Arkansas Department of Environmental Quality
ATTN: C&H Draft Denial
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
Water-draft-permit-comment@adeq.state.ar.us

I noticed that your website does not reflect the Interim Order and Stay issued by the Circuit Court on October 17, 2018. A copy of that Interim Order and Stay is attached hereto. Instead of advising the public of this Interim Order and Stay, it appears that the website was updated to state that the comment period for the draft decision to deny Regulation No. 5 Permit No. 5264-W has been extended to October 24, 2018. We believe that the public notice and comment period have been stayed, and that any action by ADEQ on our application for Regulation No. 5 Permit No. 5264-W, including terminating receipt of comments on or after October 24, 2018 at 4:30 pm, would be in violation of the Circuit Court's exclusive jurisdiction over C&H's application for Regulation No. 5 Permit No. 5264-W, and in violation of the Interim Order and Stay, and therefore null and void. We will bring any such matter to the attention of the Circuit Court as appropriate.

In the meantime, C&H is submitting, under protest, the attached Hydrogeologic and Supplemental Workplan as additional information for consideration in support of its application for Regulation No. 5 Permit No. 5264-W.

C&H Hog Farms, Inc.

Jason Henson 10/23/18
Jason Henson, President

HYDROGEOLOGIC AND SUPPLEMENTAL WORKPLAN

C&H Hog Farms, Inc.
Vendor, Arkansas
AFIN: 51-00164
Permit 5264-W

October 16, 2018

Terracon Project No. 35187309

Prepared For:
C&H Hog Farms
Vendor, AR

Prepared by:
Terracon Consultants, Inc.
Bryant, Arkansas

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

C&H Hog Farms, Inc. is submitting this Hydrogeologic and Supplemental Workplan (Workplan) in response the Arkansas Department of Environmental Quality (ADEQ) Statement of Basis draft denial of ADEQ Regulation No. 5 Permit 5264-W for the applicant below:

C&H Hog Farms, Inc.
HC 72 Box 2
Vendor, AR 72683
AFIN: 51-00164 Permit 5264-W

1.1 FACILITY LOCATION

The facility is located as follows: HC 72 Box 2 near the community of Mount Judea in Newton County, Arkansas. The facility is located at the following coordinates:

Latitude 35 55 30.47 N Longitude 93 4 18.42 W

The location of the site is depicted on Figure 1, which was reproduced from a portion of the USGS 7.5-minute series topographic map. The operating facility site is depicted on the site diagram, which is included as Figure 2.

1.2 PERMIT HISTORY AND BACKGROUND

The facility was previously permitted under APC&EC Regulation 6. The applicant submitted a permit application to administratively change from a Regulation 6 permit to a permit under APC&EC Regulation 5, which was received on April 7, 2016, with additional information received on June 29, 2016, December 6, 2017, December 26, 2017, and December 29, 2017. On January 10, 2018, the Department issued a decision to deny this permit application.

The applicant appealed this decision to the Commission, Docket No. 18-001-P. On August 24, 2018, the Commission approved Minute Order 18-20, adopting the Administrative Law Judge's (ALJ) recommended decision as set out in Order No. 14 in Docket No. 18-001-P, and that decision has been appealed to the Circuit Court in Newton County.

The facility operates as a sow-farrowing facility. The permit application proposed the following numbers of swine: 6 boars, 2,252 gestating sows, 420 lactating sows, and 750 nursery pigs.

1.3 PURPOSE, SCOPE, AND APPLICABILITY

ADEQ has denied issuance of the Regulation 5 permit after determining that certain engineering and geological studies are lacking, and more information is needed to support granting of the permit. In particular, ADEQ has requested that the following items be addressed:

- Groundwater Assessment;
- Geologic Assessments;
- Berm Integrity Assessment;
- Pond Construction Quality Assurance;
- Assessment of High Risk Areas of Land Application Sites;
- Pond Levee Integrity and Assessment Requirements; and,
- Emergency Response Preparedness

The purpose of this document is to provide additional documentation on the above referenced items, and to provide guidance on the additional investigative site studies. This will be conducted as a condition of permit approval

1.4 HYDROGEOLOGIC SETTING

The uppermost geologic formation below the site is the Mississippian-age Boone Formation (Haley, et al., 1993). The Boone formation consists of gray, fine- to coarse-grained fossiliferous limestone interbedded with chert. Some sections may be predominantly limestone or chert. The cherts are dark in color in the lower part of the sequence and light in the upper part. The quantity of chert varies considerably both vertically and horizontally. The sequence includes an oolite (Short Creek) member near the top of the Boone Formation in western exposures and the generally chert-free St. Joe Member at its base. Thickness of the Boone Formation ranges from approximately 300 to 350 feet in most of northern Arkansas (McFarland, 2004).

Groundwater below the site is contained within the Ozark Plateaus aquifer system, which consists of three distinct water bearing zones separated by two distinct confining units. The uppermost aquifer is the Springfield Plateau aquifer, which is contained in the Boone Formation and the St. Joe Member of the Boone Formation (Renken, 1998). Additional information concerning site specific geology is discussed below.

1.4.1 Site Hydrogeologic Setting

Four soil borings have previously been advanced at the site and the lithology and groundwater conditions are discussed below.

GTS, Inc. advanced three shallow geotechnical borings, prior to development of site operations, in May 2012. The three soil borings were identified as BH-1, BH-2, and BH-3. The soil borings

were advanced to depths ranging from approximately 11.5 to 18.5 feet below ground surface (bgs). Groundwater was not encountered in the GTS, Inc. soil borings.

Harbor Environmental and Safety (Harbor) advanced one soil boring at the site in September 2016. The soil boring was identified as B-1 and was advanced to a depth of approximately 120.5 feet bgs. According to the Harbor boring log, groundwater was reported to be present during drilling at approximately 59 feet bgs. However, groundwater samples were collected at various depths throughout the boring.

It should be noted that the sonic drilling method used during the Harbor boring "utilized a fairly substantial volume of potable water" once bedrock was encountered to advance the borehole. Therefore, making a definitive interpretation of the depth to first encountered groundwater more difficult.

Soil lithology encountered during the soil borings was generally as follows:

- 0 to 8 feet – lean clay and silty clay
- 8 feet to 13 feet – clay with gravel and chert fragments
- 13 feet to 28 feet – weathered limestone with some clay beds
- 28 feet to 120.5 – competent limestone with some fractures and bedding planes

The soil boring logs are presented in Appendix A. A map illustration of the location of the soil borings is presented in **FIGURE 2**.

2.0 SITE CHARACTERIZATION TASKS

2.1 GROUNDWATER ASSESSMENT

The previous Harbor soil boring drilled at the site indicates that groundwater was encountered around 59 feet bgs, while a second porous zone was encountered around 99 feet bgs. This showed that the groundwater separation requirement was met. In order to further define subsurface conditions and evaluate groundwater flow direction from the waste storage ponds, three (3) groundwater monitoring wells (B-2/MW-2, B-3/MW-3 and B-4/MW-4) will be installed downgradient of the ponds as a condition of permit approval. Once installed, the wells may also be used to monitor groundwater quality at this area.

Soil Borings

The previous Harbor soil boring drilled at the site indicates that approximately 13 feet of unconsolidated regolith (clay, chert and limestone fragments) is present overlying limestone bedrock, and groundwater was encountered around 59 feet bgs, while a second porous zone was encountered around 99 feet bgs. Therefore, it is estimated that the proposed new wells will be drilled to a depth of between 60 to 100 feet bgs (final depths will be determined based on-site geology and depth to groundwater encountered during drilling).

It is anticipated that the borings will be drilled utilizing both hollow stem auger and air hammer drilling techniques. The upper unconsolidated soils will be drilled and sampled using hollow stem augers. Upon encountering bedrock, the borings will be drilled using air hammer methods. Upon reaching a depth of approximately 50 feet bgs, drilling activities will be temporarily suspended every ten feet and the borings left open to observe the potential presence of groundwater and stabilized groundwater conditions. These subcontract drilling services will be conducted by a State of Arkansas licensed driller.

Figure 2 presents the location of previous site exploration borings and location of the three proposed new monitoring wells.

Well Construction

Each of the new monitoring wells will be constructed in accordance with *ASTM D5092 Standard Practice for Design and Installation of Groundwater Monitoring Well in Aquifers*. The borings will be converted into permanent groundwater monitoring wells, which can be incorporated into an on-site groundwater monitoring system. Monitoring wells will be constructed as follows:

- Installation of 10 feet of 2-inch diameter, 0.010-inch machine slotted PVC well screen with a threaded bottom cap;
- Installation of 2-inch diameter, threaded, flush-joint PVC riser pipe to above ground surface;

- Addition of pre-sieved 12/20 grade silica sand for annular sand pack around the well screen from the bottom of the boring to approximately 2 feet above the top of the well screen;
- Placement of 2 feet of coated bentonite pellets above the sand pack;
- Addition of Portland cement/bentonite slurry to near ground surface; and,
- A stick-up monument type steel protective cover and a concrete pad at ground surface.

A licensed Arkansas professional geologist will oversee and document the installation of the groundwater monitoring wells.

Survey

Upon completion of the installation of the new groundwater monitoring wells, the latitude, longitude and top of casing elevations will be surveyed by an Arkansas licensed surveyor. A mark will be placed on the north side of the top of casing on each monitoring well to indicate the survey point. The top of casing elevation will be measured to the nearest 0.01 foot to the North American Vertical Datum (NAVD).

2.2 GEOLOGIC ASSESSMENT

These are “not” in-situ ponds. The excavation area was below the constructed ponds and was approximately three acres in size that reached from elevation ~912.0 to elevation ~885.0. The bottom of pond #2 (top of the clay liner) is 894.3. This exceeds the 5-foot separation requirement from groundwater. The soil berms were initially constructed and then an 18” clay liner was constructed within the soil berm area.

The three groundwater monitoring wells will be used to further define the subsurface geological characteristics of the site as a condition of permit approval. During drilling activities, a log of the drilling conditions and lithology encountered will be recorded by a Terracon geologist. The borings will be logged in the field following descriptions provided in the Unified Soil Classification System (USCS).

The information will be recorded on a boring log, which will become part of the project file. Information recorded may include:

- Boring or well identification;
- Location of the boring and drilling method;
- Names of drilling contractor and logger;
- Start and finish dates;
- Depth at which saturated conditions were first encountered;
- Well construction details and screened interval;
- Water level measurements;
- Lithologic descriptions;
- Color;

- Depths of lithologic boundaries; and,
- General rock drilling hardness, zones of drill bit drop, and drill rig reactions.

Once the wells are installed, downhole geophysical logging of the three borings will be conducted using natural gamma and resistivity logging to define contact depth and thickness of clay and/or bedrock stratagraphic characteristics.

