

# Appendix D



**Region 6 Compliance Assurance and Enforcement Division  
INSPECTION REPORT**

Inspection Date(s):		04/15-17/2014	
Media:		Water	
Regulatory Program(s)		NPDES - CAFO	
Company Name:		C & H Hog Farms, Inc.	
Facility Name:		C & H Hog Farm, Inc.	
Facility Physical Location:		HC 72 Box 2	
(city, state, zip code)		Vendor, AR 72683	
Mailing address:		HC 72 Box 2	
(city, state, zip code)		Vendor, AR 72683	
County/Parish:		Newton	
Facility Contact:		Jason Henson	President
		chhogfarmsinc@yahoo.com	
FRS Number:		N/A	
Identification/Permit Number:		ARG590001	
Media Number:		N/A	
NAICS:		112210	
SIC:		0213	
Facility Representatives:		Jason Henson	President 870 688-1318
EPA Inspectors:		Carl Wills	6EN-WR 214 665-7276
		Chris Lister	6EN-WR 214 665-6672
State Inspector(s):		Jason Bolenbaugh	ADEQ Inspection Branch Manager 501 682-0659
Other Inspector(s):		None	
Metadata	Title:	C & H Hog Farms Judea Newton County Arkansas	
	Author:	US EPA Region 6 Compliance Assurance and Enforcement Division Dallas TX	
	Subject:	CAFO Inspection Report	
	Keywords:	CAFO Clean Water Act, Compliance Evaluation	
EPA Lead Inspector Signature/Date		Carl Wills {Inspector name}	 Date 06/12/2014
Supervisor Signature/Date		Willie Lane {Supervisor name}	 Date 6-12-14

## **Section I - INTRODUCTION**

### **PURPOSE OF THE INSPECTION**

EPA Region 6 Inspectors Carl Wills and Chris Lister arrived at C & H Farms, Inc. on April 15, 2014 at 8:54 a.m. for an unannounced inspection. We met with Mr. Jason Henson, presented credentials and explained that we were there to perform an inspection to determine compliance with the facilities Arkansas Pollution Discharge Elimination System (APDES) permit (ARG590001). The inspection included review of the facility's physical site conditions, applicable records as required by the facility's permit, and soil and water sampling. It was explained that EPA's presence was not prompted by a complaint.

### **FACILITY DESCRIPTION**

C & H Hog Farms is permitted as a sow-farrowing confined animal feeding operation (CAFO) in accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*), and the Clean Water Act (33 U.S.C. § 1251 *et seq.*). The facility is located near the town of Mount Judea, Arkansas in Newton County. The facility is permitted to utilize two houses to confine 2,503 swine over 55 pounds and 4,000 swine under 55 pounds. At the time of the inspection the facility housed 2489 sows, 3 boars, and approximately 3000 nursery pigs (<10 lbs) and 1,000 weaned pigs (10-15 lbs). The weaned pigs are shipped to other facilities on a weekly basis. This facility was populated on April 17, 2013 and currently is a contract grower for Cargill Pork, LLC.

The facility utilizes a water flush system (8 inch pull-plug) to wash waste into the primary and then secondary holding pond. The two holding ponds and the under-barn pits were designed to store a total of 3,495,464 gallons with 2,469,903 gallons up to the 25-year 24-hour storage. The facility estimates that it generates 2,090,081 gallons of waste per year. This containment system has over 270 days of storage. The facility has 74.3 acres available for emergency application. The second holding pond requires a minimum freeboard of 1 foot in order to contain rainfall from a 25 year 24 hour storm event (6.96 inches).

A nutrient management plan (NMP) developed by DeHaan, Grabs & Associates, LLC is available. An amendment to the NMP was submitted by the facility on February 10, 2014, to allow application of waste by vacuum truck to fields 7 – 9. Generally Bermuda and Rye grass grow in the application fields. The NMP indicates the facility utilizes 630.7 acres for land application of wastes, but this may change slightly after the NMP amendment is processed.

The facility uses water from an on-site well (Photo 1, 320 feet total depth, depth to water 280 feet below ground level. A septic system is utilized to handle sanitary waste generated at the site (Photo 2).

## **Section II - OBSERVATIONS**

The physical site inspection showed that the waste holding ponds were in good condition. Turf reinforcement mats were recently installed on the inside of the two waste holding ponds. This has been done to attempt to establish vegetative cover and control any erosion. The holding pond had adequate

freeboard to contain a 25 year 24 hour storm event as indicated by the staff gauge in place (Photos 3 – 6). Mortalities at the facility are disposed of using two diesel fired incinerators which appeared to be in good operating condition, ashes are then buried on site (Photos 7 – 8).

The farm has planted approximately 1,000 loblolly pine trees around the perimeter of the facility. While these trees are currently only 12” – 14” tall they may, in the future, provide a measure of odor control (Photo 34).

Water samples (Photos 9 – 33) were collected from various streams up-gradient and down-gradient of the facility. Samples were analyzed for E. coli, 5-day BOD (Environmental Services Company, Inc., Springdale, AR), cations, anions, EC, NH<sub>4</sub>-N, ICAP-P and other analytes (Oklahoma State University Soil, Water & Forage Analytical Laboratory). The facility had 1.1 inches of rain on April 13 and as a result most of the small streams did have flowing water at the time of the inspection. Results and a map of the sample locations can be found in Appendix 2.

Soil samples were taken from all of the currently approved land application sites except Field 5 (this field had been located incorrectly in the NMP maps and was not approved for application by ADEQ at the time of the inspection). Twenty-two to thirty-eight grab samples (depending on field size) were composited to provide a sample for each field. Sample analyses were done by the University of Arkansas Agriculture Services Laboratory. Results and a map of the sample locations can be found in Appendix 2.

### **Section III – AREAS OF CONCERN**

No areas of concern were noted at this facility. Record keeping was well managed and available on-site.

### **Section IV – FOLLOW UP**

No follow-up with this facility is anticipated. However, we would recommend that the splash plate on back of the vacuum truck applicator be changed to a spray bar with multiple nozzles in order to provide more even application of effluent. Also the turf reinforcement mats need to be resealed in spots in the primary waste holding pond. The staff gauge in the secondary waste holding pond should to be lengthened in order to define the level at which the contents would actually over top the structure.

### **Section V – LIST OF APPENDICES**

Appendix 1 – Photo Log

Appendix 2 – Water Sample Data

Appendix 3 – Soil Sample Data

## Appendix 1

### Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 1

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1336.JPG

Date of Photo: 04/15/2014

Time of Photo: 09:56:17

Latitude: N 35°55.440' (35°55'26.4")

Longitude: W 93°4.383' (93°4'23.0")

Heading: 359.51 (T)

UTC: 04/15/2014 14:55:0.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north of the water supply well. The well has a total depth of 320 feet with the depth of water being at approximately 280 feet.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 2

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1337.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:02:26

Latitude: N 35°55.426' (35°55'25.6")

Longitude: W 93°4.383' (93°4'23.0")

Heading: 47.45 (T)

UTC: 04/15/2014 15:01:8.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northeast of the cleanout (white riser in the center of the photograph) for human septage with the leachfield north of the cleanout.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 3

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1340.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:08:07

Latitude: N 35°55.389' (35°55'23.3")

Longitude: W 93°4.389' (93°4'23.3")

Heading: 91.14 (T)

UTC: 04/15/2014 15:06:48.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east of the secondary lagoon with geotextile fabric in place, to aid in soil stabilization.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 4

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1341.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:11:40

Latitude: N 35°55.359' (35°55'21.5")

Longitude: W 93°4.381' (93°4'22.8")

Heading: 24.31 (T)

UTC: 04/15/2014 15:10:23.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north-northeast of the staff gauge in the secondary lagoon – operator needs to extend the top of the gauge to show the lowest point of the lagoon berm, so that they will know when the effluent will overtop the berm.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1342.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:12:16

Latitude: N 35°55.356' (35°55'21.4")

Longitude: W 93°4.383' (93°4'23.0")

Heading: 58.28 (T)

UTC: 04/15/2014 15:10:58.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northeast of the concrete spillway entering the secondary lagoon and that the barns' flushwater is pumped from the area below the floating blue/green drum.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 6

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1343.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:12:35

Latitude: N 35°55.357' (35°55'21.4")

Longitude: W 93°4.381' (93°4'22.8")

Heading: 187.73 (T)

UTC: 04/15/2014 15:11:18.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south of the primary lagoon and concrete spillway (flow is toward the photographer). The geotextile fabric placed on the primary lagoon's interior berm slopes, for soil stabilization, needs re-anchoring around the perimeter.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 7

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1346.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:18:34

Latitude: N 35°55.362' (35°55'21.7")

Longitude: W 93°4.423' (93°4'25.4")

Heading: 2.86 (T)

UTC: 04/15/2014 15:17:16.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north of the two diesel fired incinerators between the south ends of the two barns. There is no evidence that either of the units has had any problems with improperly incinerated mortalities.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 8

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1347.JPG

Date of Photo: 04/15/2014

Time of Photo: 10:20:14

Latitude: N 35°55.345' (35°55'20.7")

Longitude: W 93°4.436' (93°4'26.2")

Heading: 140.96 (T)

UTC: 04/15/2014 15:18:56.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the southeast of the area where the ashes of incinerated mortalities are buried.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 9

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1373.JPG

Date of Photo: 04/16/2014

Time of Photo: 18:33:24

Latitude: N 35°56.346' (35°56'20.7")

Longitude: W 93°4.358' (93°4'21.5")

Heading: 188.62 (T)

UTC: 04/16/2014 23:32:4.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south of Big Creek (upstream), where WS-1 was collected (@ 09:15 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 10

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1374.JPG

Date of Photo: 04/16/2014

Time of Photo: 18:33:42

Latitude: N 35°56.346' (35°56'20.8")

Longitude: W 93°4.358' (93°4'21.5")

Heading: 7.80 (T)

UTC: 04/16/2014 23:32:22.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north of Big Creek (downstream), where WS-1 was collected (@ 09:15 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 11

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1385.JPG

Date of Photo: 04/17/2014

Time of Photo: 09:32:23

Latitude: N 35°55.418' (35°55'25.1")

Longitude: W 93°4.238' (93°4'14.3")

Heading: 232.32 (T)

UTC: 04/17/2014 14:31:3.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the southwest (upstream), where WS-2 was collected (@ 09:47 on 05/16/2014).

