridge, LLC Date 10/29/2015

Sample Location	RHESS-N OF RD	F15	F15	F15	F15	F15
Sample Identification		1	2	3	4	5
Lab Number		1550-1	1551-1	1552-1	1553-1	1554-1
Total Exchange Capacity (ME/100 g)		10.50	8.53	9.68	8.18	13.46
pH	Buffer (SMP/Sikora)	6.9	7.0	6.9	6.8	6.9
	H_2O (1:1)	5.6	5.9	5.4	5.4	5.5
Organic Matter (humus) %		3.05	2.44	2.69	2.83	3.04
Estimated Nitrogen Release	lb/A	80	69	74	77	80
ANIONS	SOLUBLE SULFUR* ppm	8	7	10	10	9
PHOSPHORUS	MEHLICH III lb/A P as P_2O_5	50	41	69	55	41
	ppm of P	11	9	15	12	9
	BRAY II lb/A P as P_2O_5					
	ppm of P					
	OLSEN lb/A P as P_2O_5					
	ppm of P					
EXCHANGEABLE CATIONS	CALCIUM* lb/A	2324	2124	1976	1618	2862
	ppm	1162	1062	988	809	1431
	MAGNESIUM* lb/A	220	210	162	154	276
	ppm	110	105	81	77	138
	POTASSIUM* lb/A	188	216	112	142	144
	ppm	94	108	56	71	72
	SODIUM* lb/A	22	24	40	32	32
	ppm	11	12	20	16	16
BASE SATURATION PERCENT						
Calcium	%	55.33	62.25	51.03	49.45	53.16
Magnesium	%	8.73	10.26	6.97	7.84	8.54
Potassium	%	2.30	3.25	1.48	2.23	1.37
Sodium	%	0.46	0.61	0.90	0.85	0.52
Other Bases	%	6.20	5.60	6.60	6.60	6.40
Hydrogen	%	27.00	18.00	33.00	33.00	30.00
EXTRACTABLE MINORS						
Boron* (ppm)		0.33	< 0.20	0.23	0.27	0.28
Iron* (ppm)		108	107	103	123	101
Manganese* (ppm)		313	244	187	314	110
Copper* (ppm)		1.16	0.84	1.44	1.47	1.46
Zinc* (ppm)		1.36	0.84	1.24	1.23	1.06
Aluminum* (ppm)		817	796	839	824	839
OTHER TESTS	Soluble Salts (mmhos/cm)					
	Chlorides (ppm)					

lb/A

BROOKSIDE LABORATORIES, INC.

73118-6

SOIL AUDIT AND INVENTORY REPORT

Name Hauswald Partners City Corydon State IN

Independent Consultant Grizzly Ridge, LLC Date 10/29/2015

Sample Location	RHESS-N OF RD	F15	F15	F15	F15	F15
Sample Identification		6	7	8	9	10
Lab Number		1555-1	1556-1	1557-1	1558-1	1559-1
Total Exchange Capacity (ME/100 g)		9.82	10.68	8.87	10.93	9.96
pH	Buffer (SMP/Sikora)	6.9	7.2	7.0	6.7	6.9
	H_2O (1:1)	5.7	6.6	5.5	5.5	5.6
Organic Matter (humus) %		2.80	2.98	2.94	3.08	3.23
Estimated Nitrogen Release	lb/A	76	80	79	81	82
ANIONS	SOLUBLE SULFUR* ppm	9	9	9	10	9
PHOSPHORUS	MEHLICH III lb/A P as P_2O_5	50	60	50	73	73
	ppm of P	11	13	11	16	16
	BRAY II lb/A P as P_2O_5					
	ppm of P					
	OLSEN lb/A P as P_2O_5					
	ppm of P					
EXCHANGEABLE CATIONS	CALCIUM* lb/A	2246	3294	1834	2336	2214
	ppm	1123	1647	917	1168	1107
	MAGNESIUM* lb/A	240	236	182	164	156
	ppm	120	118	91	82	78
	POTASSIUM* lb/A	136	156	158	266	310
	ppm	68	78	79	133	155
	SODIUM* lb/A	40	48	44	40	34
	ppm	20	24	22	20	17
BASE SATURATION PERCENT						
Calcium	%	57.18	77.11	51.69	53.43	55.57
Magnesium	%	10.18	9.21	8.55	6.25	6.53
Potassium	%	1.78	1.87	2.28	3.12	3.99
Sodium	%	0.89	0.98	1.08	0.80	0.74
Other Bases	%	6.00	4.80	6.40	6.40	6.20
Hydrogen	%	24.00	6.00	30.00	30.00	27.00
EXTRACTABLE MINORS						
Boron* (ppm)		0.50	0.43	0.28	0.36	0.40
Iron* (ppm)		115	87	102	121	117
Manganese* (ppm)		250	207	225	281	332
Copper* (ppm)		1.74	1.89	1.21	1.34	1.22
Zinc* (ppm)		1.40	1.15	0.97	1.22	1.44
Aluminum* (ppm)		824	762	857	915	886
OTHER TESTS	Soluble Salts (mmhos/cm)					
	Chlorides (ppm)					