2.3 INVESTIGATIVE REPORT

Upon completion of the field work as stated herein, a Hydrogeologic and Supplemental Investigation Report will be prepared, and results summarized in a written report. The report will be prepared under the supervision of and certified by an Arkansas Registered Geologist. The report will contain a detailed description of field activities and methodology. The report will contain all pertinent maps, figures and geologic cross-sections. The maps and cross sections included in the written report will have a uniform scale and the report will include the following:

- Location of existing wells;
- Boring logs and geophysical testing results;
- Water table and potentiometric flow map;
- Geologic cross sections illustrating:
    - Ø Stratigraphy
    - Ø Water table and/or potentiometric surface
    - Ø Lithologic logs of exploration borings
    - Ø Screened intervals in piezometers
    - Ø Geophysical logs of exploration borings
    - Ø Piezometer installation including screened interval

2.4 BERM INTEGRITY ASSESSMENT

We believe that the ponds were constructed according to the regulations. As previously mentioned, three borings logs were submitted by C&H Hog Farms. These berms and ponds were engineer designed and constructed with an additional 18-inch of constructed and tested clay liner inside the pond areas. These are “not” in-situ ponds that would require additional borings to verify the in-situ materials. The excavation area was approximately three acres that reached from elevation ~912.0 to elevation ~885.0. The bottom of pond #2 (top of the clay liner) is 894.3. This exceeds the 5-foot separation requirement from groundwater. The soil berms were initially constructed and then an 18” clay liner was constructed within the soil berms. The remolded perm test was 5 x 10^{-7} cm/sec which is 2 times better than the 1 x 10^{-6} cm/sec required by Table 10-4 in the AWMFH Handbook.

As the ADEQ previously stated, Karst terrain is characterized by springs, caves, and sinkholes. In addition as previously stated by the ADEQ, “AWMFH, 65l.0702(c) states**: Sinkholes or caves** in karst topography or underground mines may disqualify a site for a waste storage pond or

treatment lagoon. As per the ADEQ Memo by Caleb Osborne (Associate Director) to Becky Keogh (Director) dated January 18, 2017 "**There was no evidence of a release from the storage ponds**". Also, in this same memo "Mr. Hubbard and Mr. Huetter describe fracturing in the limestone and agree that no voids were encountered during the boring. Mr. Hubbard further elaborates that there were no significant karst-related voids identified in the core recovery or by driller observation. There were also twelve (12) reasons given in the "Final Environmental Assessment, C&H Hog Farms, Newton County, Arkansas", Prepared by the USDA dated December 15, 2015 why there were no significant impacts at this facility.

C & H Hog Farms will perform additional safeguards to their facility as a condition of permit approval. The facility will install a geosynthetic liner above the previously installed 18-inch clay liner. The site personnel will also perform weekly inspections of the berms and have a third-party engineer inspect the berms annually. Although the installation of the geosynthetics and berm inspections should reduce the chance of a slope failure, the facility has prepared an enhanced emergency response plan (**APPENDIX D**). These additional safe guards will be discussed later in this report.

2.5 POND CONSTRUCTION QUALITY ASSURANCE

C&H Hog Farms will install an additional synthetic liner system above the previously installed 18-inch clay liner as a condition of permit approval even though we believe that the C&H geology report dated May 18, 2012, The Pond Construction QA/QC Soil Testing report dated April 12, 2013, the USDA Final Environmental Assessment Report dated December 2015, the Harbor Drilling report, and the toe drains installed at the toe of the slope show that the current system is functioning properly. The addition of a 40-mil LLDPE geomembrane will add additional safe-guards to the current system. An additional layer of geomembrane will be installed on the entire crest as a rub sheet to protect the 40-mil LLDPE geomembrane liner. A gas vent will be placed in each pond to reduce the geomembrane from floating. The drawing with the 40-mil LLDPE details and specifications can be found in **APPENDIX B.**

2.6 ASSESSMENT OF HIGH RISK AREAS OF LAND APPLICATION SITES

AWMFH 651.0504 (a)-(n) and Table 5-3 are based on recommendations, not requirements for land application of agricultural waste (nutrients). The facility proposes using 40 fields for land application. The proposed 40 fields consist of 831.7 acres. 611.8 acres of the 831.7 acres are utilized for land application (See **APPENDIX E**). Each delineated field from the Regulation 5 Nutrient Management Plan has been listed with the predominate soil type and the associated soil characteristics from Table 5-3 (See **APPENDIX F**). Most application fields are in the Slight category for the different soil characteristics, with no limitations of land application. A few fields are in the Moderate category with recommendations of reduced or split applications, which are accomplished by using the ARNMP Phosphorous Index planning tool. In some cases, the AWMFH 5-32 Table recommends the incorporation of liquid waste (nutrients) as quickly as possible. Although this practice would be acceptable in a row crop situation, these fields are in

permanent pasture and hay, for which incorporation of liquid nutrients could cause significant and severe erosion, which will lead to greater environmental concerns down the road.

2.7 POND LEVEE INTEGRITY AND ASSESSMENT REQUIREMENTS

The facility will have personnel, at intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the facility. The results of the inspection by a qualified person will be recorded in the facility's operating record (See **APPENDIX C**). The facility will be inspected on a periodic basis (annually) by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the Hog Farm is consistent with recognized and generally accepted good engineering standards.

2.8 EMERGENCY RESPONSE PREPAREDNESS

As previously discussed, the installation of the additional geosynthetics and the berm inspections should reduce the possibility of a slope failure. The facility has compiled an emergency response plan. The C & H Emergency Response Plan is in **APPENDIX D.**

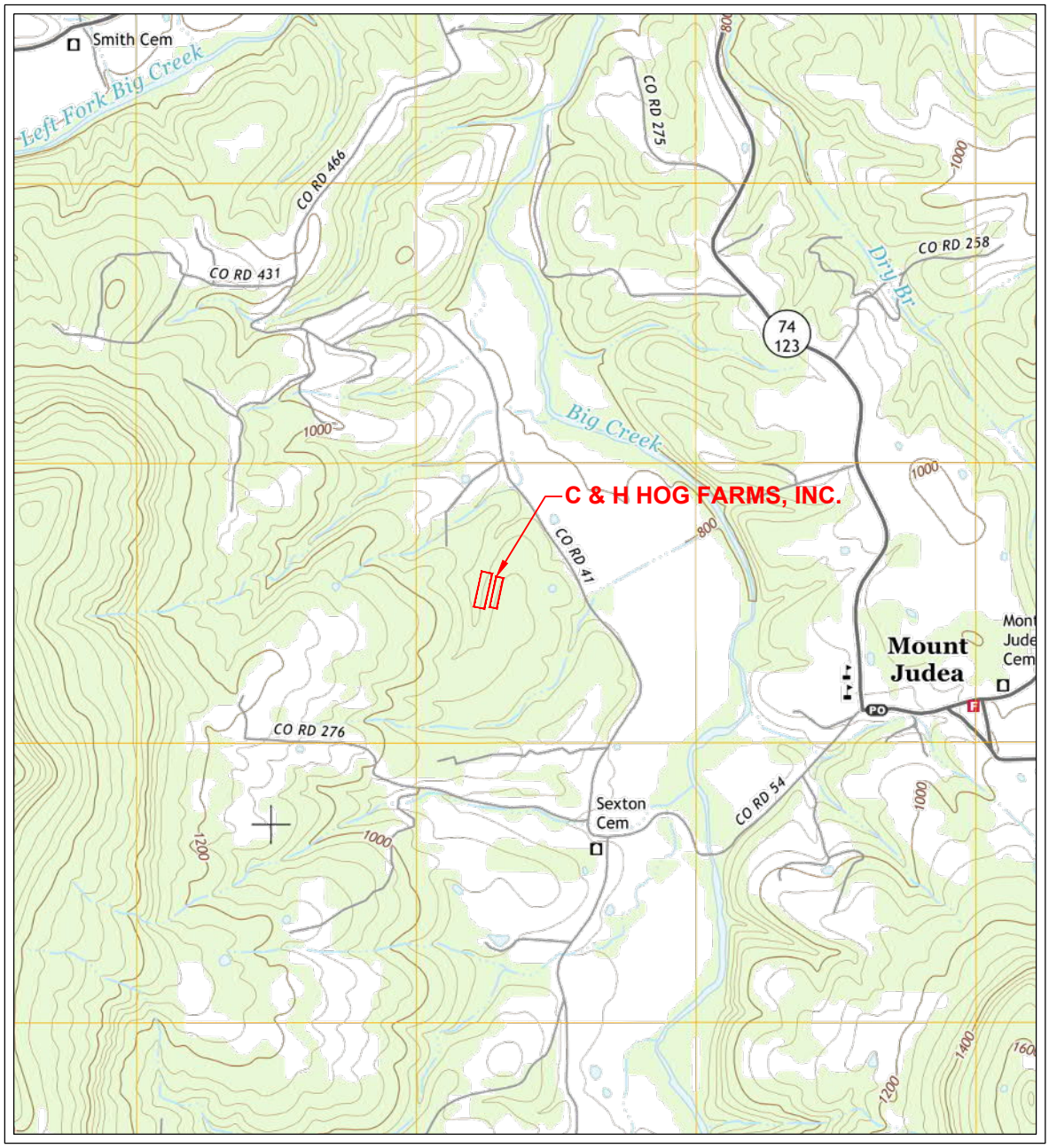
REFERENCES

Haley, B. R., 1993, Geologic Map of Arkansas, Arkansas Geological Commission, Little Rock, Arkansas.

McFarland, J.D., 2004, Stratigraphic Summary of Arkansas (Information Circular 36). Arkansas Geological Commission. Little Rock, Arkansas.

Renken, R.A., 1998, Ground Water Atlas of the United States, Segment 5, Arkansas, Louisiana, Mississippi. Hydrologic Investigations Atlas 730-F, United States Geological Survey, Reston, Virginia.

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

MOUNT JUDEA QUADRANGLE 1975 - Revised 1980 7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: DCM	Project No. 584-001-35187129	Terracon Consulting Engineers and Scientists	SITE LOCATION MAP	FIG. No.
Drawn By: TLB	Scale: AS SHOWN	25809 I-30 SOUTH BRYANT, AR 72022	HYDROGEOLOGIC AND SUPPLEMENTAL WORKPLAN	1
Checked By: DCM	File No. 005	PH. (501) 847-9292 FAX. (501) 847-9210	C&H HOG FARMS INC.	
Approved By: DCM	Date: 10/12/2018		VENDOR ARKANSAS	

LEGEND:

- BH-1 GTS SOIL BORING MAY 2012
- B-1 HARBOR SPRINGS (SEPTEMBER 2016)
- B-2 TERRACON PROPOSED BORING

N

0 50 100 200

SCALE IN FEET

Project Mngr:	DCM
Drawn By:	TLB
Checked By:	TLB
Approved By:	DCM

Project No.	584-001-35187129
Scale:	AS SHOWN
File No.	006
Date:	10/12/2018

Terracon
Consulting Engineers and Scientists
25809 I-30 SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX. (501) 847-9210

EXISTING AND PROPOSED BORING LOCATIONS

HYDROGEOLOGIC AND SUPPLEMENTAL WORKPLAN

C&H HOG FARMS INC.