This location is immediately downstream of the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 12

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1386.JPG

Date of Photo: 04/17/2014

Time of Photo: 09:32:52

Latitude: N 35°55.424' (35°55'25.4")

Longitude: W 93°4.236' (93°4'14.1")

Heading: 15.30 (T)

UTC: 04/17/2014 14:31:32.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northeast (downstream), where WS-2 was collected (@ 09:47 on 05/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 13

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1383.JPG

Date of Photo: 04/17/2014

Time of Photo: 09:26:47

Latitude: N 35°55.001' (35°55'0.1")

Longitude: W 93°4.251' (93°4'15.1")

Heading: 272.64 (T)

UTC: 04/17/2014 14:25:26.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west (upstream), where WS-3 was collected (@ 10:03 on 04/16/2014 at which time, water was flowing over the concrete at this low water crossing).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

# Photograph Log

Photo No. 14

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1384.JPG

Date of Photo: 04/17/2014

Time of Photo: 09:26:58

Latitude: N 35°55.003' (35°55'0.2")

Longitude: W 93°4.248' (93°4'14.9")

Heading: 145.23 (T)

UTC: 04/17/2014 14:25:38.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the southeast (downstream), where WS-3 was collected (@ 10:03 on 04/16/2014 at which time, water was flowing over the concrete at this low water crossing).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 15

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1355.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:20:50

Latitude: N 35°54.740' (35°54'44.4")

Longitude: W 93°4.314' (93°4'18.8")

Heading: 269.75 (T)

UTC: 04/16/2014 15:19:31.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west (upstream), where WS-4 was collected (@ 10:15 on 04/16/2014). The water is flowing, it is just difficult to see with all of the rocks in the stream channel.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 16

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1356.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:21:12

Latitude: N 35°54.740' (35°54'44.4")

Longitude: W 93°4.309' (93°4'18.5")

Heading: 89.06 (T)

UTC: 04/16/2014 15:19:53.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east (downstream), where WS-4 was collected (@ 10:15 on 04/16/2014). The water is flowing, it is just difficult to see with all of the rocks in the stream channel.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 17

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1357.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:35:28

Latitude: N 35°53.498' (35°53'29.9")

Longitude: W 93°5.086' (93°5'5.2")

Heading: 338.55 (T)

UTC: 04/16/2014 15:34:10.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northwest (upstream), where WS-5 was collected (@ 10:34 on 04/16/2014).

This is a concrete low water crossing with the photographer standing in the middle of the road.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 18

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1358.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:35:40

Latitude: N 35°53.495' (35°53'29.7")

Longitude: W 93°5.085' (93°5'5.1")

Heading: 123.74 (T)

UTC: 04/16/2014 15:34:21.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east-southeast (downstream), where WS-5 was collected (@ 10:34 on 04/16/2014). You can see the water flowing across the road surface with algae growing on the eastern slope side of the road.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 19

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1359.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:55:23

Latitude: N 35°53.379' (35°53'22.7")

Longitude: W 93°5.022' (93°5'1.3")

Heading: 242.16 (T)

UTC: 04/16/2014 15:54:4.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west-southwest (upstream), where WS-6 was collected (@ 10:50 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 20

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

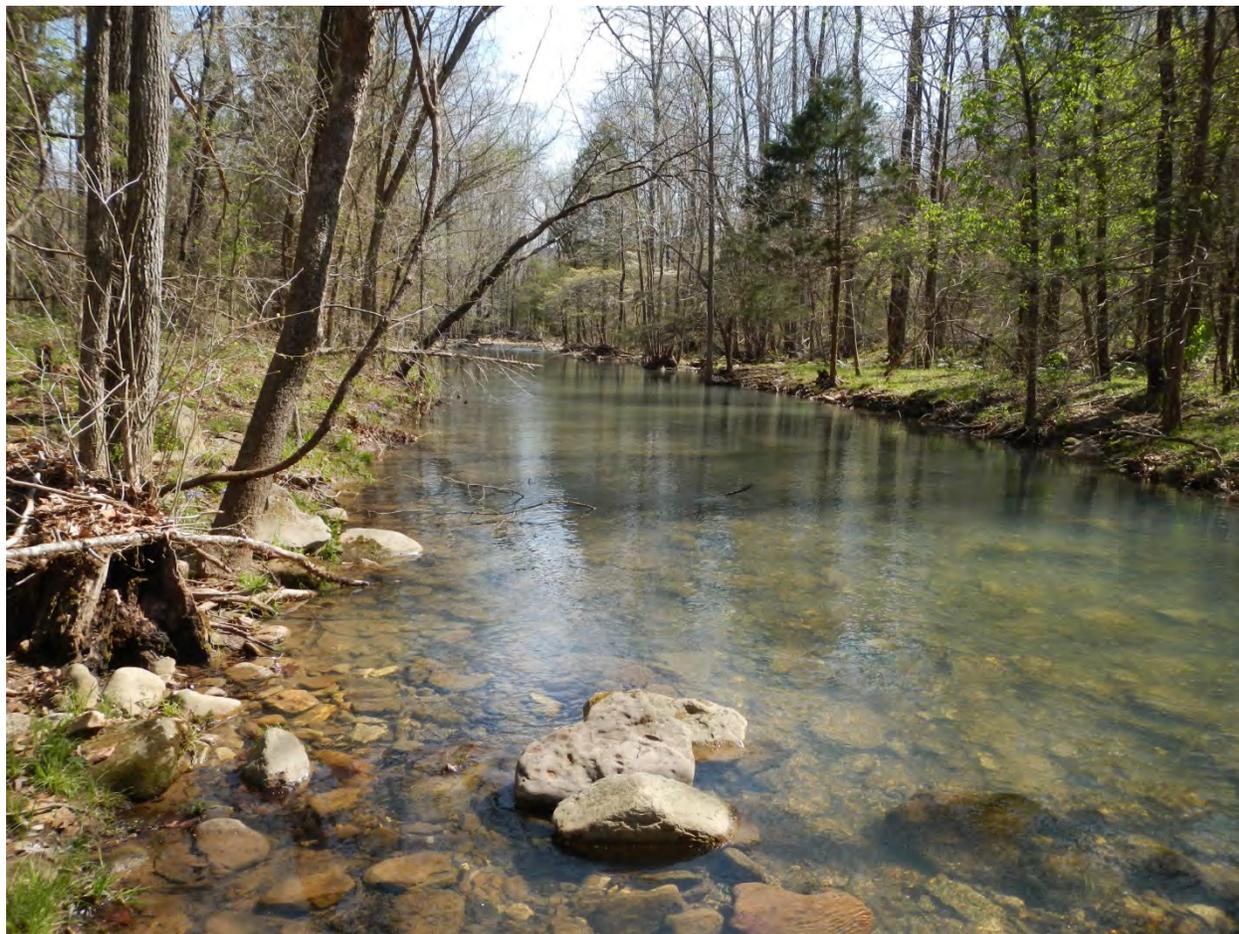


Photo File Name: DSCN1360.JPG

Date of Photo: 04/16/2014

Time of Photo: 10:55:40

Latitude: N 35°53.379' (35°53'22.7")

Longitude: W 93°5.020' (93°5'1.2")

Heading: 55.10 (T)

UTC: 04/16/2014 15:54:21.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northeast (downstream), where WS-6 was collected (@ 10:50 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 21

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

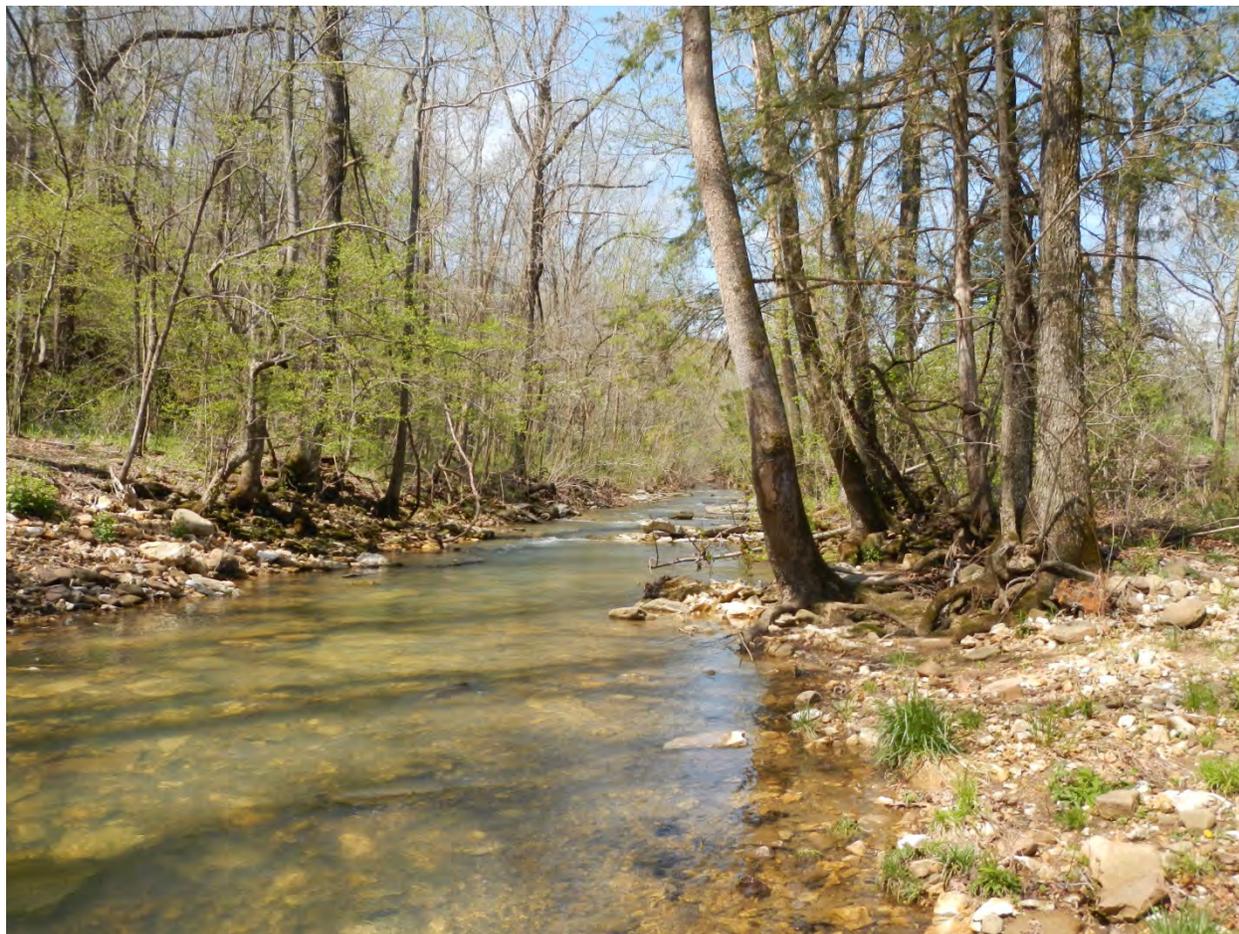


Photo File Name: DSCN1361.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:28:50

Latitude: N 35°53.662' (35°53'39.7")

Longitude: W 93°4.226' (93°4'13.5")

Heading: 268.28 (T)

UTC: 04/16/2014 16:27:32.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west (upstream), where WS-7 was collected (@ 11:26 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 22

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1362.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:29:02