Ag Lime

Grower: Hauswald Partners
Farm: Rick Hess
Field: N of Road
Area: 93.96 ac
Report Date: 11/17/2015

Season: 2016
Min Rate: 0.25 U.S. ton/ac
Avg Rate: 1.49 U.S. ton/ac
Max Rate: 3.00 U.S. ton/ac
Total Product: 60.63 U.S. ton
Applied Area: 40.57 ac
Product: Lime, Ag
Order Id: 506968
Order Task Id: 13648635
Crop - Year 1: Corn
Purpose - Year 1: Dry Grain

One in = 509 feet

0 230 461 691 921 1151

Field Boundary
Ag Lime U.S. ton/ac
0 (53.4 ac) (56.8 %)
0 - 1 (13.0 ac) (13.9 %)
1 - 2 (11.7 ac) (12.4 %)
2 - 2 (6.5 ac) (6.9 %)
3 - 3 (9.4 ac) (10.0 %)

Grizzly Ridge, LLC

INVOICE

HAUSWALD PARTNER'S LLC

2247 Hwy 62, NE
Corydon, IN 47112
(812) 738-2539

0192

Phone _____ Date Sept. 2016

Name Rick Hess #62

Address

ACRES	FIELD	PRODUCT	PRICE	AMOUNT	
		60.63 Tons	$15/ac	909	45
		of Lime			
		Thank You	TOTAL	909	45

OCP 2647-B

Amount Due 30 days from Invoice Date

element™ materials technology

Element Materials Technology - Fort Wayne
2121 E. Washington Blvd.
Fort Wayne, IN 46803
TEL: (260) 424-1622
Website: www.element.com

REPORT OF ANALYSIS

Lab Number: 16090935

Client Sample ID: Tyson August - Hauswald Partners

Date Sampled: 09/08/2016

Date Received: 09/09/2016

Date Reported: 09/16/2016

Parameter	Wet Basis			Dry Basis		Table 1#	Table 3#	Loading Rate		Analyst	Date	Method Reference
	Result	Unit	MRL	Result	Unit	mg/kg	mg/kg	Lbs/Wet Ton	Lbs/Dry Ton		Analyzed	
Total Nitrogen	4300	mg/Kg	0.600	4.05	%			8.60	81.0	CRT	9/14/2016	Calculated
Nitrogen, Kjeldahl, Total	4300	mg/Kg	122	4.05	%			8.60	81.0	LER	9/13/2016	E351.2
Nitrogen, Ammonia (As N)	547	mg/Kg	1.50	0.515	%			1.09	10.3	CRT	9/13/2016	M4500-NH3 BC
Nitrogen, Nitrate (As N)	<0.600	mg/Kg	0.600	<0.000565	%			<0.00120	<0.0113	CRT	9/14/2016	E353.2
Total Phosphorus	1800	mg/Kg	4.88	1.69	%			3.60	33.9	CXC	9/15/2016	SW6010C
Phosphorus (as P2O5)	4120	mg/Kg	4.88	3.88	%			8.25	77.6	CXC	9/15/2016	Calculated
Potassium	178	mg/Kg	24.4	0.168	%			0.357	3.36	CXC	9/15/2016	SW6010C
Potassium (as K2O)	214	mg/Kg	24.4	0.202	%			0.428	4.03	CXC	9/15/2016	Calculated
Arsenic	<0.0610	mg/Kg	0.0610	<0.574	mg/Kg	75	41	<0.00012	<0.00115	CXC	9/14/2016	SW6020
Cadmium	<0.0610	mg/Kg	0.0610	<0.574	mg/Kg	85	39	<0.00012	<0.00115	CXC	9/14/2016	SW6020
Copper	3.11	mg/Kg	0.117	29.3	mg/Kg	4300	1500	0.00622	0.0585	CXC	9/14/2016	SW6020
Lead	<0.0756	mg/Kg	0.0756	<0.711	mg/Kg	840	300	<0.00015	<0.00142	CXC	9/14/2016	SW6020
Mercury	<0.0707	mg/Kg	0.0707	<0.666	mg/Kg	57	17	<0.00014	<0.00133	CXC	9/14/2016	SW6020
Molybdenum	0.122	mg/Kg	0.0659	1.15	mg/Kg	75		0.00024	0.00230	CXC	9/14/2016	SW6020
Nickel	0.418	mg/Kg	0.0634	3.93	mg/Kg	420	420	0.00084	0.00786	CXC	9/14/2016	SW6020
Selenium	<0.141	mg/Kg	0.141	<1.33	mg/Kg	100	100	<0.00028	<0.00266	CXC	9/14/2016	SW6020
Zinc	12.8	mg/Kg	0.707	120	mg/Kg	7500	2800	0.0256	0.241	CXC	9/14/2016	SW6020
Percent Solids	10.6	wt%			%					MU	9/9/2016	M2540 G