VENDOR ARKANSAS

FIG. No. 2

Previous Boring Logs
APPENDIX A

LOG OF BORING NO.B-1

Proposed Pond and Building Pads
Mt. Judea, Arkansas

GTS, Inc.
Geotechnical & Testing Services
Fayetteville, AR

Project No.: 12-15049 Location: Shown on Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ / LAB. COHESION, TSF ▲ (0.4, 0.8, 1.2, 1.6) / WATER CONTENT, % ● (PL — LL; 20, 40, 60, 80)	BLOWS PER FT
0					Surface Description=Grass Cover Rootmat = 4"				
			1	12	SILTY SAND medium dense, brown with organics	SM			17
					SILTY CLAY very stiff, tan and orange with organics	CL-ML			
2.5			2	16	LEAN CLAY, with sand very stiff, gray, red and tan	CL			18
			3	18	SANDY LEAN CLAY, with gravel very stiff, orangish brown and red with sandstone fragments	CL			21
5			4	16	SANDY LEAN CLAY, with trace gravel very stiff, brown, tan and red with rootlets and sandstone fragments	CL			30
7.5			5	18	SANDY LEAN CLAY, with gravel very stiff, orange, brown and light gray with chert and sandstone fragments	CL			48
10			6	18					47
12.5			7	18					50
15					BOTTOM OF BORING AT 13½ FEET				
17.5									

COMPLETION DEPTH: 13.5 ft.
DATE: 5/14/2012
RIG: Diedrich D-50

DEPTH TO WATER: DURING DRILLING: DRY
AT COMPLETION: DRY
AT 24 HOURS: N/A

LOG OF BORING NO.B-2

Proposed Pond and Building Pads
Mt. Judea, Arkansas

GTS, Inc.
Geotechnical & Testing Services
Fayetteville, AR

Project No.: 12-15049 Location: Shown on Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ / LAB. COHESION, TSF ▲ (0.4 0.8 1.2 1.6) / WATER CONTENT, % ● (PL — LL, 20 40 60 80)	BLOWS PER FT
0					Surface Description=Grass Cover Rootmat = 2"				
			1	13	SILT, with sand medium dense, brown with organics	SM			25
2.5			2	15	CLAYEY GRAVEL, with sand dense, red and tan with chert fragments	GC			30
			3	18	CLAYEY SAND / SANDY LEAN CLAY dense, very stiff, red and tan with extremely weathered sandstone fragments and chert fragments	CL			30
5			4	18		SC			26
7.5			5	18	FAT CLAY, with sand very stiff, light gray, red and orangish tan	CH			22
10			6	17	SANDY FAT CLAY very stiff, light gray, red and orangish tan	CH			25
12.5			7	15	GRAVELLY FAT CLAY very stiff, light gray, red and orangish tan with chert fragments	CH			65
15			8	18	FAT CLAY, with gravel very stiff, light gray and tan with chert fragments	CH			34
17.5					FAT CLAY very stiff, tan with ferrous nodules	CH			

COMPLETION DEPTH: 18.5 ft.
DATE: 5/15/2012
RIG: Diedrich D-50

DEPTH TO WATER: DURING DRILLING: DRY
AT COMPLETION: DRY
AT 24 HOURS: N/A

LOG OF BORING NO.B-2

Proposed Pond and Building Pads
Mt. Judea, Arkansas

GTS, Inc.
Geotechnical & Testing Services
Fayetteville, AR

Project No.: 12-15049 Location: Shown on Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ / LAB. COHESION, TSF ▲ (0.4 0.8 1.2 1.6) / WATER CONTENT, % ● (PL — LL; 20 40 60 80)	BLOWS PER FT
			9	18					20
					BOTTOM OF BORING AT 18½ FEET				
20									
22.5									
25									
27.5									
30									
32.5									
35									

LOG OF BORING NO.B-3

Proposed Pond and Building Pads
Mt. Judea, Arkansas

GTS, Inc.
Geotechnical & Testing Services
Fayetteville, AR

Project No.: 12-15049 Location: Shown on Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ / LAB. COHESION, TSF ▲ (0.4 0.8 1.2 1.6) / WATER CONTENT, % ● (PL — LL; 20 40 60 80)	BLOWS PER FT
0			1	10	SILT, with sand and trace gravel medium dense, orangish brown with organics and chert fragments	ML			13
2.5			2	18	CLAYEY SAND, with gravel medium dense, orangish tan and brown with chert fragments	SC			29
			3	16	CLAYEY GRAVEL, with sand dense, red and brown with sandstone and chert fragments	GC			38
5			4	16					72
					CHERT SEAM = 6"				
7.5			5	18	FAT CLAY, with sand very stiff, light gray, brown and orangish tan, blocky	CH			24
10			6	11	CLAYEY GRAVEL, with sand very dense, brown and tan with chert fragments	GC			50/5"
12.5					AUGER REFUSAL AT 11½ FEET				
15									
17.5									

COMPLETION DEPTH: 11.5 ft.
DATE: 5/14/2012
RIG: Diedrich D-50

DEPTH TO WATER: DURING DRILLING: DRY
AT COMPLETION: DRY
AT 24 HOURS: N/A

BORING LOG
B-1

C&H Hog Farms Facility
Mt. Judea, Arkansas

Prepared for:
Arkansas Department of Environmental Quality

Date Completed:	9/23/16	Latitude:	35.92279
Hole Diameter:	6.0 in.	Longitude:	-93.073269
Drilling Method:	Rotosonic	Driller:	Cascade Drilling
Sampling Method:	10-Ft. Core Barrel/Sleeve	Logged By:	T. Huetter, P.G.
Total Boring Depth:	120.5 ft.	Company:	Harbor Environmental

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Soil Sample (ft.)	REMARKS
			Assume elevation 915 msl		
0	CL		SILTY CLAY w/ some chert and limestone fragments, yellowish red (5YR 4/6), fill.	B-1S-1 (0-0.5 ft.)	Hand auger to 2.3 ft. (refusal) then commenced sonic drilling.
				B-1S-2 (5.0 ft.)	
10	CH		FAT CLAY, very few chert and limestone fragments, same color as above.	B-1S-3 (10.0 ft.)	
	LS		LIMESTONE, fine-grained, gray (5Y 5/1), fossiliferous.	B-1S-4 (13.5 ft.)	
	CH		Same FAT CLAY as above.	B-1S-5 (18.5 ft.)	Duplicate soil sample collected (BD-1).
20			LIMESTONE, fine-grained, weathered and fractured, gray (5Y 5/1) to buff, fossiliferous.		
			CLAY interval as above.	B-1S-6 (25.0 ft.)	Driller reported water loss at approx. 25 ft.
					890 msl
30			LIMESTONE, competent w/ some fracturing and bedding planes, gray (5Y 5/1), fossiliferous.		
40	LS		Competent, no indication of bedding planes or natural fractures.		5.1' recovery from 28.5 to 38.5 ft. Total approx. 750 gallons potable water added.
50			Some oxidation in natural fractures.		7.8' recovery from 38.5 to 48.5 ft.
60					~9' recovery from 48.5 to 58.5 ft.

BORING LOG
B-1

C&H Hog Farms Facility
Mt. Judea, Arkansas

Prepared for:
Arkansas Department of Environmental Quality

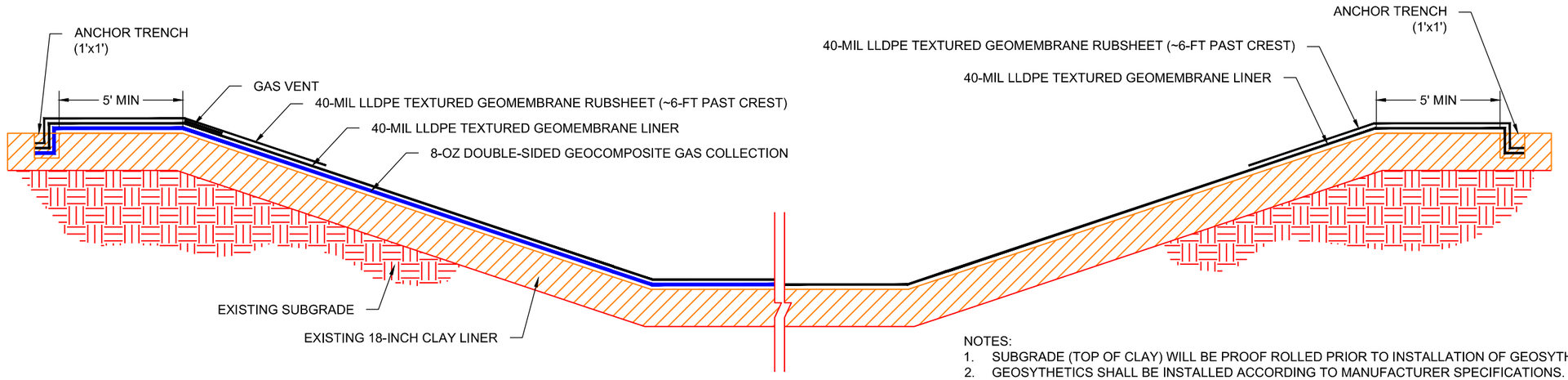
Date Completed:	9/23/16	Latitude:	35.92279
Hole Diameter:	6.0 in.	Longitude:	-93.073269
Drilling Method:	Rotosonic	Driller:	Cascade Drilling
Sampling Method:	10-Ft. Core Barrel/Sleeve	Logged By:	T. Huetter, P.G.
Total Boring Depth:	120.5 ft.	Company:	Harbor Environmental

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Soil Sample (ft.)	REMARKS
60			LIMESTONE, competent w/ some fracturing and bedding planes, gray (5Y 5/1), fossiliferous.		856 msl groundwater
			Fractured		Collect B-1GW-1, BD-2 (duplicate), and B-1GW-2 groundwater samples, Depth: 68.5 ft.
70					7.5' recovery from 58.5 to 68.5 ft.
80					8.5' recovery from 68.5 to 78.5 ft.
			Increased fractures.		
	LS				~9' recovery from 78.5 to 88.5 ft.
90					
					10' recovery from 88.5 to 987.5 ft. Collect B-1GW-3 groundwater sample Depth: 98.5 ft.
100			LIMESTONE, competent, interbedded with thin to medium beds of shaley limestone, gray (5Y 5/1), fossiliferous.		816 msl High porosity zone
110					Driller switched to longer core barrel. 11' recovery from 98.5 to 109 ft.
					11' recovery from 109 to 120.5 ft. Collect B-1GW-4 and B-1GW-5 groundwater samples, TD = 120.5 ft.
120					

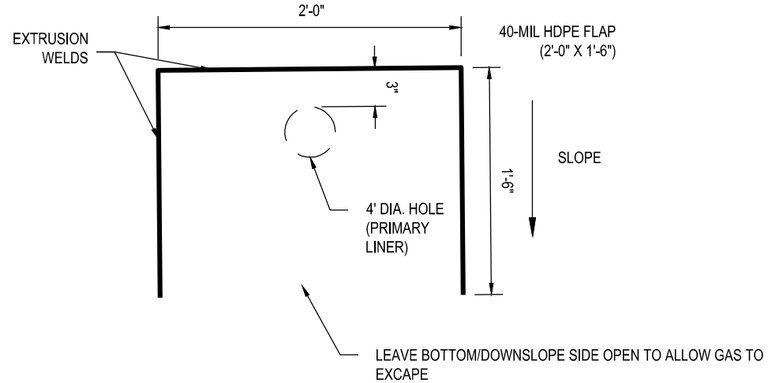
Geophysical logging conducted on borehole (9/23/16) then boring grouted to land surface with Portland cement via tremmie method. Grout topped off on 9/26/16. Full thickness of limestone bedrock cores maintained in core boxes.