Latitude: N 35°53.662' (35°53'39.7")

Longitude: W 93°4.226' (93°4'13.6")

Heading: 88.75 (T)

UTC: 04/16/2014 16:27:43.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east (downstream), where WS-7 was collected (@ 11:26 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 23

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1363.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:38:22

Latitude: N 35°53.668' (35°53'40.1")

Longitude: W 93°4.056' (93°4'3.4")

Heading: 168.91 (T)

UTC: 04/16/2014 16:37:3.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south (upstream) of Big Creek, where WS-8 was collected (@ 11:37 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 24

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1364.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:38:37

Latitude: N 35°53.669' (35°53'40.2")

Longitude: W 93°4.056' (93°4'3.4")

Heading: 15.58 (T)

UTC: 04/16/2014 16:37:18.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north-northwest (downstream) of Big Creek, where WS-8 was collected (@ 11:37 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 25

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1365.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:58:52

Latitude: N 35°53.922' (35°53'55.3")

Longitude: W 93°4.342' (93°4'20.5")

Heading: 282.68 (T)

UTC: 04/16/2014 16:57:34.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west (upstream), where WS-9 was collected (@ 11:58 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 26

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1366.JPG

Date of Photo: 04/16/2014

Time of Photo: 11:59:05

Latitude: N 35°53.922' (35°53'55.3")

Longitude: W 93°4.339' (93°4'20.3")

Heading: 86.52 (T)

UTC: 04/16/2014 16:57:46.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east (downstream), where WS-9 was collected (@ 11:58 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 27

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1367.JPG

Date of Photo: 04/16/2014

Time of Photo: 12:20:58

Latitude: N 35°54.349' (35°54'21.0")

Longitude: W 93°4.021' (93°4'1.2")

Heading: 188.27 (T)

UTC: 04/16/2014 17:19:38.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south (upstream) of Big Creek, where WS-10 was collected (@ 12:19 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 28

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1368.JPG

Date of Photo: 04/16/2014

Time of Photo: 12:21:08

Latitude: N 35°54.349' (35°54'21.0")

Longitude: W 93°4.020' (93°4'1.2")

Heading: 28.98 (T)

UTC: 04/16/2014 17:19:48.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north-northeast (downstream) of Big Creek, where WS-10 was collected (@ 12:19 on 04/16/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 29

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1387.JPG

Date of Photo: 04/17/2014

Time of Photo: 10:05:08

Latitude: N 35°55.423' (35°55'25.4")

Longitude: W 93°4.408' (93°4'24.5")

Heading: 49.42 (T)

UTC: 04/17/2014 15:03:48.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the northeast of the northwest corner of the farrowing barn, under which a 55,000-gallon concrete tank holds water pumped from the facility's only water supply well onsite. The supply well pumps directly into this holding tank and another pump transfers water to a pressure tank, that then supplies water to the animals and employees. That pressure tank connects to the black hose, just to the left of the cool cell, which was where we collected WS-11 (@ 09:54 on 04/17/2014). The only other way to collect a sample from the well would be to shower in/out and dip the water out of the concrete vault/tank. A valve should be added inline prior to the vault/tank so that a fresh water sample could be collected at



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 30

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

that point. WS-11A (@ 10:14 on 04/17/2014) was collected from a refrigerator in the employee break room. That water (WS-11A) goes through a water softener and filtering system before it is dispensed.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 31

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1388.JPG

Date of Photo: 04/17/2014

Time of Photo: 10:37:42

Latitude: N 35°54.940' (35°54'56.4")

Longitude: W 93°3.957' (93°3'57.4")

Heading: 166.40 (T)

UTC: 04/17/2014 15:36:21.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south-southeast (upstream) of Big Creek from the Newton County 6370 Road bridge, where WS-12 was collected (@ 10:33 on 04/17/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 32

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1389.JPG

Date of Photo: 04/17/2014

Time of Photo: 10:38:03

Latitude: N 35°54.944' (35°54'56.6")

Longitude: W 93°3.956' (93°3'57.4")

Heading: 347.23 (T)

UTC: 04/17/2014 15:36:43.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the north-northwest (downstream) of Big Creek from the Newton County 6370 Road bridge, where WS-12 was collected (@ 10:33 on 04/17/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 33

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1390.JPG

Date of Photo: 04/17/2014

Time of Photo: 11:33:55

Latitude: N 35°55.800' (35°55'48.0")

Longitude: W 93°4.465' (93°4'27.9")

Heading: 270.62 (T)

UTC: 04/17/2014 16:32:35.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the west (upstream) from the Newton County 6335 Road bridge, where WS-13 was collected (@ 11:31 on 04/17/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 34

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1391.JPG

Date of Photo: 04/17/2014

Time of Photo: 11:34:10

Latitude: N 35°55.800' (35°55'48.0")

Longitude: W 93°4.462' (93°4'27.7")

Heading: 80.90 (T)

UTC: 04/17/2014 16:32:36.00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the east-northeast (downstream) from the Newton County 6335 Road bridge, where WS-13 was collected (@ 11:31 on 04/17/2014).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 35

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1392.JPG

Date of Photo: 04/17/2014

Time of Photo: 11:55:20

Latitude: N 35°55.423' (35°55'25.4")

Longitude: W 93°4.453' (93°4'27.2")

Heading: 189.49 (T)

UTC: 04/17/2014 16:54:00

Map Datum: WGS-84

Photographer: Carl E. Wills

Description: View to the south-southwest along the western side of the gestation barn road. There were loblolly pines (approximately 1,000) about 12 to 14-inches tall planted around the perimeter of the pad site to provide soil stabilization and odor control.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 36

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1393.JPG

Date of Photo: 04/17/2014

Time of Photo: 12:21:29

Latitude: N 35°55.515' (35°55'30.9")

Longitude: W 93°4.320' (93°4'19.2")

Heading: 301.04 (T)