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REPORT OF ANALYSIS

Lab Number: 16090935

Client Sample ID: Tyson August - Hauswald Partners

Date Sampled: 09/08/2016

Date Received: 09/09/2016

Date Reported: 09/16/2016

Parameter	Wet Basis			Dry Basis		Table 1#	Table 3#	Loading Rate		Analyst	Date	Method Reference
	Result	Unit	MRL	Result	Unit	mg/kg	mg/kg	Lbs/Wet Ton	Lbs/Dry Ton		Analyzed	
Percent Moisture	89.37	wt%			%					MU	9/9/2016	M2540 G
IDEM PAN*										CALC	9/15/2016	327 IAC 6.1-4-10(b)
- Aerobic Digestion	---	---	---	---	---	---	---	---	31.49173			
- Anaerobic Digestion	---	---	---	---	---	---	---	---	24.42451			

Table 1 and Table 3 pollution concentrations for biosolids or industrial waste products, EPA-600/4-79-020, 327 IAC 6.1-5

* Plant Available Nitrogen (PAN) calculations assume incorporation or injection with no prior year contribution of mineralized N.

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REPORT OF ANALYSIS

Lab Number: 16110616

Client Sample ID: Tyson Oct. - Hauswald Partners

Date Sampled: 11/03/2016

Date Received: 11/04/2016

Date Reported: 11/10/2016

Parameter	Wet Basis			Dry Basis		Table 1#	Table 3#	Loading Rate		Analyst	Date	Method Reference
	Result	Unit	MRL	Result	Unit	mg/kg	mg/kg	Lbs/Wet Ton	Lbs/Dry Ton		Analyzed	
Total Nitrogen	3880	mg/Kg	0.600	5.49	%			7.76	110	CRT	11/9/2016	Calculated
Nitrogen, Kjeldahl, Total	3880	mg/Kg	115	5.49	%			7.76	110	LER	11/7/2016	E351.2
Nitrogen, Ammonia (As N)	479	mg/Kg	1.50	0.677	%			0.958	13.5	CRT	11/9/2016	M4500-NH3 BC
Nitrogen, Nitrate (As N)	0.766	mg/Kg	0.600	0.00108	%			0.00153	0.0217	CRT	11/9/2016	E353.2
Total Phosphorus	1840	mg/Kg	4.95	2.60	%			3.68	52.0	CXC	11/8/2016	SW6010C
Phosphorus (as P2O5)	4210	mg/Kg	4.95	5.96	%			8.42	119	CXC	11/8/2016	Calculated
Potassium	170	mg/Kg	24.8	0.240	%			0.340	4.81	CXC	11/8/2016	SW6010C
Potassium (as K2O)	204	mg/Kg	24.8	0.288	%			0.408	5.77	CXC	11/8/2016	Calculated
Arsenic	<0.0619	mg/Kg	0.0619	<0.876	mg/Kg	75	41	<0.00012	<0.00175	CXC	11/8/2016	SW6020
Cadmium	<0.0619	mg/Kg	0.0619	<0.876	mg/Kg	85	39	<0.00012	<0.00175	CXC	11/8/2016	SW6020
Copper	2.42	mg/Kg	0.119	34.3	mg/Kg	4300	1500	0.00485	0.0685	CXC	11/8/2016	SW6020
Lead	<0.0768	mg/Kg	0.0768	<1.09	mg/Kg	840	300	<0.00015	<0.00217	CXC	11/8/2016	SW6020
Mercury	<0.0718	mg/Kg	0.0718	<1.02	mg/Kg	57	17	<0.00014	<0.00203	CXC	11/8/2016	SW6020
Molybdenum	0.119	mg/Kg	0.0669	1.69	mg/Kg	75		0.00024	0.00338	CXC	11/8/2016	SW6020
Nickel	0.510	mg/Kg	0.0644	7.21	mg/Kg	420	420	0.00102	0.0144	CXC	11/8/2016	SW6020
Selenium	0.0387	mg/Kg	0.0287	0.548	mg/Kg	100	100	0.00008	0.00110	CXC	11/8/2016	SW6020
Zinc	12.0	mg/Kg	0.718	169	mg/Kg	7500	2800	0.0240	0.339	CXC	11/8/2016	SW6020
Percent Solids	7.07	wt%			%					LER	11/4/2016	M2540 G

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REPORT OF ANALYSIS

Lab Number: 16110616

Client Sample ID: Tyson Oct. - Hauswald Partners

Date Sampled: 11/03/2016

Date Received: 11/04/2016

Date Reported: 11/10/2016

Parameter	Wet Basis			Dry Basis		Table 1#	Table 3#	Loading Rate		Analyst	Date	Method Reference
	Result	Unit	MRL	Result	Unit	mg/kg	mg/kg	Lbs/Wet Ton	Lbs/Dry Ton		Analyzed	
Percent Moisture	92.93	wt%			%					LER	11/4/2016	M2540 G
IDEM PAN*										CALC	11/9/2016	327 IAC 6.1-4-10(b)
- Aerobic Digestion	---	---	---	---	---	---	---	---	42.43956			
- Anaerobic Digestion	---	---	---	---	---	---	---	---	32.81607			

Table 1 and Table 3 pollution concentrations for biosolids or industrial waste products, EPA-600/4-79-020, 327 IAC 6.1-5

* Plant Available Nitrogen (PAN) calculations assume incorporation or injection with no prior year contribution of mineralized N.