11-01-2016 C:\Projects\C&H Hog Farm\B-1 Boring Log.bor

Pond Detail with Geosynthetics
APPENDIX B



NOTES:
1. SUBGRADE (TOP OF CLAY) WILL BE PROOF ROLLED PRIOR TO INSTALLATION OF GEOSYTHETICS.
2. GEOSYTHETICS SHALL BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS.
3. DOUBLE-SIDED GEOCOMPOSITE GAS COLLECTION LINE SHALL BE ONE ROLL WIDTH WIDE RUNNING FROM THE CREST TO THE CENTER EACH POND. THERE WILL BE ONE GAS COLLECTION LINE PER POND DUE TO SMALL SIZE.
4. DOUBLE-SIDED GEOCOMPOSITE MATERIAL SHALL BE SKAPS TN-220-2-8 OR EQUIVALENT. THE MATERIAL WILL BE APPROVED BASED ON MANUFACTURER'S CERTIFICATES.
5. 40-MIL LLDPE TEXTURED GEOMEMBRANE SHALL BE INSTALLED ACROSS EACH POND
   - 5.1. MATERIAL SHALL CONFORM TO SPECIFICATIONS IN TABLES 1A AND 1 B.
   - 5.2. TRIAL SEAMS SHALL BE PERFORMED PRIOR TO WELDING.
   - 5.3. TRIAL SEAMS, NON-DESTRUCTIVE TESTING, AND DESTRUCTIVE TESTING SHALL MEET SPECIFICATIONS IN TABLE 1B.
6. 40-MIL LLDPE TEXTURED GEOMEMBRANE RUBSHEET SHALL BE INSTALLED ALONG THE CREST OF EACH POND.
   - 6.1. TRIAL SEAMS SHALL BE PERFORMED PRIOR TO WELDING
   - 6.2. TRIALS SEAMS AND NON DESTRUCTIVE TESTING SHALL MEET SPECIFICATIONS IN TABLE 1B.
   - 6.3. DESTRUCTIVE TESTING IS NOT REQUIRED ON THE RUBSHEET.
7. RUBSHEET SEAMS SHALL BE FUSION WELDED.
8. ANCHOR TRENCH SHALL BE BACKFILLED WITH CLAY RICH MATERIAL.



GAS VENT

DETAIL 1

SCALE: N.T.S.

TABLE 1A
40 mil LLDPE Textured MQC Specifications

Resin Manufacturer (1)			
Test	**Method(2)**	**Testing Frequency**	**Min. Requirements (5)**
Density	ASTM D 1505 ASTM 792, Meth B	200,000 lb and per batch	> 0.915 g/cm3
Melt Flow Index	ASTM D 1238 (190°C/2.16 kg)	200,000 lb and per batch	≤ 1.0 g / 10 min.
Manufacturer's Quality Control			
Thickness, nominal	ASTM D 5994	Each Roll	40 mil
Thickness, Min. ave	ASTM D 5994	Each Roll	38 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994	Each Roll	36 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994	Each Roll	34 mil
Asperity Height (Min. ave.) 3	GRI GM13 ASTM D 7466	Each Roll	16 mil
Density	ASTM D 1505	Per 200,000 lb.	0.939 g/cm3
Carbon Black Dispersion 4	ASTM D 5596	Per 45,000 lb	Category 1 or 2
Carbon Black Content 6	ASTM D 1603 ASTM D 4218	Per 20,000 lb	2 to 3 %
Tensile Properties:			
Break	ASTM D 6693 Type IV	Per 20,000 lb	
Strength	Dumbbell, 2 ipm		60 lb/in
Elongation	G.L. = 2.0 inches		250%
Tear Resistance	ASTM D 1004	Per 45,000 lb	22 lb
Puncture Resistance	ASTM D 4833	Per 45,000 lb	44 lb
Conformance Testing by CQA Engineer			
Thickness, nominal	ASTM D 5994	1 per 100,000 sf	60 mil
Thickness, Min. ave	ASTM D 5994		57 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994		54 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994		51 mil
Asperity Height (Min. ave.)	GRI GM12	1 per 100,000 sf	16 mil
Density	ASTM D 1505	1 per 100,000 sf	0.94 g/cm3
Carbon Black Dispersion 2	ASTM D 5596	1 per 100,000 sf	Category 1 or 2
Carbon Black Content	ASTM D 1603 ASTM D 4218	1 per 100,000 sf	2 to 3 %
Tensile Properties:			
Break	ASTM D 6693 Type IV	1 per 100,000 sf	
Strength	Dumbbell, 2 ipm		115 lb/in
Elongation	G.L. = 2.0 inches		100%
Yield			
Strength			132 lb/in
Elongation			12%
Tear Resistance	ASTM D 1004	1 per 100,000 sf	45 lb
Trial Seams			
Shear	ASTM D 6392	Every 5 (five) hours of	Shear 121 ppi
Peel Fusion3		seaming.	Peel 98 ppi
Peel Extrusion3			Peel 78 ppi
Destructive Seam Testing			
Shear	ASTM D 6392	1 per 500 linear feet (LF) of seam	Shear 121 ppi
Peel Fusion3			Peel 98 ppi
Peel Extrusion3			Peel 78 ppi
Non-destructive Seam Field Testing			
Air Pressure	GRI GM6	Dual track fusion weld seams	Min 27 psi, held for 5 minutes; losing ≤ 3 psi; puncture opposite end after test to check for continuity
Vacuum	ASTM D 4437	Extrusion Seams	3 to 5 in Hg held for ≥ 15 sec.
Oxidation Induction Time (OIT)			
Standard OIT	ASTM D 3895	200,000 lb and per batch	100 min
High Pressure OIT	ASTM D 5885		400 min
Oven Aging @ 850C			
Standard OIT	ASTM D 3895	Per each formulation	35%
High Pressure OIT	ASTM D 5885		60%
UV Resistance			
High Pressure OIT	ASTM D 5885	Per each formulation	35%

1. The polyethylene resin from which the geomembrane is made will generally be in the density range of 0.926 g/ml or lower, and have a melt index value per ASTM D1238 of less than 1.0 g/10 min. This refers to the natural, i.e., nonformulated, resin. The resin shall be virgin material with no more than 10% rework. If rework is used, it must be a similar HDPE as the parent material. No post consumer resin (PCR) of any type shall be added to the formulation.
2. Test to be performed according to the latest test method as approved by the certifying engineer.
3. Textured geomembrane shall generally have uniform texturing appearance. It shall be free from agglomerated texturing material and such defects that would affect the specified properties of the geomembrane.
4. Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
5. If 40-mil LLDPE smooth is used, it must meet GRI-GM13 standards. Use of smooth geomembrane instead of textured geomembrane must be approved by the certifying engineer.
6. Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

TABLE 1B
40 mil LLDPE Textured Conformance and Field Testing Specifications

Resin Manufacturer			
Test	**Method(1)**	**Testing Frequency**	**Min. Requirements**
Density	ASTM D 1505 ASTM 792, Meth B	200,000 lb and per batch	> 0.932 g/cm3
Melt Flow Index	ASTM D 1238 (190°C/2.16 kg)	200,000 lb and per batch	≤ 1.0 g / 10 min.
Manufacturer's Quality Control			
Thickness, nominal	ASTM D 5994	Each Roll	60 mil
Thickness, Min. ave	ASTM D 5994	Each Roll	57 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994	Each Roll	54 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994	Each Roll	51 mil
Asperity Height (Min. ave.)	GRI GM12	Each Roll	16 mil
Density	ASTM D 1505	Per 200,000 lb.	0.94 g/cm3
Carbon Black Dispersion 2	ASTM D 5596	Per 45,000 lb	Category 1 or 2
Carbon Black Content	ASTM D 1603 ASTM D 4218	Per 20,000 lb	2 to 3 %
Tensile Properties:			
Break	ASTM D 6693 Type IV	Per 20,000 lb	
Strength	Dumbbell, 2 ipm		115 lb/in
Elongation	G.L. = 2.0 inches		100%
Yield			
Strength			132 lb/in
Elongation			12%
Tear Resistance	ASTM D 1004	Per 45,000 lb	45 lb
Puncture Resistance	ASTM D 6392	Per 45,000 lb	120 lb
Conformance Testing by CQA Engineer			
Thickness, nominal	ASTM D 5994	1 per 100,000 sf	40 mil
Thickness, Min. ave	ASTM D 5994		38 mil
Thickness, lowest indiv. For 8 of 10 spec.	ASTM D 5994		36 mil
Thickness, lowest indiv. For 1 of 10 spec.	ASTM D 5994		34 mil
Asperity Height (Min. ave.)	GRI GM13 ASTM D 7466	1 per 100,000 sf	16 mil
Density	ASTM D 1505	1 per 100,000 sf	0.939 g/cm3
Carbon Black Dispersion 2	ASTM D 5596	1 per 100,000 sf	Category 1 or 2
Carbon Black Content 3	ASTM D 1603 ASTM D 4218	1 per 100,000 sf	2 to 3 %
Tensile Properties:			
Break	ASTM D 6693 Type IV	1 per 100,000 sf	
Strength	Dumbbell, 2 ipm		60 lb/in
Elongation	G.L. = 2.0 inches		250%
Tear Resistance	ASTM D 1004	1 per 100,000 sf	22 lb
Trial Seams			
Shear	ASTM D 6392 GRI GM 19	Every 5 (five) hours of	Shear 60 ppi
Peel Fusion4		seaming.	Peel 50 ppi
Peel Extrusion4			Peel 44 ppi
Destructive Seam Testing			
Shear	ASTM D 6392 GRI GM 19	1 per 500 linear feet (LF) of seam	Shear 60 ppi
Peel Fusion4			Peel 50 ppi
Peel Extrusion4			Peel 44 ppi
Shear Elongation at break	GRI GM19	1 per 500 linear feet (LF) of seam	
Fusion 4			50%
Extrusion 4			50%
Peel Separation	GRI GM19	1 per 500 linear feet (LF) of seam	
Fusion			25%
Extrusion			25%
Non-destructive Seam Field Testing			
Air Pressure	GRI GM6	Dual track fusion weld seams	Min 30 psi, held for 5 minutes; losing < 4 psi; puncture opposite end after test to check for continuity
Vacuum	ASTM D 4437	Extrusion Seams	4 to 8 psi held for ≥ 10 sec.

1. Test to be performed according to the latest test method as approved by the certifying engineer.
2. Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
3. Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.
4. Four (4) out of five (5) specimens must meet the requirements. The 5th specimen can be as low as 80% of the listed values. For peel adhesion, seam separation shall not extend more than 25 percent in the same interface. Testing shall be discontinued when the sample has visually yielded a sample. Elongation measurements should be omitted for field testing.

FIGURE 1

DESIGNED BY:	DCM
DRAWN BY:	TLB
APPVD. BY:	DCM
SCALE:	N.T.S
DATE:	9/24/2018
JOB NO.	584-001-35187129
ACAD NO.	004
SHEET NO.:	16 OF 16

POND DETAILS

GESTATION-FARROWING FARM
C & G HOG FARMS
NEWTON COUNTY ARKANSAS

Terracon
Consulting Engineers and Scientists
25809 I-30 SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX. (501) 847-9210

REV.	DATE	BY	DESCRIPTION

Berm Integrity Inspections
APPENDIX C

Pond Levee Integrity and Assessment Requirements
C & H Farms

The C & H Hog Farms (Facility) will choose a site employee(s) to be the qualified person to perform the inspection on the facility.