UTC: 04/17/2014 17:20:9.00

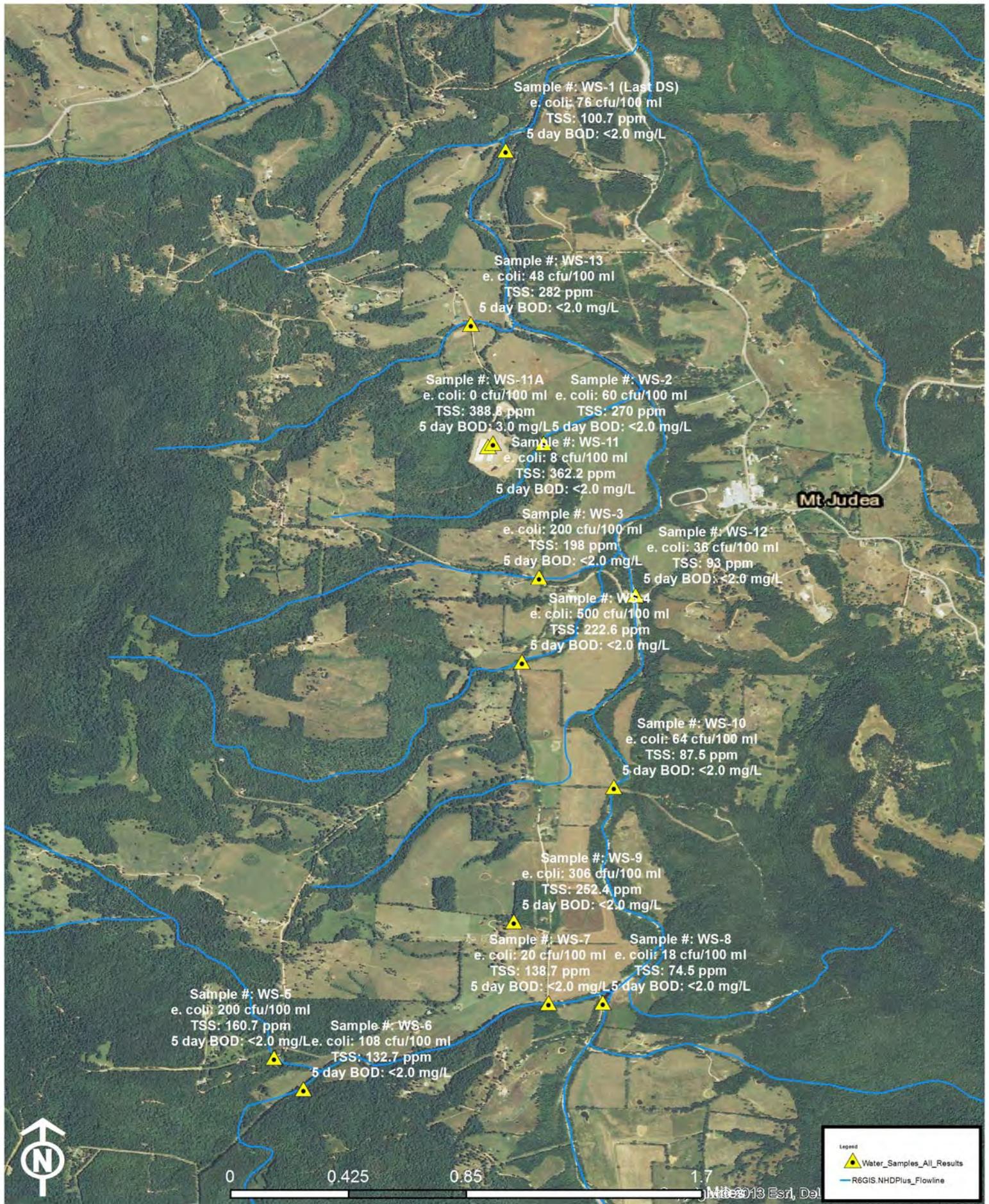
Map Datum: WGS-84

Photographer: Carl E. Wills

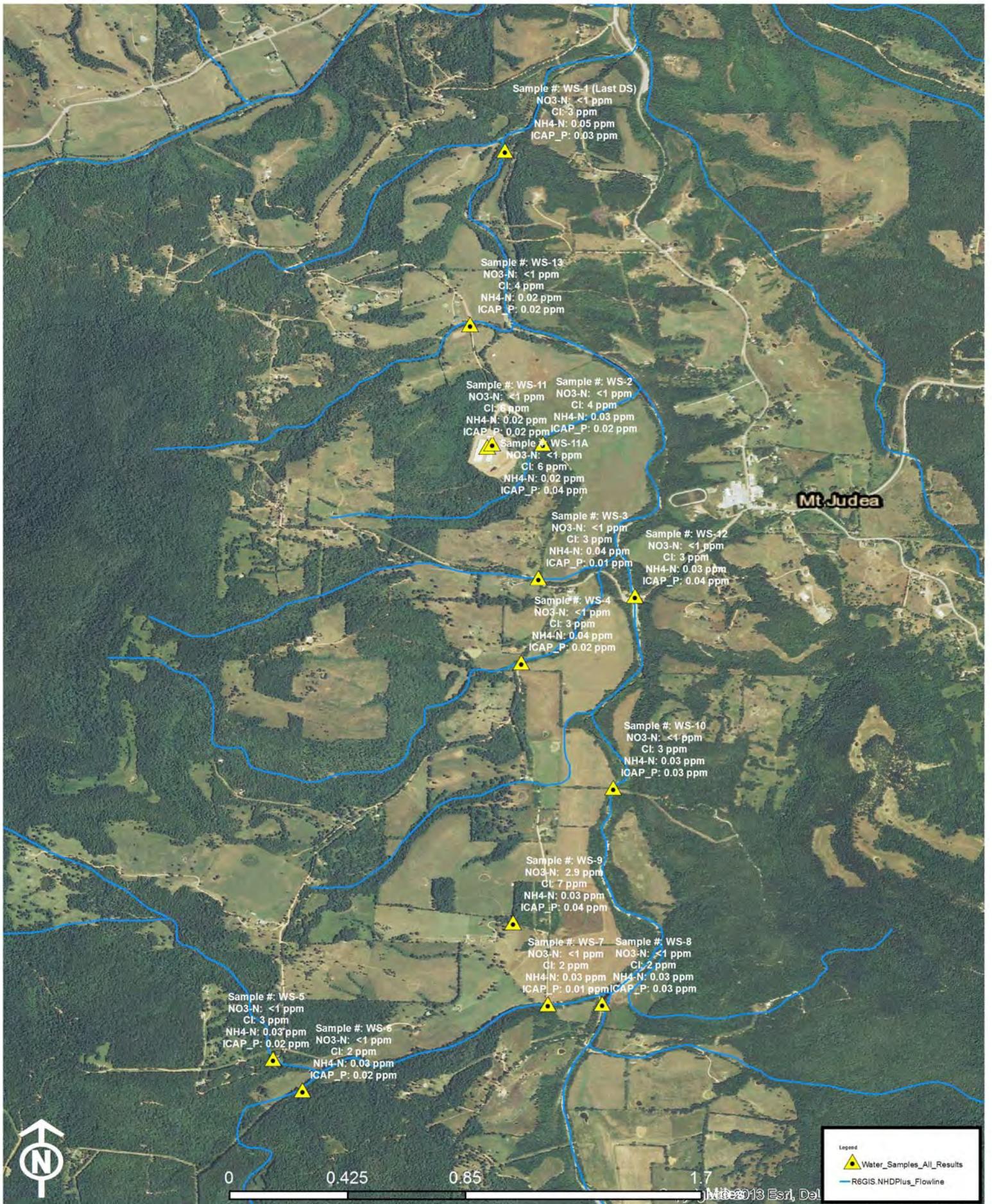
Description: View to the northwest of the facility's sign at the entrance off Newton County 6335 Road.

## Appendix 2

### Water Sample Results



C & H Hog Farm - Mount Judea, AR  
 E. coli, Total Soluble Salts, 5 day BOD,



C & H Hog Farm - Mount Judea, AR  
Nitrate-N, Chloride, Ammonia-N, Phosphorus

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Control Number: 1404020296  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 0915  
 Sample Type : GRAB  
 Sample From : WS-1 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
Date	Time	By					Parameter	% RPD
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	76 /100ml		HACH mColiBlue	1.98	0.0

\* QA data shown is from a different sample or standard on the same date.

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Control Number: 1404020297  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 0947  
 Sample Type : GRAB  
 Sample From : WS-2 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
Date	Time	By					Parameter	% RPD
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	60 /100ml		HACH mColiBlue	1.98	0.0

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Control Number: 1404020298  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1003  
 Sample Type : GRAB  
 Sample From : WS-3 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
Date	Time	By					Parameter	% RPD
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	200 /100ml		HACH mColiBlue	1.98	0.0

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Control Number: 1404020299  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1015  
 Sample Type : GRAB  
 Sample From : WS-4 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>		
Analysis							Precision	Accuracy	
<u>Date</u>	<u>Time</u>	<u>By</u>	<u>Parameter</u>	<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>% RPD</u>	<u>% Recover</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	500 /100ml			HACH mColiBlue	1.98	0.0

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Control Number: 1404020300  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1034  
 Sample Type : GRAB  
 Sample From : WS-5 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
<u>Date</u>	<u>Time</u>	<u>By</u>	<u>Parameter</u>				<u>% RPD</u>	<u>% Recover</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	200 /100ml		HACH mColiBlue	1.98	0.0

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Control Number: 1404020301	Sample Date : 04/16/14	Collected By: CARL E WILLS
Customer Name : US EPA REGION 6 ENFORCEMENT	Sample Time : 1050	Delivery By : CHRIS LISTER
Customer Number : 1773	Sample Type : GRAB	Work Order :
Report Date : 04/23/14	Sample From : WS-6 C&H	Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>			
Analysis	Date	Time	By	Parameter	Result	Notes	Quantity	Method	Precision	Accuracy
									% RPD	% Recover
	04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
	04/16	1615	KIK	E. Coli	108 /100ml			HACH mColiBlue	1.98	0.0

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Signature Richard Broom  
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Control Number: 1404020302  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1126  
 Sample Type : GRAB  
 Sample From : WS-7 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

### Laboratory Analysis

<u>Analysis</u>							<u>Quality Assurance</u>		
<u>Date</u>	<u>Time</u>	<u>By</u>	<u>Parameter</u>	<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>Precision</u>	<u>Accuracy</u>
								<u>% RPD</u>	<u>% Recover</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	20 /100ml			HACH mColiBlue	1.98	0.0

\* QA data shown is from a different sample or standard on the same date.

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Control Number: 1404020303  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1137  
 Sample Type : GRAB  
 Sample From : WS-8 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>		
Analysis							Precision	Accuracy	
<u>Date</u>	<u>Time</u>	<u>By</u>	<u>Parameter</u>	<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>% RPD</u>	<u>% Recover</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	18 /100ml			HACH mColiBlue	1.98	0.0

\* QA data shown is from a different sample or standard on the same date.

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Control Number: 1404020304	Sample Date : 04/16/14	Collected By: CARL E WILLS
Customer Name : US EPA REGION 6 ENFORCEMENT	Sample Time : 1158	Delivery By : CHRIS LISTER
Customer Number : 1773	Sample Type : GRAB	Work Order :
Report Date : 04/23/14	Sample From : WS-9 C&H	Purchase Order :

<u>Laboratory Analysis</u>						<u>Quality Assurance</u>		
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
Date	Time	By	Parameter				% RPD	% Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	306 /100ml		HACH mColiBlue	1.98	0.0

\* QA data shown is from a different sample or standard on the same date.

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Control Number: 1404020305  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/16/14  
 Sample Time : 1200  
 Sample Type : GRAB  
 Sample From : WS-10 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
<u>Analysis</u>			<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>Precision</u>	<u>Accuracy</u>
<u>Date</u>	<u>Time</u>	<u>By</u>	<u>Parameter</u>				<u>% RPD</u>	<u>% Recover</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	64 /100ml		HACH mColiBlue	1.98	0.0

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Control Number: 1404020315  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/17/14  
 Sample Time : 0954  
 Sample Type : GRAB  
 Sample From : WS-11 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
<u>Analysis</u>			<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>Precision</u>	<u>Accuracy</u>
<u>Date</u>	<u>Time</u>	<u>By</u>					<u>Parameter</u>	<u>% RPD</u>
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	8 /100ml		HACH mColiBlue	0.00	0.0

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Control Number: 1404020316  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/17/14  
 Sample Time : 1014  
 Sample Type : GRAB  
 Sample From : WS-11A C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
<u>Analysis</u>			<u>Result</u>	<u>Notes</u>	<u>Quantity</u>	<u>Method</u>	<u>Precision</u>	<u>Accuracy</u>
<u>Date</u>	<u>Time</u>	<u>By</u>					<u>Parameter</u>	<u>% RPD</u>
04/18	0730	RHB	BOD, 5-day	3.0 mg/L		SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	< 2 /100ml		HACH mColiBlue	0.00	0.0

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Control Number: 1404020317  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/17/14  
 Sample Time : 1033  
 Sample Type : GRAB  
 Sample From : WS-12 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

<u>Laboratory Analysis</u>							<u>Quality Assurance</u>	
Analysis			Result	Notes	Quantity	Method	Precision	Accuracy
Date	Time	By					Parameter	% RPD
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L		SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	36 /100ml		HACH mColiBlue	0.00	0.0

\* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature Richard Brown  
 Environmental Services Co., Inc.

# Environmental Services Company, Inc.

Corporate Office  
 13715 West Markham  
 Little Rock, AR 72211  
 Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch  
 1107 Century Avenue  
 Springdale, AR 72762  
 Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020318  
 Customer Name : US EPA REGION 6 ENFORCEMENT  
 Customer Number : 1773  
 Report Date : 04/23/14

Sample Date : 04/17/14  
 Sample Time : 1131  
 Sample Type : GRAB  
 Sample From : WS-13 C&H

Collected By: CARL E WILLS  
 Delivery By : CHRIS LISTER  
 Work Order :  
 Purchase Order :

### Laboratory Analysis

Analysis							Quality Assurance		
Date	Time	By	Parameter	Result	Notes	Quantity	Method	Precision	Accuracy
								% RPD	% Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	48 /100ml			HACH mColiBlue	0.00	0.0

\* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature Richard Broom  
 Environmental Services Co., Inc.





# Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources  
045 Agricultural Hall  
Stillwater, OK 74078  
E-mail: soiltesting@okstate.edu  
Website: www.soiltesting.okstate.edu

## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : Field Blank 1  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721854  
Customer Code : 1361  
Sample No. : 1  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	1	Nitrate-N (ppm)	<1	pH	5.7
Calcium (ppm)	5	Chloride (ppm)	2	EC (µmhos/cm)	7.6
Magnesium (ppm)	0	Sulfate (ppm)	0	NH4_N (ppm)	0.03
Potassium (ppm)	0	Boron (ppm)	<.01	ICAP_P	0.01
		Bicarbonate (ppm)	5		
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	13.2	Sodium Percentage			
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)		12.0	
Potassium Adsorption Ratio (PAR)		Hardness Class		Soft	
		Alkalinity (ppm as CaCO3)		4.1	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-1  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721855  
Customer Code : 1361  
Sample No. : 2  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.4
Calcium (ppm)	22	Chloride (ppm)	3	EC (µmhos/cm)	132.7
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.11
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.05
		Bicarbonate (ppm)	66	ICAP_P	0.03
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	100.7	Sodium Percentage	6.5 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	60.1		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium		
		Alkalinity (ppm as CaCO3)	54.4		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



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CARL E WILLS (6EN-WR)  
 US EPA REGION 6  
 1445 ROSS AVE SUITE 1200  
 DALLAS, TX 75202  
 (214) 665-7276

Name : WS-2  
 Location : C & H Hog Farms, Inc.  
 Vendor, AR 72683

Lab ID No.: : 721856  
 Customer Code : 1361  
 Sample No. : 3  
 Received : 4/21/2014  
 Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	65	Chloride (ppm)	4	EC (µmhos/cm)	324
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	192	ICAP_P	0.02
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	270.0	Sodium Percentage	3 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	167.9		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard		
		Alkalinity (ppm as CaCO3)	157		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
 Signature



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CARL E WILLS (6EN-WR)  
 US EPA REGION 6  
 1445 ROSS AVE SUITE 1200  
 DALLAS, TX 75202  
 (214) 665-7276

Name : WS-3  
 Location : C & H Hog Farms, Inc.  
 Vendor, AR 72683

Lab ID No.: : 721857  
 Customer Code : 1361  
 Sample No. : 4  
 Received : 4/21/2014  
 Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	45	Chloride (ppm)	3	EC (µmhos/cm)	248
Magnesium (ppm)	3	Sulfate (ppm)	13	Iron (ppm)	0.12
Potassium (ppm)	2	Boron (ppm)	<.01	NH4_N (ppm)	0.04
		Bicarbonate (ppm)	130	ICAP_P	0.01
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	198.0	Sodium Percentage	4.2 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	122.4		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard		
		Alkalinity (ppm as CaCO3)	106.8		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
 Signature



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1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-4  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721858  
Customer Code : 1361  
Sample No. : 5  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	3	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	50	Chloride (ppm)	3	EC (µmhos/cm)	271
Magnesium (ppm)	2	Sulfate (ppm)	12	Iron (ppm)	0.00
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.04
		Bicarbonate (ppm)	150	ICAP_P	0.02
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	222.6	Sodium Percentage	4.9 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	135.2		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard		
		Alkalinity (ppm as CaCO3)	122.7		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-5  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721860  
Customer Code : 1361  
Sample No. : 6  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	36	Chloride (ppm)	3	EC (µmhos/cm)	201
Magnesium (ppm)	2	Sulfate (ppm)	8	Iron (ppm)	0.12
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	108	ICAP_P	0.02
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	160.7	Sodium Percentage	4.5 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	99.5		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium		
		Alkalinity (ppm as CaCO3)	88.5		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-6  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721861  
Customer Code : 1361  
Sample No. : 7  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	29	Chloride (ppm)	2	EC (µmhos/cm)	164.5
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.07
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	90	ICAP_P	0.02
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	132.7	Sodium Percentage	4.6 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	78.8		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium		
		Alkalinity (ppm as CaCO3)	74.0		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : Replicate (WS-6)  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721862  
Customer Code : 1361  
Sample No. : 8  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	29	Chloride (ppm)	2	EC (µmhos/cm)	164.7
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.07
Potassium (ppm)	0	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	89	ICAP_P	0.02
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	130.2	Sodium Percentage	4.4 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	78.2		
Potassium Adsorption Ratio (PAR)	0	Hardness Class	Medium		
		Alkalinity (ppm as CaCO3)	73.0		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-7  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721863  
Customer Code : 1361  
Sample No. : 9  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	31	Chloride (ppm)	2	EC (µmhos/cm)	174.8
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.08
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	93	ICAP_P	0.01
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	138.7	Sodium Percentage	4.3 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	85.8		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium		
		Alkalinity (ppm as CaCO3)	76.6		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



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## WATER QUALITY REPORT

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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-8  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721864  
Customer Code : 1361  
Sample No. : 10  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.5
Calcium (ppm)	15	Chloride (ppm)	2	EC (µmhos/cm)	95.8
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.15
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	49	ICAP_P	0.03
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	74.5	Sodium Percentage	8 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	41.3		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft		
		Alkalinity (ppm as CaCO3)	40.5		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-9  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721865  
Customer Code : 1361  
Sample No. : 11  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	2.9	pH	7.9
Calcium (ppm)	64	Chloride (ppm)	7	EC (µmhos/cm)	320
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.01
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	170	ICAP_P	0.04
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	252.4	Sodium Percentage	2.9 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	164.4		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard		
		Alkalinity (ppm as CaCO3)	139.4		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



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US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-10  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721866  
Customer Code : 1361  
Sample No. : 12  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.5
Calcium (ppm)	19	Chloride (ppm)	3	EC (µmhos/cm)	116.8
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.13
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	57	ICAP_P	0.03
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	87.5	Sodium Percentage	6.7 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	51.9		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft		
		Alkalinity (ppm as CaCO3)	47		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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 US EPA REGION 6  
 1445 ROSS AVE SUITE 1200  
 DALLAS, TX 75202  
 (214) 665-7276

Name : Soil Equipment Rinsate Blank  
 Location : C & H Hog Farms, Inc.  
 Vendor, AR 72683

Lab ID No.: : 721867  
 Customer Code : 1361  
 Sample No. : 13  
 Received : 4/21/2014  
 Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----	----- Anions -----	----- Other -----
Sodium (ppm)            1	Nitrate-N (ppm)       <1	pH                            5.1
Calcium (ppm)           1	Chloride (ppm)         2	EC (µmhos/cm)         14.2
Magnesium (ppm)       0	Sulfate (ppm)           0	Iron (ppm)               0.02
Potassium (ppm)        0	Boron (ppm)            <.01	NH4_N (ppm)            0.03
	Bicarbonate (ppm)     3	ICAP_P                    0.04
-----		
----- Derived Values -----	----- Derived Values(cont'd) -----	
Total Soluble Salts (TSS in ppm)    9.4	Sodium Percentage	
Sodium Adsorption Ratio (SAR)       0.3	Hardness (ppm)                         2.3	
Potassium Adsorption Ratio (PAR)    0	Hardness Class                            Soft	
Residual Carbonates (meq)            0.0	Alkalinity (ppm as CaCO3)            2.4	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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Name : Field Blank 2  
 Location : C & H Hog Farms, Inc.  
 Vendor, AR 72683

Lab ID No.: : 721868  
 Customer Code : 1361  
 Sample No. : 14  
 Received : 4/21/2014  
 Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	1	Nitrate-N (ppm)	<1	pH	5.1
Calcium (ppm)	1	Chloride (ppm)	1	EC (µmhos/cm)	9.1
Magnesium (ppm)	0	Sulfate (ppm)	0	NH4_N (ppm)	0.03
Potassium (ppm)	0	Boron (ppm)	<.01	ICAP_P	0.03
		Bicarbonate (ppm)	3		
----- Derived Values -----			----- Derived Values(cont'd) -----		
Total Soluble Salts (TSS in ppm)	6.0	Sodium Percentage			
Sodium Adsorption Ratio (SAR)	0.2	Hardness (ppm)		1.7	
Potassium Adsorption Ratio (PAR)		Hardness Class		Soft	
Residual Carbonates (meq)	0.0	Alkalinity (ppm as CaCO3)		2.3	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
 Signature



# Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources  
045 Agricultural Hall  
Stillwater, OK 74078  
E-mail: soiltesting@okstate.edu  
Website: www.soiltesting.okstate.edu

## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-11  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721870  
Customer Code : 1361  
Sample No. : 15  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	14	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	77	Chloride (ppm)	6	EC (µmhos/cm)	429
Magnesium (ppm)	4	Sulfate (ppm)	14	NH4_N (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	0.06	ICAP_P	0.02
		Bicarbonate (ppm)	246		
----- Derived Values -----			----- Derived Values(cont'd) -----		
Total Soluble Salts (TSS in ppm)	362.2	Sodium Percentage		12.7 %	
Sodium Adsorption Ratio (SAR)	0.4	Hardness (ppm)		207.0	
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class		Very Hard	
		Alkalinity (ppm as CaCO3)		201.3	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



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## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-11A (Drinking Water)  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721871  
Customer Code : 1361  
Sample No. : 16  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	105	Nitrate-N (ppm)	<1	pH	8.0
Calcium (ppm)	2	Chloride (ppm)	6	EC (µmhos/cm)	444
Magnesium (ppm)	0	Sulfate (ppm)	12	NH4_N (ppm)	0.02
Potassium (ppm)	3	Boron (ppm)	<.01	ICAP_P	0.04
		Bicarbonate (ppm)	260		
----- Derived Values -----			----- Derived Values(cont'd) -----		
Total Soluble Salts (TSS in ppm)	388.8	Sodium Percentage		97.8 %	
Sodium Adsorption Ratio (SAR)	20.3	Hardness (ppm)		5.1	
Potassium Adsorption Ratio (PAR)	0.3	Hardness Class		Soft	
Residual Carbonates (meq)	4.2	Alkalinity (ppm as CaCO3)		213.0	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

Water of this quality is not recommended for crop irrigation due to its high total soluble salts and/or sodium level.

Residual carbonates are present in excess amounts lowering water quality to unsuitabe.

Water with too high residual carbonates may contain effective sodium in excess of that indicated by the sodium percentage of the water. The calcium and magnesium may precipitate out as lime, thus increasing the percentage of sodium.

Signature



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## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-12  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721872  
Customer Code : 1361  
Sample No. : 17  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	20	Chloride (ppm)	3	EC (µmhos/cm)	123
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.09
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	61	ICAP_P	0.04
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	93.0	Sodium Percentage	6.8 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	56.3		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft		
		Alkalinity (ppm as CaCO3)	49.7		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

\_\_\_\_\_  
Signature



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## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : WS-13  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721873  
Customer Code : 1361  
Sample No. : 18  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	4	Nitrate-N (ppm)	<1	pH	8.2
Calcium (ppm)	64	Chloride (ppm)	4	EC (µmhos/cm)	342
Magnesium (ppm)	5	Sulfate (ppm)	23	Iron (ppm)	0.01
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.02
		Bicarbonate (ppm)	182	ICAP_P	0.02
----- Derived Values -----			----- Derived Values(cont'd) -----		
Total Soluble Salts (TSS in ppm)	282.0	Sodium Percentage		4.4 %	
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)		178.8	
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class		Hard	
		Alkalinity (ppm as CaCO3)		148.9	

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



# Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources  
045 Agricultural Hall  
Stillwater, OK 74078  
E-mail: soiltesting@okstate.edu  
Website: www.soiltesting.okstate.edu

## WATER QUALITY REPORT

CARL E WILLS (6EN-WR)  
US EPA REGION 6  
1445 ROSS AVE SUITE 1200  
DALLAS, TX 75202  
(214) 665-7276

Name : Replicate (WS-13)  
Location : C & H Hog Farms, Inc.  
Vendor, AR 72683

Lab ID No.: : 721874  
Customer Code : 1361  
Sample No. : 19  
Received : 4/21/2014  
Report Date : 4/25/2014