- The facility will examined by a qualified person as follows:
    - At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the facility
    - The results of the inspection by a qualified person will be recorded in the facility's operating record.
- *Annual inspections by a qualified professional engineer.*
    - The facility will be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the Hog Farm is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:
        - A review of available information regarding the status and condition of the facility, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and
        - A visual inspection of the CCR unit to identify signs of distress or malfunction of the Facility.
- *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:
    - Any changes in geometry of the structure since the previous annual inspection;
    - Any appearances of an actual or potential structural weakness of the Facility, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the Facility; and
    - Any other change(s) which may have affected the stability or operation of the Facility since the previous annual inspection.

If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

Pond Levee Integrity and Assessment
C & H Farms

Weekly Pond Levee Inspection

Inspected by: _____

Inspection Date: _____

Storage Levels: Pond #1 _____
Pond #2 _____

Any appearance of an actual or potential structural weakness of the pond
a. Any signs of sliding or sloughing of the soil layer that might indicate a slope failure.
_____ No
_____ Yes

If yes, recommended corrective action/responsible party
_____
_____
_____

Corrective Action Completed _____
(Sign and Date)

Any appearance of erosion from storm water.
a. Any signs of erosion to berms or letdowns?
_____ No
_____ Yes

If yes, recommended corrective action/responsible party
_____
_____
_____

Corrective Action Completed _____
(Sign and Date)

Any Observations:
_____
_____
_____
_____
_____
_____

Emergency Action Plan
APPENDIX D

Emergency Action Plan

C&H Hog Farms, Inc.
Vendor, Arkansas
Permit No. 5264-W
AFIN: 51-00164

October 2018
Project No. 35187129

Prepared for:
C&H Hog Farms, Inc
HC 72 Box 2
Vendor, AR 72683
(870) 434-5004

Prepared by:
Terracon Consultants, Inc.
25809 Interstate 30 South
Bryant, Arkansas 72022

TABLE OF CONTENTS

List of Figures

List of Appendixes

1.0 FARM EMERGENCY CONTACT INFORMATION

1.1 Owner Emergency Contacts

Primary Contact: Jason Henson
Phone: 870-434-5004
Cell: 870-688-1318
Address: HC 72 Box 2
Vendor, AR

Alternate Contact: Richard Campbell
Phone: 870-434-5004
Cell: 870-715-0753
Address: HC 72 Box 2
Vendor, AR 72683

Alternate Contact: Philip Campbell
Phone: 870-434-5004
Cell: 870-715-0754
Address: HC 72 Box 2
Vendor, AR 72683

1.2 Farm Information

Name of Farm: C & H Hog Farms, Inc.
Address of Farm: HC 72 Box 2, Vendor AR 72683
Directions to Farm: approx. 1.6 mi west of Mt. Judea, AR on County Road 41
Storage Site(s) address/location (if different)

1.3 Neighbors Contacts

Name: Shawn Ricketts
Phone: 870-434-5927
Cell:
Address: HC 72 Box 3
Vendor, AR 72683

Name: Donna Freeman
Phone: 870-434-5023
Cell:
Address: HC 72
Mount Judea, AR 72655

Name: Charles Campbell
Phone: 870-434-5330
Cell:
Address: HC 72 Box 15
Mount Judea, AR 72655

Name: Abandoned
Phone:
Cell: unassigned
Address:

Name: Chuck Pridmore
Phone:
Cell:
Address: HC 72
Mount Judea, AR 72655

2.0 AGENCY EMERGENCY TELEPHONE NUMBERS

Fire/Police/Medical Central Dispatch	
Emergency phone	911
Hospital	
North Arkansas Regional Medical Center	870-414-4000
Veterinarian	
Dr. Kayla Blake	251-586-1920
Fire Department	
Mt. Judea VFD	911
National Emergency Response	
National Response Center (NRC)	800-424-8802
United States EPA, Region 6 24-Hour Spill Reporting	866-372-7445
State Emergency Response	
Arkansas Department of Emergency Management (ADEM) Spill Response (24 / 7)	800-322-4012
ADEQ Main Office	501-682-0744
Response/Cleanup Contractors	
TAS Environmental Services, L.P. (Cleanup Contractor)	888-654-0111
Waste Services, Inc. (Cleanup Contractor)	501-888-4323
Environmental Consultants	
Terracon	501-249-4334

3.0 CHEMICAL INFORMATION

Number	Product Name	Max. Lbs./Gals on site	Active Ingredient (AI)	SDS	Seasons on Hands SP=Spring S=Summer F=Fall W=Winter YR=Year-Round	Building or Area Stored
1	Allflex Tag Pen	20 ct	Liquefied Petroleum Gas, Ethanol	See Appendix A	YR	Farrowing Barn Storage Room
2	Chlorhexidine Solution 2%	8 gal	Chlorhexidine Gluconate	See Appendix A	YR	Farrowing Barn Storage Room
3	Clorox Disinfecting Wipes – Citrus Blend	15 lbs	Ethylene glycol monohexyl ether	See Appendix A	YR	Farrowing Barn Office
4	Clorox Toilet Bowl Cleaner w/ Bleach	2 gal	Sodium hypochlorite	See Appendix A	YR	Farrowing Barn Office
5	Dial for Men Hydrofresh	4 gal	Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	See Appendix A	YR	Farrowing Barn Office
6	Gain Laundry Detergent	80 lb	Tetramethyl Acetyloctahydronaphthalenes	See Appendix A	YR	Farrowing Barn Office
7	Germicidal Ultra Bleach	120 gal	Sodium hypochlorite	See Appendix A	YR	Farrowing Barn Storage Room & Office
8	Great Value Glass Cleaner	3 gal	Ethylene glycol, monobutyl ether acetate	See Appendix A	YR	Farrowing Barn Office
9	Permectrin II	10 gal	Permethrin	See Appendix A	YR	Farrowing Barn Storage Room
10	Prima Spray-On II Blue Livestock Marking Dye	16 gal	Ethanol, Liquefied Petroleum Gas	See Appendix A	YR	Farrowing Barn Storage Room
11	Prima Glo Fluorescent Livestock Marking Paint – Green	16 gal	Liquefied Petroleum Gas, Ethanol	See Appendix A	YR	Farrowing Barn Storage Room
12	Prima Glo Fluorescent Livestock Marking Paint – Orange	16 gal	Liquefied Petroleum Gas, Ethanol	See Appendix A	YR	Farrowing Barn Storage Room
13	Prima Glo & Prima Spray On & Prima Marc	16 gal	Acetone, Heptane, Isobutane/Propellant Blend	See Appendix A	YR	Farrowing Barn Storage Room
14	Scrubbing Bubbles Foaming Bleach Bathroom Cleaner	2 gal	Sodium carbonate, Sodium hypochlorite, Sodium chloride	See Appendix A	YR	Farrowing Barn Office
15	Starbar QuikStrike Fly Bait	120 lb	Dinotefuran	See Appendix A	YR	Farrowing Barn Office
16	Swine-O-Dyne	5 gal	Phosphoric acid (Orthophosphoric acid)	See Appendix A	YR	Farrowing Barn Storage Room
17	Synergize	20 gal	Quaternary ammonium compounds	See Appendix A	YR	Farrowing Barn Storage Room

4.0 FARM FLAMMABLES AND REFRIGERANTS

Fuel Type	Total Capacity and Container Type	Max. Lbs./Gals on site	Seasons on Hands SP=Spring, S=Summer, F=Fall, W=Winter YR=Year-Round	Building or Area Stored (Location Description)
Diesel Fuel Gasoline	500 gal steel tanks	1,000 gal	YR	North and South ends of buildings
Fuel Oil	n/a	n/a	n/a	n/a
New Oil (Motor and Hydraulic)	5 gal plastic containers	15 gal	YR	Storage container, south end of buildings
Used Oil (oil burner storage)	n/a	n/a	n/a	n/a
Propane (pressure washers, heat, water heater)	1,000 gal steel tanks	5,000 gal	YR	Two (2) located on North end of buildings, Three (3) located on South end of buildings
Oxygen/Acetylene (cart tanks vs handheld tanks)	n/a	n/a	n/a	n/a
Kerosene	n/a	n/a	n/a	n/a
Anhydrous Ammonia for Refrigeration	n/a	n/a	n/a	n/a
Carbon Dioxide (used for piglet euthanizing)	7 lb steel cylinders	14 lbs	YR	Generator Room

5.0 FARM RESPONSE RESOURCES

Resource	Farm Location
Water Sources (Blow-off valve, which can be used as fire hydrant and Frost-Free water hydrant)	North end of Farrowing Barn
Shovels	Farrowing Barn Storage Room, EcoDrum shed
Fire Extinguishers (Employees trained in use)	Farrowing Barn Office & Storage Room, Gestation Barn Entry
Excavation Equipment	Contact Carl Royce 870-688-8991
Medical Kits	Farrowing Barn Office
Flashlights/Generator	Generator Room
Absorbent Materials	Farrowing Barn Office & Storage Rom
Personal Protective Equipment: (chemical-resistant) suits, gloves, boots	Farrowing Barn Office & Storage Room
Manure Pumping Equipment/Contractor Empty Tanks or Containers (to hold manure, liquids, absorbent material or contaminated material/soil)	North end of Farrowing Barn
Safety Data Sheets (SDSs): All employers are required to have a Safety Data Sheet (SDS) for each hazardous chemical stored or used in the workplace and to make SDSs available to employees.	Farrowing Barn Office & accessible via internet
Needle Disposal Containers	Farrowing Barn Storage Room
Showering Area (Biosecurity measure for protection against transmission of disease to swine population & first aid measure for employees)	Farrowing Barn Office

6.0 EMERGENCY ACTION PLANS FOR MANURE

6.1 Breach of Manure or Commercial Fertilizer Storage

Stop any flow into storage area, build containment dams, add soil to berms and apply manure/fertilizer from discharge to fields at rates described in Nutrient Management Plan. Prepare a Spill or Release Report (See Appendix B).

6.2 Manure Spill in the Field

Stop applications, build containment dams and collect material. Apply collected material at rates described in Nutrient Management Plan. Prepare a Spill or Release Report (See Appendix B).

6.3 Manure Storage Volume Enters the Freeboard Area

Land apply manure at rates described in Nutrient Management Plan to fields that are least likely to pose a discharge risk. Pump manure to an isolated area of a field with poor drainage to avoid berm overtopping and structure failure. Prepare a Spill or Release Report (See Appendix B).

6.4 Spill on Roadway

Human injuries, if present, take precedence. Stop any additional spills, build containment dams, remove material and land apply at rates described in Nutrient Management Plan. Contact the road commission and drain commission. Do not wash material into roadside ditches or surface water. Prepare a Spill or Release Report (See Appendix B) .

6.5 Runoff of Manure from the Field

Stop applications, plow a diversion trench and remove manure/fertilizer, if necessary. Prepare a Spill or Release Report (See Appendix B).

N

0 100 200 400

SCALE IN FEET

Project Mngr:	DCM
Drawn By:	TLB
Checked By:	TLB
Approved By:	DCM

Project No.	584-001-35187129
Scale:	AS SHOWN
File No.	001
Date:	9/24/2018

Terracon
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FACILITY LOCATION MAP

EMERGENCY ACTION PLAN

C&H HOG FARMS INC.