### Test Results for Irrigation Water

----- Cations -----		----- Anions -----		----- Other -----	
Sodium (ppm)	4	Nitrate-N (ppm)	<1	pH	8.2
Calcium (ppm)	64	Chloride (ppm)	4	EC (µmhos/cm)	345
Magnesium (ppm)	5	Sulfate (ppm)	23	Iron (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	181	ICAP_P	0.01
----- Derived Values -----		----- Derived Values(cont'd) -----			
Total Soluble Salts (TSS in ppm)	281.8	Sodium Percentage	4.4 %		
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	178.5		
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard		
		Alkalinity (ppm as CaCO3)	148.6		

### INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature



OFFICIAL  
CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CON- TAINERS	Irrigation Analysis NH <sub>4</sub> -N ICAP-P						REMARKS
SAMPLERS: (Signature)		1 Chi. A. Lute											
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								
16	4/17/14	7:14 a.m.		✓	WS-11A	✓	✓	✓				721571	
17	4/17/14	10:33 a.m.		✓	WS-12	✓	✓	✓				721572	
18	4/17/14	11:31 a.m.		✓	WS-13	✓	✓	✓				721573	
19	4/17/14	—		✓	Replicate	✓	✓	✓				721574	
No Further Entries													
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Chi. A. Lute		4/17/14 4:00 p.m.											
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks					
				Lute		4/21 9:30		Custody Seals Intact AB Samples Intact AB Samples ≤ 4°C AB					
Shipped by: UPS				Airbill Number: 1E A46 R22 01 9896 8264									

Under Custody Seal

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files;  
Green to Report; Yellow Returns with Warrant

Log File Name : C&H HOG FARM  
 Setup Date (MMDDYY) : 041614  
 Setup Time (HHMMSS) : 042048  
 Datum WGS 84

Hydrolab DS5 Water Quality Probe

Sample Name	Date MMDDYY	Time HHMMSS	IBVSvr4 Volts	Temp øF	BPSvr4 mmHg	Latitude DMS	Longitude DMS	pH Units	LDO% Sat	LDO mg/l	SpCond µS/cm	Sal ppt	TDS g/l	NH4+ mg/l-N	NH4Tot mg/l-N	NO3- mg/l-N
WS-1	4/16/2014	9:07:06	7.8	49.6	621.7	N 35ø56'20.3"	W 93ø04'21.3"	7.33	99.1	9.18	117.8	0.05	0.0754	0.1	0.1	0.03
WS-2	4/16/2014	9:55:19	7.4	56.1	632.8	N 35ø55'25.3"	W 93ø04'14.1"	7.43	100.5	8.72	303.9	0.15	0.1945	0.11	0.11	0.04
WS-3	4/16/2014	10:05:44	7.4	46.6	628.8	N 35ø55'00.2"	W 93ø04'15.2"	7.86	74.8	7.34	225.1	0.11	0.144	0.38	0.39	0.02
WS-4	4/16/2014	10:20:20	7.3	51.9	629.1	N 35ø54'44.3"	W 93ø04'18.4"	7.38	100	9.14	250.9	0.12	0.1606	0.34	0.35	0.03
WS-5	4/16/2014	10:38:56	7.3	50	625.7	N 35ø53'29.6"	W 93ø05'04.9"	7.97	99.9	9.23	182.5	0.08	0.1168	0.14	0.14	0.01
WS-6	4/16/2014	10:56:59	7.3	50.9	623.3	N 35ø53'23.8"	W 93ø04'59.5"	7.1	92.5	8.45	148.6	0.06	0.0951	0.14	0.14	0.01
WS-7	4/16/2014	11:31:09	7.4	52.5	617.5	N 35ø53'39.7"	W 93ø04'13.4"	7.57	98.5	8.81	158.1	0.07	0.1012	0.18	0.18	0.01
WS-8	4/16/2014	11:42:50	7.3	54.2	621.3	N 35ø53'40.1"	W 93ø04'03.3"	7.5	100.4	8.72	90.7	0.03	0.0582	0.14	0.14	0.01
WS-9	4/16/2014	12:01:37	7.3	57.8	622.7	N 35ø53'55.4"	W 93ø04'19.9"	7.53	90.5	7.51	303.6	0.15	0.1943	0.29	0.29	0.24
WS-10	4/16/2014	12:24:24	7.3	52.8	622.2	N 35ø54'20.7"	W 93ø04'01.2"	6.91	93.5	8.26	102.3	0.04	0.0655	0.21	0.21	0.02
WS-11	4/17/2014	10:07:39	7.9	60.4	625.3	N 35ø55'25.2"	W 93ø04'24.7"	6.79	78.1	6.32	411.5	0.21	0.2634	0.38	0.38	0.09
WS-11A	4/17/2014	10:22:13	7.9	66.5	628.4	N 35ø55'25.5"	W 93ø04'23.9"	7.3	52.8	3.98	421.9	0.21	0.27	1.07	1.08	0.07
WS-12	4/17/2014	10:42:48	7.8	51.3	636.8	N 35ø54'56.4"	W 93ø03'57.1"	7.47	100.2	9.28	107.4	0.04	0.0688	0.08	0.08	0.02
WS-13	4/17/2014	11:40:53	7.8	55.6	634	N 35ø55'48.1"	W 93ø04'27.7"	8.07	99.4	8.66	317.5	0.16	0.2036	0.13	0.14	0.01

Recovery finished at 042314 160606



3.0

### Surveyor 4, 4A and 2002 4A Functional Test Sheet

**Section A:**

Service Request# <b>3911902</b>		Customer <b>US EPA</b>	Serial # <b>09086055272</b> <b>505272</b>
Technician <b>RO</b>	Keypad Rev. 2010 Pre- <input type="checkbox"/> Post- <input checked="" type="checkbox"/>	Model Type <b>4</b> <b>(4A)</b> <b>2002 4A</b>	Date Started <b>4-2-14</b>

**Section B:**

	Submission Day <u>1</u>	Submission Day	Submission Day	Submission Day
Repair information gathered	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Visual Inspection performed	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Customer problem verified	<input checked="" type="checkbox"/> / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
Firmware updates performed----- Current FW Rev.  Updated FW Rev.	<b>3.20</b>			
Display Clean	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Replace and Date Internal Lithium battery	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Desiccant changed	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
New style gold 22 pin header present or installed	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Loctite Threadlocker applied to screws in Display Board half hole connectors	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Screw O-rings replaced	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Battery door O-rings replaced if pinched	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Verify Surveyor to PC connection	<input type="checkbox"/> / F	P / F	P / F	P / F
Verify Surveyor charge circuit charges correctly	<input type="checkbox"/> / F	P / F	P / F	P / F
Real Time Clock set to correct Time and Date	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Surveyor 2002 -- C26 and C27 are removed for RTC fix	<input checked="" type="checkbox"/> / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
Serial number matches number on door and Hach Business System	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Backlight operational	<input type="checkbox"/> / F	P / F	P / F	P / F
"No Conn" displayed when not connected to external unit	<input type="checkbox"/> / F	P / F	P / F	P / F
Verify Surveyor to Sonde communication	<input type="checkbox"/> / F	P / F	P / F	P / F
Barometric Pressure displayed & calibrated -No asterisk	<input type="checkbox"/> / F / NA	P / F / NA	P / F / NA	P / F / NA
GPS Parameters displayed and tested --use production antenna	<input type="checkbox"/> / F / NA	P / F / NA	P / F / NA	P / F / NA
Batteries fully charged -- (7.8 volts minimum)	<b>8.4</b>			
Battery pad installed	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Verify unit has both rubber feet on door	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N
Verify lens is clean, free of smears and dust	<input checked="" type="checkbox"/> / N	Y / N	Y / N	Y / N

**Calibrated Test Equipment Used --**

Description	X-number
DVM Multimeter	X- <b>7212</b>

**Section C. Final Check-off Prior to Submitting for Estimate -**

Exterior is clean	<input checked="" type="checkbox"/>	Admin Notified	<input checked="" type="checkbox"/>
Unit Powered down and tagged	<input checked="" type="checkbox"/>	Closer Initials	<input checked="" type="checkbox"/>
Hach Business System updated	<input checked="" type="checkbox"/>	Date Completed	<b>4-2-14</b>

DATE: 10-2-12	DOCUMENT #: 19005-00-Tech Series5 Instruc
PAGE: 1 OF 2	REVISION: 1



## Series 5, and 5X Sonde Functional Test Data Sheet

### Section A:

Service Request #	3911893	Customer	US EPA	Date Started	4-2-14
Housing Serial #	48298	Embedded Serial#	48298	Additional Driver Firmware:	
Technician	RO	Model: <b>Datasonde</b> ✓ 5 ✓	<b>Minisonde</b> 5X	IONS-1A 1.03	LDO 2.70
<b>Customer Display Information</b>					
I/D	NA	DOM	082609	Baud Rate	19.2
				Security	2
				SDI	NA
				TTY	
Parameter	TIME	TEMP	pH	SpCond	SAL
Units		C	UNITS	mS/cm	PPT
Parameter	NO3-	NH4+	LDO%	LDO	
Units	mg/1-N	mg/1-N	SAT	mg/L	
<b>For Sonde with Depth – Coefficients</b>					
A:	NA	B:		C:	D:
E:		F:		G:	H:
I:		J:		SER:	
<b>FLUOROMETER OFFSETS</b>					
1 <sup>ST</sup>	NA	X10:		X1:	
2 <sup>ND</sup>		X10:		X1:	
<b>For Sonde with TDG or PAR – Coefficients</b>					
A:	NA	B:		C:	D:
Local:		Ref:			
<b>Performance, Test and Evaluation</b>					
Current MPL Rev--	5.44	pH Electrolyte & Teflon Junction Replaced-		DO membrane Replaced	
Upgrade to MPL Rev--		Yes ✓	No NA	Yes	No NA ✓
Lenses cleaned –Yes ✓	No	NA	RTC Battery Replaced Yes ✓	No	Desiccant Replaced –Yes ✓ No

### Section B:

	Submission Day 1	Submission Day
Customer Observations Verified	Y N PT&E ✓ Upgrade	Y N PT&E Upgrade
Set Time and Date	Yes ✓	Yes
Verified all hardware updates as current	Yes ✓	Yes
Total current draw. (Circle all that apply) MPL PCB 40mA ✓ SC Turbidity 20mA LDO 80mA ✓ 4Beam Turbidity 10mA Fluorometers: 1st 30mA 2nd 30mA 3rd 30mA PAR 10mA (Optimal Values not to exceed +20mA overall.) Current draw of circulator. (20 mA max. beyond previous values.)	<b>110mA</b>	
Operation of self-cleaning motor verified—	P F NA ✓	P F NA
Audio functions correctly	P ✓ F	P F
RTC sleep/wake-up test.	P ✓ F	P F

#### Additional Notes:

1  
19005-00-Tech\_Series5\_Instruc  
Rev 1

DATE: 10-2-12	DOCUMENT #: 19005-00-Tech Series5 Instruc
PAGE: 2 OF 2	REVISION: 1

Temp probe test at room temperature. 20.68 ° C (+/- 0.1)	Sonde Temp : 20.70	Sonde Temp :
DO 100% sat integrity window verified at +50 mmHg over current bp. (Clark Cell only)	P F NA ✓	P F NA
DO 100% saturation calibration verified- local -(+/- 0.2 mg/l Clark Cell) (+/- 0.1 mg/l LDO)	Temp : 23.11 BP : 627 mg/L : 7.03 Drift +/- :	Temp : BP : mg/L : Drift +/- :
Scale Factor. (1.5 to 0.5) (LDO only)	1.112647	
Conductivity zero (air) calibration verified - (+/- .005mS)	.000	
Conductivity calibration verified - (+/- .2 mS) 12.856 mS/cm / ✓ 47.6 mS/cm	47.6	
Conductivity 1.412mS linearity verified -(+/- .15 mS)	1.406	
Conductivity .100mS verified - (+/- .005 mS)	.103	
pH 7 buffer calibration verified-(+/- .2 pH)	7.00	
pH slope calibration verified at 10 units.	10.00	
ORP calibration verified at NA ° C (+/- 20 mV)	NA	
Turbidity - Calibration accepted & verified with DI Water (0.0 +/- 0.7 NTU)	NA	
Turbidity - Calibration accepted & verified at (100.0 +/- 1 NTU) with Hach StablCal	NA	
Turbidity - Linearity verified with 40 NTU Hach StablCal -(+/- 4 NTU)	NA	
Depth zero calibration verified - (.02 meters)	NA	
Depth Check verified - (+/- 0.03 meters) Tank depth:	NA	
Specific Ion NO3 Low C 22.54 High C 22.67 mV 59.6 mV 5.1	Specific Ion NH4 Low C 22.33 High C 22.53 mV 41.0 mV 95.3	Specific Ion Low C High C mV mV
NO3- calibration verified	P ✓ F NA	P F NA
NH4+ calibration verified	P ✓ F NA	P F NA
Cl- calibration verified	P F NA ✓	P F NA
Chlorophyll 'a' calibration verified	P F NA ✓	P F NA
Rhodamine 'wt' calibration verified	P F NA ✓	P F NA
Blue-green Algae calibration verified	P F NA ✓	P F NA
PAR calibration verified	P F NA ✓	P F NA
TDG calibration verified (+/- 2 mmHg)	P F NA ✓	P F NA
Logging/Sensor Stability Test	P ✓ F	P F
pH linearity verified at 4 units. (+/- 0.20 units)	4.07	
Battery pack setup and checked	P F NA ✓	P F NA

Display, Baud Rate, Communications mode settings returned as received.	Yes ✓ No
<b>Calibrated Test Equipment Used – Description</b>	<b>X-number</b>
Power Supply	X- 8011
DVM Digital Multimeter	X- 7212

**Section C. Final Check-off Prior to Submitting for Estimate**

Exterior is clean ✓ pH 4 Buffer in storage cup ✓	Hach Business System updated ✓ Date Completed 4-3-14
---	---



## Service Summary / Packing List

**Shipped From :**  
 Hach Hydromet Technical Support & Service  
 5600 Lindbergh Dr  
 Loveland, CO 80539  
 United States  
 E-mail: services@hach.com  
 Phone : 800-949-3766 opt.2  
 Fax : 970-461-3921

**Ship Method :** UPS1-UPS1\*\*UPS -Next Day-Air  
**Customer Ref. :**  
**Customer Ref. :**

**Shipping Order :** 313121541  
**Cust Acct :** 311335  
**Purchase Order :** EP-13-6-000039  
**Contact Name :** CARL WILLS  
**Contact Email :** WILLS.CARL@EPA.GOV  
**Contact Phone :** 214-6652210

**Ship To :**  
 Attn: Richard Brown / 479-750-1170  
 Environmental Services Company, Inc.  
 NW Arkansas Branch  
 1107 Century St  
 Springdale, AR 72762

**Bill To:**  
 US EPA  
 109 T W ALEXANDER DR /MAIL D143-02  
 USE ACCT 311060  
 DURHAM, NC, 27711, US

Line	Item Code	Item Description	SN	Qty	Technician	SR #	Task #
1.1	SVR4AJBABASE	Surveyor4a with the following option	S05272		10492	3911902	166989

**Additional Information**  
 \*\*\*\*\*ACCESSORIES\*\*\*\*\*

**Additional Notes**  
 ATTN: CARL WILLS  
 SR# 3911902  
 S/N S05272  
 NO CHARGES  
 Customer Requests: PT&E  
 Evaluation: As received Surveyor is in perfect working order. Verified communication with customers sonde using service cable.  
 Description of repair: Replaced internal RTC battery, desiccant, o-rings and put loctite on all internal screws. Calibrated internal Barometer and GPS. Verified surveyor with customer's data sonde 5.  
 Please reference attached functional test sheet: Performed all updates complete along with P T & E.

313121541



21199246





Page: 2 of 2  
Date: 3-Apr-14  
Delivery Id: 21199246

## Service Summary / Packing List

313121541



21199246





## Service Summary / Packing List

**Shipped From :**  
 Hach Hydromet Technical Support & Service  
 5600 Lindbergh Dr  
 Loveland, CO 80539  
 United States  
 E-mail: services@hach.com  
 Phone : 800-949-3766 opt.2  
 Fax : 970-461-3921

**Ship Method :** UPS1-UPS1\*\*UPS -Next Day-Air  
**Customer Ref. :**  
**Customer Ref. :**

**Shipping Order :** 313121582  
**Cust Acct :** 311335  
**Purchase Order :** EP-13-6-000039  
**Contact Name :** CARL WILLS  
**Contact Email :** WILLS.CARL@EPA.GOV  
**Contact Phone :** 214-6652210

**Ship To :**  
 Attn: Richard Brown / 479-750-1170  
 Environmental Services Company, Inc.  
 NW Arkansas Branch  
 1107 Century St  
 Springdale, AR 72762

**Bill To:**  
 US EPA  
 109 T W ALEXANDER DR /MAIL D143-02  
 USE ACCT 311060  
 DURHAM, NC, 27711, US

Collect OP / 17A46R220192966802

Line	Item Code	Item Description	SN	Qty	Technician	SR #	Task #
1.1	DS5BASE	DS5 WITH THE FOLLOWING OPTIONS:	048298		10492	3911893	166988

**Additional Information**  
 \*\*\*\*\*ACCESSORIES\*\*\*\*\*

**Additional Notes**  
 ATTN: CARL WILLS  
 SR# 3911893  
 S/N 048298  
 NO CHARGES  
 CUSTOMER OBSERVATION: PT&E  
 EVALUATION: Sonde needs a PT&E on sensors. Service will need to replace the N03 and NH4 Ion tips part of factory service. Parts listed will have to be replaced in order to get sonde to function correctly. Sonde needs test, calibration, and maintenance of all sensors as part of the PT&E.  
 Description of repair: Replaced RTC battery and desiccant, teflon junction. Calibrated LDO at 100% saturation +/- 0.1 mg/l sensor measured 100.2. Calibrated the conductivity sensor at 47.6 mS/cm (±





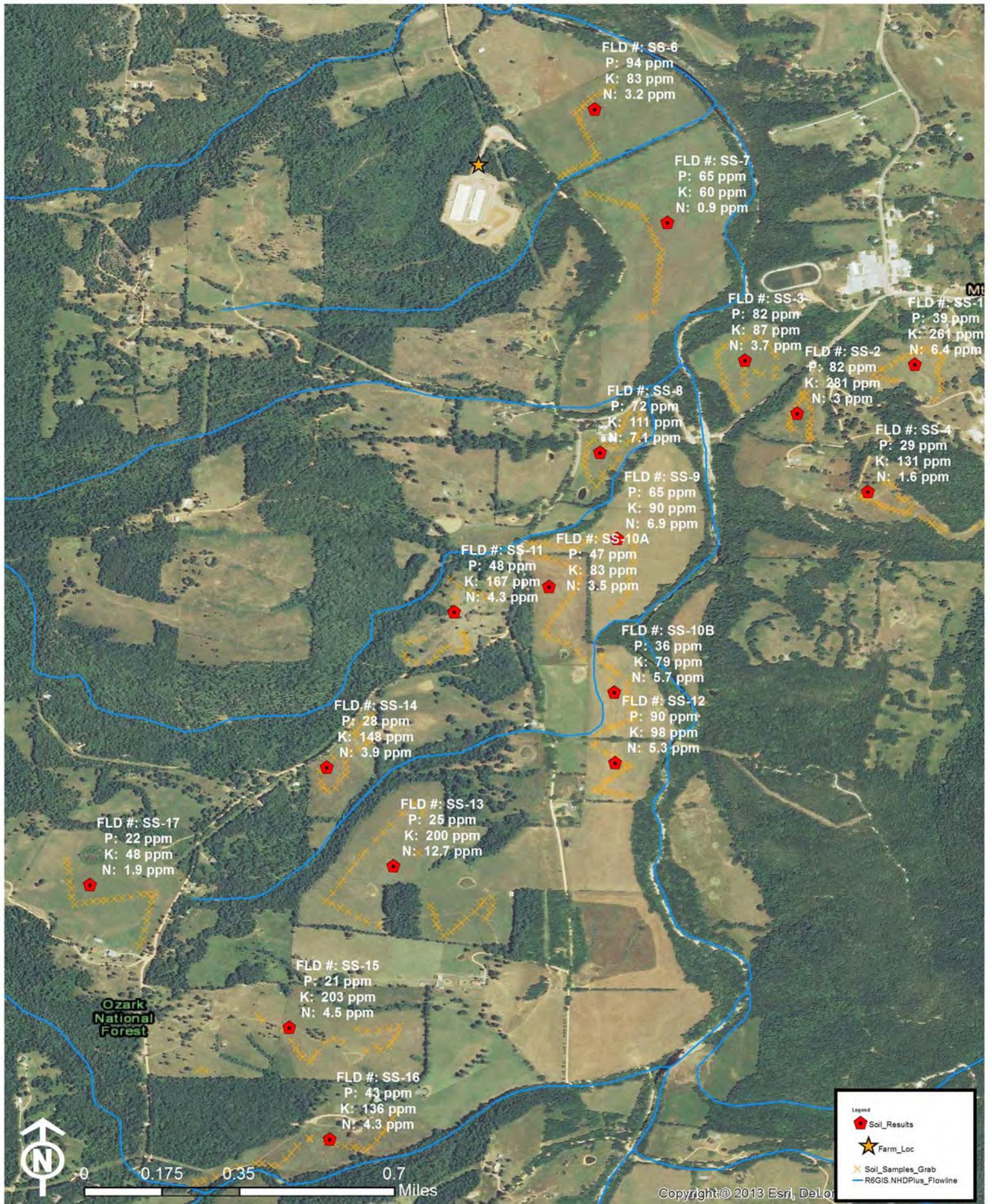
## Service Summary / Packing List

.2mS), read 47.6 mS/cm, and checked linearity at 1.412 mS/cm ( $\pm .15$  mS), read 1.406 mS/cm and checked linearity at .100 mS/cm ( $\pm .005$  mS) and read .103 mS/cm. Verified the ION tips calibrations. All are in specifications. All sensors passed performance log test. Bench verified communication with customer's surveyor with service cable. Please reference, attached test sheet for calibration and linearity test specifications check. All hardware and firmware are up to date. Performed all updates complete along with P T & E.