VENDOR ARKANSAS

FIG. No. 1

N

0 50 100 200

SCALE IN FEET

Project Mngr:	DCM
Drawn By:	TLB
Checked By:	TLB
Approved By:	DCM

Project No.	584-001-35187129
Scale:	AS SHOWN
File No.	002
Date:	9/24/2018

Terracon
Consulting Engineers and Scientists
25809 I-30 SOUTH BRYANT, AR 72022
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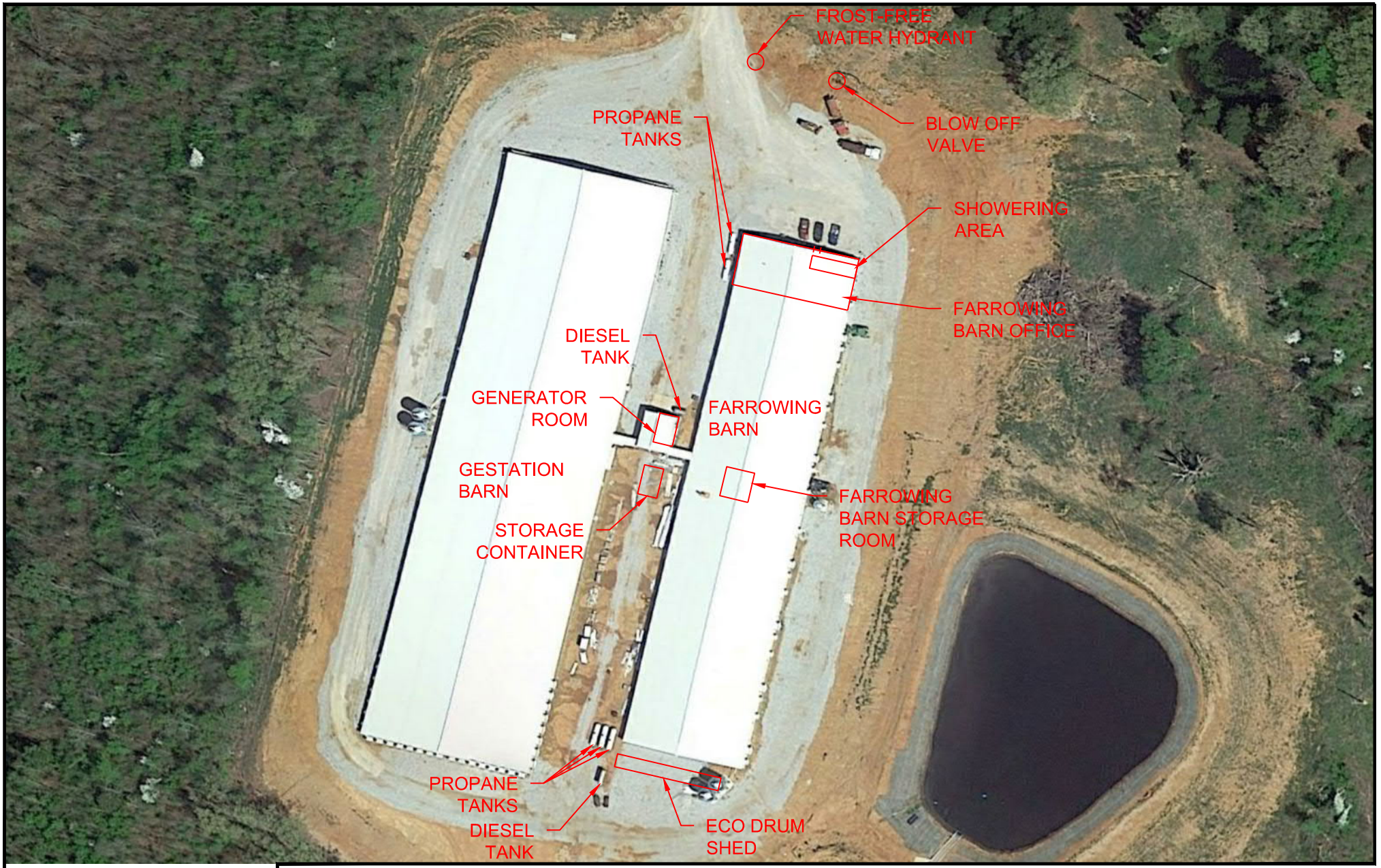
FACILITY LAYOUT MAP

EMERGENCY ACTION PLAN

C&H HOG FARMS INC.

VENDOR ARKANSAS

FIG. No. 2



N

0 25 50 100

SCALE IN FEET

Project Mngr:	DCM
Drawn By:	TLB
Checked By:	TLB
Approved By:	DCM

Project No.	584-001-35187129
Scale:	AS SHOWN
File No.	003
Date:	9/24/2018

Terracon
Consulting Engineers and Scientists
25809 I-30 SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX. (501) 847-9210

BARN LAYOUT

EMERGENCY ACTION PLAN

C&H HOG FARMS INC.

VENDOR ARKANSAS

FIG. No.

3

APPENDIX A
SDS

6537. C13420

Material Safety Data Sheet

Section 1 Product and Company Identification

Product Name: **ALLFLEX TAG PEN**
MSDS #: S104 **Date Prepared:** 01/11/95
Revision #: 1.2 **Date Revised:** 08/11/10

Manufacturer:
ALLFLEX USA, INC.
2805 East 14th St.
Dallas/Ft. Worth Airport, TX
75261-2266
Information Telephone: 214-456-3686
Emergency Telephone: 847-956-7600
Chemical Formula: Mixture

Supplier:
EEC use):

CAS No.: Not applicable.. **Synonyms:** Not applicable.. **Derivation:** Not applicable..
General Use: Marking pen for plastic ear tags.

Section 2 Composition/Information on Ingredients

Ingredient	CAS No.	%
Xylene [1,4,5]	1330-20-7	26-36
ACGIH: (TLV-TWA) 100ppm, (TLV-STEL) 150ppm OSHA: TWA=100ppm EPA: RCRA designation is U239, CERCLA RQ is 1000 lbs., EPCRA sec. 313 de minimus concentration = 1.0% SARA: Health Assessment Rank = 72 SDWA: MCL = 10 mg/l, MCLG = 10 mg/l		
Methyl Isobutylketone	108-01-1	10-25
ACGIH: (TLV-TWA) 50 ppm, (TLV-STEL) 75 ppm		
n-Butanol [1,3,4,5,6]	71-36-3	10-20
ACGIH: TWA (ceiling) = 50 ppm OSHA: TWA = 100 ppm EPA: CERCLA RQ = 5000 lbs.; RCRA U031		
Ethylene Glycol Phenol Ether	122-36-3	10-20
2-Amino-2-methyl-1-propanol [3,5]	124-68-5	1-2

(For Section 2 footnotes: See Section 15)

Section 3 Hazards Identification

EMERGENCY OVERVIEW: DANGER: Contains xylene and MIBK. Harmful or fatal if swallowed. If swallowed, do not induce vomiting. Call a physician immediately. Flammable. Keep away from heat or flame. Vapor harmful. Avoid contact with eyes or prolonged contact with skin, Use only in well ventilated area. KEEP OUT OF REACH OF CHILDREN.

POTENTIAL HEALTH EFFECTS:
Primary Entry Routes: Eyes, Skin, Ingestion, Inhalation

Acute Effects

Eyes: Can cause severe irritation, redness, tearing, blurred vision.

Skin: Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.

Ingestion: Can cause gastrointestinal irritation, nausea, vomiting, and diarrhea; aspiration into lungs can cause chemical pneumonitis which can be fatal.

Inhalation: Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation.

Chronic Effects

Eyes: Not determined.

Skin: Not determined.

Ingestion: Not determined.

Inhalation: Not determined.

Carcinogenicity: Not applicable.

Target Organ Effects: Not determined.

Medical Conditions Aggravated by Long-Term Exposure: Not determined.

Other Information: Not applicable.

HMIS Rating: Health 2, Flammability 3, Reactivity 0

Section 4 First Aid

Eye Contact: Flush with large amounts of water and get medical attention.

Skin Contact: Wash with soap and water; remove contaminated clothing and launder before reuse.

Ingestion: Do not induce vomiting, keep person warm, quiet, and get medical attention.

Inhalation: Remove affected person to fresh air, administer oxygen if breathing is difficult, apply artificial respiration and get medical attention if breathing has stopped.

Other Information: Not applicable.

Section 5 Fire Fighting Measures

Flash Point (method): Xylene: 81°F/27°C (toc)

Autoignition Temperature: Not determined.

LEL: 1.0% **UEL:** 7.0 for xylene.

Flammability Classification: Flammable liquid.

Extinguishing Media: Regular foam, carbon dioxide, dry chemical.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide.

Unusual Fire or Explosion Hazards: Vapors are heavier than air and may travel along the ground and be ignited by remote ignition sources.

Fire-Fighting Instructions/Equipment: Keep personnel removed and upwind of any fire. Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

NFPA Rating: Health 2, Flammability 3, Reactivity 0

Section 6 Accidental Release Measures

Use recommended personal protective equipment (see Section 8).

Small Spill: Remove sources of ignition and provide ventilation. Small quantities may be picked up with absorbent material.

Large Spill: Remove sources of ignition and provide ventilation. Large spills may be absorbed with sawdust or other suitable absorbent.

Section 7 Handling and Storage

Handling Precautions: Use recommended personal protective equipment (see Section 8). Wash thoroughly after handling.

Storage Requirements: Store in a cool, dry area; away from excessive heat or sources of ignition.

Section 8 Exposure Controls/Personal Protection

Eye/Face Protection: Safety glasses or goggles.
Skin Protection: Rubber gloves.
Respiratory Protection: For organic solvent vapors.
Other Personal Protective Equipment: Eye wash and safety shower.
Engineering Controls: Normal room ventilation. Local exhaust in confined areas.
Administrative Controls: Users of this product must be properly trained and qualified in its use.
Other Information: Not applicable.

Section 9 Physical and Chemical Properties

Appearance/Physical State: Marking pen containing black liquid ink.
Odor: Organic solvent.
Odor Threshold (ppm): Not determined.
Specific Gravity (H_2O = 1): 0.91 - 0.93
Solubility in Water: Insoluble.
Coefficient of Water/Oil Solubility: <1
pH: Not applicable.
Melting Point: Not applicable.
Boiling Point: 232°F/111°C for xylene.
Vapor Pressure (mm Hg at 20°C): 9.5 for xylene.
Vapor Density (Air = 1): 3.6 for xylene.
Evaporation Rate (n-BuAc=1): 0.75 for xylene
V.O.C.: 83 - 91%(w/w), Not determined(v/v), 6.4 - 7.0 lbs./gal.

Section 10 Stability and Reactivity

Chemical Stability: Stable
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Not applicable.
Chemicals to Avoid: Strong oxidizing agents.
Hazardous Decomposition Products: Not determined.

Section 11 Toxicological Information

Sensitization to Product: Not applicable.
Irritancy of Product: Skin, eyes, lungs, gastrointestinal tract.
Reproductive Toxicity: Not applicable.
Teratogenicity: Not applicable.
Mutagenicity: Not applicable.

Toxicological information regarding individual ingredients, if applicable, may be found in Section 2.

Section 12 Ecological Information

Not determined.

Section 13 Disposal Considerations

Dispose of in accordance with applicable federal, state, and local regulations.

Section 14 Transport Information

U.S. D.O.T.: Consumer commodity ORM-D.