## Appendix 3

### Soil Sample Results



C & H Hog Farm - Mount Judea, AR

AGRICULTURE DIAGNOSTIC LABORATORY  
UNIVERSITY OF ARKANSAS, FAYETTEVILLE  
DIAGNOSTIC SOIL SAMPLES

NAME: CARL WILLS / EPA REGION 6  
EMAIL: wills.carl@epa.gov; lister.chris@epa.gov  
PHONE: 212-665-7276  
STUDY: NEWTON CO. ARKANSAS

ADDRESS: 1445 ROSS AVE.  
DALLAS, TX 75202-2733

ARRIVED: 04-17-14  
OUT: 05-05-14

PROCEDURES : pH,EC (1:2 soil/water ratio); Mehlich 3 (1:10 ratio) ANALYSIS BY SPECTRO ARCOS ICP;  
Inorganic N by KCl extraction, Skalar autoanalyzer using cadmium reduction color method.  
To convert results from mg/Kg to lbs/A for a 6" depth sample, multiply mg/Kg \* 2

\*\*Calculated values from analysis results \*\*\*

LAB #	ID	pH	umhos/cm		-----mg/kg-----										mg/kg		cmolc/Kg		-----Estimated Base Saturation %-----				Total
			EC	P	K	Ca	Mg	S	Na	Fe	Mn	Zn	Cu	B	NO <sub>3</sub> -N+NO <sub>2</sub> -N	ECEC	Ca	Mg	K	Na			
S 4119	SS-6	6.0	72	94	83	1088	77	12	7.3	189	291	8.2	3.2	0.2	3.2	9	58.4	6.8	2.3	0.3	67.8		
	dup			93	83	1127	80	12	7.2	186	294	8.4	3.2	0.2	2.8	10	56.1	6.6	2.1	0.3	65.1		
S 4120	SS-7	5.5	46	65	60	576	57	11	5.6	195	256	4.3	1.3	0.1	0.9	8	35.9	5.9	1.9	0.3	44.0		
S 4121	SS-9	6.8	110	65	90	2712	75	10	7.3	140	114	2.8	1.7	0.3	6.9	17	80.0	3.7	1.4	0.2	85.2		
S 4122	SS-10A	5.6	69	47	83	1505	99	12	8.8	261	163	3.4	1.9	0.2	3.5	13	57.5	6.2	1.6	0.3	65.6		
S 4123	SS-10B	6.0	64	36	79	1324	70	9	6.1	137	171	1.7	1.2	0.2	5.7	11	60.6	5.3	1.9	0.2	68.0		
S 4124	SS-12	5.9	71	90	98	1212	71	11	5.9	152	196	2.1	1.3	0.2	5.3	10	58.1	5.6	2.4	0.2	66.4		
S 4125	SS-16	5.7	62	43	136	992	90	11	4.4	131	197	2.6	1.0	0.1	4.3	10	49.2	7.4	3.5	0.2	60.3		
S 4126	SS-15	6.1	95	21	203	870	96	11	13.1	92	374	2.4	0.7	0.2	4.5	9	49.9	9.1	6.0	0.7	65.6		
S 4127	SS-17	6.9	89	22	48	1884	43	11	10.3	94	215	1.6	1.0	0.2	1.9	12	75.7	2.8	1.0	0.4	79.9		
S 4128	SS-13	7.0	125	25	200	1562	68	11	9.8	87	469	2.5	0.7	0.3	12.7	11	71.5	5.1	4.7	0.4	81.7		
S 4129	SS-1	6.7	136	39	261	1656	98	16	5.7	94	348	3.2	0.7	0.3	6.4	13	64.8	6.3	5.2	0.2	76.5		
S 4130	SS-4	5.7	62	29	131	1846	115	11	7.0	146	79	2.9	0.5	0.1	1.6	16	59.4	6.1	2.2	0.2	67.8		
S 4131	SS-2	6.4	114	82	281	1225	110	16	4.2	118	273	3.1	0.7	0.2	3.0	11	56.9	8.4	6.7	0.2	72.1		
S 4132	SS-8	6.7	105	72	111	1975	61	9	5.1	153	212	2.8	0.7	0.3	7.1	14	72.2	3.7	2.1	0.2	78.1		
S 4133	SS-3	6.9	84	82	87	2030	48	8	10.7	153	222	2.6	1.3	0.3	3.7	13	76.2	3.0	1.7	0.3	81.2		
S 4134	SS-11	5.7	77	48	167	711	94	11	9.0	111	214	6.2	1.5	0.1	4.3	9	40.8	7.9	4.9	0.4	54.1		
S 4135	SS-14	6.1	95	28	148	841	87	14	10.2	103	413	3.6	2.1	0.2	3.9	8	50.4	8.6	4.5	0.5	64.0		

Reference for methods of analysis :

Soil Test Methods from the Southeastern United States      Southern Cooperative Series Bulletin No. 419    SBN# 1-58161-419-5      January 2014  
Southern Extension and Research Activity Information Exchange Group -6  
Edited by: F.J. Sikora

available at following link: <http://www.clemson.edu/sera6/MethodsManualFinalSERA6.pdf>

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL  
CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS							
		C+H Hog Farm - Mount Judea, AR												
SAMPLERS: (Signature)														
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION									
1	4/15/14	12:22 pm	✓		SS-6	1	✓							
2	4/15/14	12:54 pm	✓		SS-7	1	✓							
3	4/15/14	1:23 pm	✓		SS-9	1	✓							
4	4/15/14	1:52 pm	✓		SS-10A	1	✓							
5	4/15/14	2:12 pm	✓		SS-10B	1	✓							
6	4/15/14	2:34 pm	✓		SS-12	1	✓							
7	4/15/14	3:22 pm	✓		SS-16	1	✓							
8	4/15/14	4:45 pm	✓		SS-15	1	✓							
9	4/15/14	5:17 pm	✓		SS-17	1	✓							
10	4/15/14	6:02 pm	✓		SS-13	1	✓							
11	4/16/14	1:54 pm	✓		SS-1	1	✓							
12	4/16/14	2:27 pm	✓		SS-4	1	✓							
13	4/16/14	2:54 pm	✓		SS-2	1	✓							
14	4/16/14	3:26 pm	✓		SS-8	1	✓							
15	4/16/14	4:06 pm	✓		SS-3	1	✓							

Relinquished by: (Signature) <i>Chris Ledick</i>	Date / Time 4/17/14 4:40 pm	Received by: (Signature) <del>Chris Ledick</del>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) <i>Nagwolf</i>	Date / Time 4/17/14 4:40 pm	Remarks <input checked="" type="checkbox"/> Custody Seals Intact? <input checked="" type="checkbox"/> Samples Intact? <input type="checkbox"/> Samples less than or equal 4 deg C (water)
Shipped by:	Airbill Number:			

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL  
CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	REMARKS				
SAMPLERS: (Signature)											
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION						
16	4/16/14	5:02 p.m.	✓		SS-11	1	✓				
17	4/16/14	5:34 p.m.	✓		SS-14	1	✓				
NO FURTHER ENTRIES ON											
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
<i>Chris Q. Lutz</i>		4/17/14 4:40 p.m.									
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks			
				<i>Nig Wolf</i>		4/17/14 4:40 pm		<input checked="" type="checkbox"/> Custody Seals Intact? <input checked="" type="checkbox"/> Samples Intact? <input type="checkbox"/> Samples less than or equal 4 deg C (water)			
Shipped by:				Airbill Number							

DATE	FIELD TEMP	WIND/DIR	DUR	GAL	CROP	METHOD	TOTAL ACR	CONDIT	EQUIPME	POND LINER
12/27/2013	15	45 E AT 4	1	3,000	MIXED	HONEYW	1	DRY	GOOD	GOOD
12/30/2013	15	40 SW AT 7	2	6,000	MIXED	HONEYW	2	DRY	GOOD	GOOD
12/31/2013	15	52 S AT 4	6	24,000	MIXED	HONEYW	9	DRY	GOOD	GOOD
1/16/2014	15	51 NW 16	5	18,000	MIXED	HONEYW	7	DRY	GOOD	GOOD
1/16/2014	17	51 NW 16	2	6,000	MIXED	HONEYW	2	Fair	GOOD	GOOD
1/19/2014	3	59 SSW 8	4	18,000	MIXED	HONEYW	6	DRY	GOOD	GOOD
1/20/2014	15	66 NNW 6	6	36,000	MIXED	HONEYW	13	DRY	GOOD	GOOD
1/25/2014	3	55 NNW 2	5	38,500	MIXED	HONEYW	6	DRY	GOOD	GOOD
11-Mar	13	73 SE 10 to 15	4	33,000	MIXED	HONEYW	11	DRY	GOOD	GOOD
14-Mar	13	75 sww 10	10	57,500	MIXED	HONEYW	19	DRY	GOOD	GOOD
21-Mar	13	70 SSW 7	11	87,000	MIXED	HONEYW	29	DRY	GOOD	GOOD
22-Mar	14	59 ssw 9	6	45,000	MIXED	HONEYW	15	DRY	GOOD	GOOD
24-Mar	11	56 E AT 4	7	51,000	MIXED	HONEYW	17	DRY	GOOD	GOOD
31-Mar	15	70 s se 13	5	42,000	MIXED	HONEYW	14	DRY	GOOD	GOOD
1-Apr	15	72 s 10	5	45,000	MIXED	HONEYW	15	DRY	GOOD	GOOD
1-Apr	17	72 s 10	5	30,000	MIXED	HONEYW	10	DRY	GOOD	GOOD
1-Apr	1	72 s 10	3	18000	MIXED	HONEYW	6	DRY	GOOD	GOOD
1-Apr	4	72 s 10	1	3000	MIXED	HONEYW	1	DRY	GOOD	GOOD

Buffered Field Map  
Field 12  
T15N, R20W, S25  
Mt. Judea Quad



Legend

-  Correct Field Boundaries
-  Unoccupied House
-  Property Line
-  Pond
-  50 Ft Buffer
-  100 Ft Buffer
-  500 Ft Buffer

Latitude and Longitude taken at the  
entrance to the field



Buffered Field Map  
Field 16  
T14N, R20W, S2  
Mt. Judea Quad

Latitude and Longitude taken at  
the entrance of the field



- Legend**
- Correct Field Boundaries
  - 50 Ft Buffer
  - 100 Ft Buffer
  - 500 Ft Buffer
  - Steep Slope buffer