Section 15 Regulatory Information

Footnotes for Section 2:

1 Subject to the reporting requirements of SARA Title III, Section 313.
2 Appears on the California Safe Drinking Water and Toxic Enforcement Act Substances List.
3 Appears on the Massachusetts Substances List.
4 Appears on the New Jersey Right-To-Know Hazardous Substances List.
5 Appears on the Pennsylvania Hazardous Substances List.
6 Appears on the Canadian WHMIS Ingredient Disclosure List.

U.S. Federal Hazardous Substances Labeling Act: FINE LINE MARKER ONLY: This product meets the requirements of the U.S. Federal Hazardous Substances Labeling Act exemption for pens and markers because it is a porous-tip ink-marking device constructed so that a) the ink is held within an absorbent material so that no free liquid is within the device, b) under reasonably foreseeable conditions of manipulation and use the ink will emerge only through the porous writing nib, and c) the device has a capacity of not more than 10 grams of ink which has a single oral LD50 of more than 2.5 g/kg of body weight of the test animal.

OSHA Hazard Status: This product is considered to be hazardous as defined by the U.S. OSHA HCS (29 CFR 1910.1200).

Toxic Substances Control Act (TSCA): All ingredients contained in this product are listed on the U.S. EPA TSCA Chemical Substance Inventory.

Canadian Domestic Substances List (DSL): All ingredients contained in this

product are listed on the Canadian EPA (CEPA) Domestic Substances List (DSL).

European Inventory of Existing Chemical Substances (EINECS): All ingredients contained in this product are listed on the European Inventory of Existing Chemical Substances (EINECS).

WHMIS Rating (Canada): D-2B, B-3

Risk Phrases (Canada): DANGER: Contains xylene and MIBK. Harmful or fatal if swallowed. Flammable. Vapor harmful. KEEP OUT OF REACH OF CHILDREN.

Precautionary Statements (Canada): If swallowed, do not induce vomiting. Call a physician immediately. Keep away from heat or flame. Avoid contact with eyes or prolonged contact with skin, Use only in well ventilated area.

Further regulatory information regarding individual ingredients, if applicable, may be found in Section 2.

This product has been classified in accordance with the hazard criteria of the U.S. OSHA Hazard Communication Standard and the Canadian WHMIS Controlled Products Regulations. This MSDS contains all the information required by the above regulations and conforms to ANSI Z400.1-1993.

Section 16 Other Information

THE INFORMATION ON THIS MSDS REFERS TO THE INKS USED IN THIS PRODUCT AND IT APPLIES TO HANDLING THESE INKS IN BULK.

MSDS Prepared By: Director of Chemical Safety

The information contained herein is based on data available to us and is accurate and reliable to the best of our knowledge and belief. However, Allflex USA, Inc. makes no representations as to its completeness or accuracy. Information is supplied on condition that persons receiving such information will make their own determination as to its suitability for their purposes prior to use. In no event will Allflex USA, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information contained herein.

SAFETY DATA SHEET

Chlorhexidine 2% Solution

1. SUBSTANCE IDENTITY/COMPANY CONTACT INFORMATION

PRODUCT NAME: Chlorhexidine Solution
MOLECULAR FORMULA: Mixture
CHEMICAL FAMILY: Antiseptic, Antimicrobial
USE: Antimicrobial skin cleanser
SUPPLIER:
Aspen Veterinary Resources
TELEPHONE NUMBERS:
Emergency (Chemtrec 24 hours): (800) 424-9300
Information**:** (888) 215-1256

2. HAZARDS IDENTIFICATION

Signal word: WARNING

Pictograms

HAZARD STATEMENTS
H318 – Causes serious eye damage
H335 – May cause respiratory irritation

Precautionary statements

P305, P351, P338 – If in eyes; rinse with water for at least 15 minutes. Remove contact lenses. Seek medical attention

OTHER HAZARDS

CARCINOGENIC STATUS: Ingredients are not considered carcinogenic by NTP, IARC, or OSHA.
EFFECTS OF EXPOSURE: May cause skin, eye, and mucous membrane irritation and burns (symptoms such as discomfort, redness, tearing, sneezing, and runny nose). May cause allergic skin reactions. Exposure may cause nausea, vomiting, diarrhea, cramps, and colitis.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known

3. COMPOSITION/INFORMATION OF INGREDIENTS

Mixture of the substances listed in this section.

INGREDIENT 1
COMMON NAME: Water
CAS: 7732-18-5
% BY WEIGHT: >80%
EXPOSURE LIMIT(S):

INGREDIENT 2
COMMON NAME: Chlorhexidine Gluconate
CAS: 18472-51-10
% BY WEIGHT: 2%
EXPOSURE LIMIT(S): Not established.

INGREDIENT 3
COMMON NAME: Lauramine Oxide
CAS: 1643-20-5
% BY WEIGHT: Trade secret
EXPOSURE LIMIT(S): Not established.

Additional ingredients are present in < 1% of the formulation and are not considered carcinogens.

EXPOSURE LIMIT(S) FOR THE MATERIAL: Not established.

4. FIRST AID MEASURES

EYES: Remove contact lenses, if present. Rinse immediately with plenty of water, including under the eyelids, for at least 15 minutes. If irritation persists, obtain medical attention.
SKIN: Wash off with soap and water. If reaction occurs, seek medical attention.
INHALATION: Move to fresh air.
INGESTION: Contact a physician or poison control center.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable (predominantly water).
LOWER EXPLOSION LIMIT (LEL): Not applicable.
UPPER EXPLOSION LIMIT (UEL): Not applicable.
EXTINGUISHING MEDIA: Water, carbon dioxide, or dry chemical.
FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full-body protective equipment.
UNUSUAL FIRE OR EXPLOSION HAZARDS: None known.
HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, carbon dioxide

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

ENVIRONMENTAL PRECAUTIONS: Do not let product enter drains. Do not flush into surface water. Do not flush to groundwater and soil.

METHODS FOR CLEANING UP: Absorb the liquid with suitable material, then transfer into a suitable container for disposal.

7. HANDLING AND STORAGE

HANDLING: Use with adequate ventilation. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Launder contaminated clothing before reuse.

STORAGE: Store at room temperature. Store in a dry area away from direct sunlight, heat, and incompatible materials. Protect from freezing and physical damage. Reseal containers immediately after use. Store away from food and beverages. Keep out of reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESIPRATORY PROTECTION: Not required under normal conditions of use.
VENTILATION: Good general ventilation should suffice.
HAND PROTECTION: Not normally required.
EYE PROTECTION: Safety glasses. Care should be taken to avoid accidental exposure.
OTHER PROTECTIVE EQUIPMENT: Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue liquid
Odor: Not available.
pH: 5.0-7.0
Flash Point: NA
Auto ignition Temperature: NA
Boiling Point/Range: NA
Melting Point/Range: NA
Flammability (solid, gas): NA
Upper/Lower Flammability: NA
Vapor Pressure: NA
Vapor Density: NA
Specific Gravity: 1.00-1.01
Water Solubility: Soluble
Reactivity in Water: NA
Decomposition Temperature: NA

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions.
PHYSICAL CONDITIONS TO AVOID: Heat - high temperature.
INCOMPATIBILITY WITH OTHER MATERIALS: Do not clean with anionic detergents that will precipitate the chlorhexidine into a water insoluble residue.
HAZARDOUS DECOMPOSITION PRODUCTS: No data.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:
No data is available for the 2% product. The following is for Chlorhexidine Gluconate:
LD_{50} Oral rat 2000mg/kg
LD_{50} Oral mouse: 1260mg/kg
CHRONIC TOXICITY:
No known chronic effects.
REPRODUCTIVE/DEVELOPMENTAL TOXICITY:
Non-teratogenic.

12. ECOLOGICAL INFORMATION

No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of by incineration in accordance with applicable local and national regulations.

14. TRANSPORT REGULATIONS

Not regulated by the United States Department of Transportation (DOT), International Maritime Organization (IMO), or International Air Transport Association (IATA).

15. REGULATORY INFORMATION

Federal
TSCA: All of the components are listed in the United States TSCA (Toxic Substances Control Act) inventory.

SARA: No component is listed

State
California Prop 65: No components listed under Prop 65

16. OTHER INFORMATION

Revision Date: 07/21/15

The information and recommendations presented in this SDS are based on sources believed to be accurate. The supplier assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the information for their particular purposes.

SAFETY DATA SHEET

Issuing Date January 5, 2015 **Revision Date** New **Revision Number** 0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name **Clorox® Disinfecting Wipes$_1$ - Citrus Blend**

Other means of identification

EPA Registration Number 5813-79

Recommended use of the chemical and restrictions on use

Recommended use Moistened disinfecting wipes

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address
The Clorox Company
1221 Broadway
Oakland, CA 94612

Phone: 1-510-271-7000

Emergency telephone number

Emergency Phone Numbers For Medical Emergencies call: 1-800-446-1014
For Transportation Emergencies, call Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label elements, including precautionary statements

Emergency Overview

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Appearance Clear, colorless liquid absorbed into white, non-woven wipes **Physical State** Thin liquid absorbed into non-woven wipes **Odor** Citrus, lemon, lime

Precautionary Statements - Prevention
None

Precautionary Statements - Response
None

Precautionary Statements - Storage
None

Precautionary Statements - Disposal
None

Hazards not otherwise classified (HNOC)
Not applicable

Unknown Toxicity
21.5% of the mixture consists of ingredient(s) of unknown toxicity

Other information
No information available

Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight %	Trade Secret
Ethylene glycol monohexyl ether	112-25-4	1 - 5	*
n-Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride	85409-23-0	0.1 - 0.2	*
n-Alkyl (5% C12, 60% C14, 30% C16, 5% C18) dimethyl benzyl ammonium chloride	53516-76-0	0.1 - 0.2	*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General Advice Show this safety data sheet to the doctor in attendance.

Eye Contact Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. If present, remove contact lenses after the first 5 minutes of rinsing, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

Skin Contact Rinse skin with plenty of water. If irritation persists, call a doctor.

Inhalation Move to fresh air. If breathing problems develop, call a doctor.

Ingestion Drink a glassful of water. Call a doctor or poison control center.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Liquid may cause eye irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

Hazardous Combustion Products
Oxides of carbon.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental Precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes, skin, and clothing. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool, and well-ventilated place.

Incompatible Products None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethylene glycol monohexyl ether 112-25-4	None	None	None
n-Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride 85409-23-0	None	None	None
n-Alkyl (5% C12, 60% C14, 30% C16, 5% C18) dimethyl benzyl ammonium chloride 53516-76-0	None	None	None

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection No special protective equipment required.

Skin and Body Protection No special protective equipment required.

Respiratory Protection No protective equipment is needed under normal use conditions. If irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Thin liquid absorbed into non-woven wipes		
Appearance	Clear liquid absorbed into non-woven wipes	**Odor**	Citrus, lemon, lime
Color	Colorless liquid - white non-woven wipes	**Odor Threshold**	No information available

Property	**Values**	**Remarks/ Method**
pH	6 - 9 (liquid)	None known
Melting/freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	~1.0 (liquid)	None known
Water Solubility	Complete (liquid)	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive Properties	Not explosive	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
None known based on information supplied.

Incompatible materials
None known.

Hazardous Decomposition Products
None known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information .

Inhalation Exposure to vapor or mist may irritate respiratory tract.

Eye Contact Liquid may cause irritation.

Skin Contact Liquid may cause slight irritation.

Ingestion Ingestion of liquid may cause slight irritation to mucous membranes and gastrointestinal tract.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene glycol monohexyl ether 112-25-4	739 mg/kg (Rat)	721 mg/kg (Rabbit)	>0.5 mg/L (Rat, 4 h)

Information on toxicological effects

Symptoms Liquid may cause redness and tearing of eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity None of the ingredients in this product are on the IARC, OSHA, or NTP carcinogen lists.

Reproductive Toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.
Chronic Toxicity No known effect based on information supplied.
Target Organ Effects Respiratory system, eyes, skin, gastrointestinal tract (GI).

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

ATEmix (oral)
40.1 g/kg

ATEmix (dermal)
59.8 g/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity
No information available.

Persistence and Degradability
No information available.

Bioaccumulation
No information available.

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Dispose of in accordance with all applicable federal, state, and local regulations.

Contaminated Packaging
Do not reuse empty containers. Dispose of in accordance with all applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT Not regulated.

TDG Not regulated.

ICAO Not regulated.

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

Chemical Inventories

TSCA All components of this product are either on the TSCA 8(b) Inventory or otherwise exempt from listing.

DSL/NDSL All components are on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical which is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Name	CAS No.	Weight %	Threshold Value (%)
Ethylene glycol monohexyl ether	112-25-4	1 - 5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances that are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This product does not contain any substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

EPA Statement
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

> **CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Ethylene glycol monohexyl ether 112-25-4			X	X	X
Isopropyl alcohol 67-63-0	X	X	X	X	

International Regulations

Canada
WHMIS Hazard Class
D2B Toxic materials

16. OTHER INFORMATION

NFPA	**Health Hazard**	1	**Flammability**	0	**Instability**	0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard**	1	**Flammability**	0	**Physical Hazard**	0	**Personal Protection** A

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Preparation/Revision Date January 5, 2015

Revision Note New

Reference 1073956/174191.002

General Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Issuing Date January 5, 2015 **Revision Date** March 12, 2016 **Revision Number** 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name **Clorox® Toilet Bowl Cleaner - with Bleach - Rain Clean® Scent**

Other means of identification

EPA Registration Number 5813-89

Recommended use of the chemical and restrictions on use

Recommended use Disinfecting toilet bowl cleaner with bleach

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address
The Clorox Company
1221 Broadway
Oakland, CA 94612

Phone: 1-510-271-7000

Emergency telephone number

Emergency Phone Numbers For Medical Emergencies, call: 1-800-446-1014
For Transportation Emergencies, call Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements
Causes severe skin burns and eye damage
Causes serious eye damage

Appearance Clear, green **Physical State** Viscous liquid **Odor** Apple, fruity, floral, bleach

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves, protective clothing, face protection, and eye protection such as safety glasses.

Precautionary Statements - Response
Immediately call a poison center or doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Specific treatment (see supplemental first aid instructions on this label).
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary Statements - Storage
Store locked up.

Precautionary Statements - Disposal
Dispose of contents in accordance with all applicable federal, state, and local regulations.

Hazards not otherwise classified (HNOC)
Although not expected, heart conditions or chronic respiratory problems such as asthma, chronic bronchitis, or obstructive lung disease may be aggravated by exposure to high concentrations of vapor or mist.

Unknown Toxicity
0.11% of the mixture consists of ingredient(s) of unknown toxicity.

Other information
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Interactions with Other Chemicals
Reacts with other household chemicals such as other toilet bowl cleaners, rust removers, acids, or products containing ammonia to produce hazardous irritating gases, such as chlorine and other chlorinated compounds.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Sodium hypochlorite	7681-52-9	1 - 5	*
Sodium cocoate	67701-10-4	0.5 - 1.5	*
Sodium hydroxide	1310-73-2	0.1 - 1	*
Myristamine oxide	3332-27-2	0.1 - 1	*
Lauramine oxide	1643-20-5	0.1 - 1	*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General Advice Call a poison control center or doctor immediately for treatment advice. Show this safety data sheet to the doctor in attendance.

Eye Contact Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation Move to fresh air. If breathing is affected, call a doctor.

Ingestion Call a poison control center or doctor immediately for treatment advice. Have person sip a glassful of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Protection of First-aiders Avoid contact with skin, eyes, and clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Burning of eyes and skin.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Use of gastric lavage or emesis is contraindicated.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical
This product causes burns to eyes, skin, and mucous membranes. Thermal decomposition can release sodium chlorate and irritating gases and vapors.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes, skin, and clothing. Ensure adequate ventilation. Use personal protective equipment as required. For spills of multiple products, responders should evaluate the MSDSs of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed and/or poorly-ventilated areas until hazard assessment is complete.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental Precautions See Section 12 for ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Absorb and containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Store in a location inaccessible to children. Tightly close cap between uses.

Incompatible Products Other toilet bowl cleaners, rust removers, acids, or products containing ammonia.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3
Sodium hypochlorite 7681-52-9	None	None	None
Sodium cocoate 67701-10-4	None	None	None
Myristamine oxide 3332-27-2	None	None	None
Lauramine oxide 1643-20-5	None	None	None

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection If splashes are likely to occur: Wear safety glasses with side shields (or goggles) or face shield.

Skin and Body Protection Wear rubber or neoprene gloves and protective clothing such as long-sleeved shirt.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods. Remove and wash contaminated clothing before re-use. Do not eat, drink, or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Viscous liquid		
Appearance	Clear	**Odor**	Apple, fruity, floral, bleach
Color	Green	**Odor Threshold**	No information available

Property	**Values**	**Remarks/ Method**
pH	12.5 - 13.5	None known
Melting/freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	Not flammable	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	~1.05	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	~1000 cP	None known
Explosive Properties	Not explosive	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

10. STABILITY AND REACTIVITY

Reactivity
Reacts with other household chemicals such as other toilet bowl cleaners, rust removers, acids, or products containing ammonia to produce hazardous irritating gases, such as chlorine and other chlorinated compounds.

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
None known based on information supplied.

Incompatible materials
Other toilet bowl cleaners, rust removers, acids, or products containing ammonia.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information .

Inhalation Exposure to vapor or mist may irritate respiratory tract and cause coughing. Inhalation of high concentrations may cause pulmonary edema.

Eye Contact Corrosive. May cause severe damage to eyes.

Skin Contact May cause severe irritation to skin. Prolonged contact may cause burns to skin.

Ingestion Ingestion may cause burns to gastrointestinal tract and respiratory tract, nausea, vomiting, and diarrhea.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hypochlorite 7681-52-9	8200 mg/kg (Rat)	>10000 mg/kg (Rabbit)	-
Sodium hydroxide 1310-73-2	-	1350 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms May cause redness and tearing of the eyes. May cause burns to eyes. May cause redness or burns to skin. Inhalation may cause coughing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sodium hypochlorite 7681-52-9	-	Group 3	-	-

IARC (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive Toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.
Chronic Toxicity Carcinogenic potential is unknown.
Target Organ Effects Respiratory system, eyes, skin, gastrointestinal tract (GI).

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document
No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Persistence and Degradability
No information available.

Bioaccumulation
No information available.

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Dispose of in accordance with all applicable federal, state, and local regulations.

Contaminated Packaging
Do not reuse empty containers. Dispose of in accordance with all applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT LIMITED QUANTITY.

TDG

UN-No	UN1760
Proper Shipping Name	CORROSIVE LIQUID, N.O.S.
Hazard Class	8
Packing Group	II
Description	UN1760, CORROSIVE LIQUID, N.O.S. (SODIUM HYPOCHLORITE, SODIUM HYDROXIDE), 8, II.

ICAO

UN-No	UN1760
Proper Shipping Name	CORROSIVE LIQUID, N.O.S.
Hazard Class	8
Packing Group	II
Description	UN1760, CORROSIVE LIQUID, N.O.S. (SODIUM HYPOCHLORITE, SODIUM HYDROXIDE), 8, II.

IATA

UN-No	UN1760
Proper Shipping Name	CORROSIVE LIQUID, N.O.S.
Hazard Class	8
Packing Group	II
Description	UN1760, CORROSIVE LIQUID, N.O.S. (SODIUM HYPOCHLORITE, SODIUM HYDROXIDE), 8, II.

IMDG/IMO

UN-No	UN1760
Proper Shipping Name	CORROSIVE LIQUID, N.O.S.
Hazard Class	UN1760
Packing Group	CORROSIVE LIQUID, N.O.S.
EmS No.	F-A, S-B
Marine Pollutant	Marine Pollutant exception per IMDG Code 2.10.2.7.
Description	UN1760, CORROSIVE LIQUID, N.O.S. (SODIUM HYPOCHLORITE, SODIUM HYDROXIDE), 8, II.

15. REGULATORY INFORMATION

Chemical Inventories

TSCA	All components of this product are either on the TSCA 8(b) Inventory or otherwise exempt from listing.
DSL/NDSL	All components are on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hypochlorite 7681-52-9	100 lb			X
Sodium hydroxide 1310-73-2	1000 lb			X

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Sodium hypochlorite 7681-52-9	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ
Sodium hydroxide 1310-73-2	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

EPA Statement
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

> **DANGER: CORROSIVE.** Causes irreversible eye damage. Causes skin irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not get in eyes, on skin, or on clothing. For prolonged use, wear gloves. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Use only in well-ventilated areas.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Sodium hypochlorite 7681-52-9	X	X	X	X	
Sodium hydroxide 1310-73-2	X	X	X	X	

International Regulations

Canada
WHMIS Hazard Class
E - Corrosive material

16. OTHER INFORMATION

NFPA	**Health Hazard** 3	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard** 3	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** B

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Revision Date March 12, 2016

Revision Note Revision Sections 3 and 8.

Reference 1101253/139644.002

General Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Revision Number: 006.0 **Issue Date:** 11/11/2015

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product identifier used on the label:

Dial ® For Men Hair and Body Wash — Ultimate Clean, HydroFresh
Dial ® For Men Body Wash – Full Force, Odor Armor
Dial ® For Men Magnetic Body Wash — Clean Rinsing
Dial ® For Men Fresh Reaction Body Wash – Alpine, Sub Zero
RightGuard ® Body Wash—Cooling/Chill, Hydrating, Refreshing, Energizing, Odor Combat

Other means of identification:

1815329 (DFM H&BW Ultimate Clean); 1815340 (DFM H&BW HydroFresh); 1815253 (DFM BW Full Force); 1925365 (Odor Armor); 1815548 (DFM Magnetic Clean Rinsing BW); 1937928 (DFM Fresh Reaction Alpine); 1937924 (DFM Fresh Reaction Sub Zero); 1901564 (RG BW Cooling/Chill); 1901562 (RG BW Hydrating); 1901567(RG BW Refreshing); 1901565 (RG BW Energizing, Xtreme Fresh Energizing); 2030593 (Odor Combat)

Recommended use of the chemical and restrictions on use: Shower Gel/Body wash, No restrictions on use.

Name, address and telephone number of the chemical manufacturer:

The Dial Corporation, a Henkel Company
7201 E. Henkel Way
Scottsdale, AZ 85255-9672 USA

CHEMTREC: 1-800-424-9300 (24 hours daily)
Internet: www.henkelna.com

Emergency telephone number: Medical Emergencies: 1-888-689-9082

2. HAZARD IDENTIFICATION

The hazards described in this OSHA Globally Harmonized System Safety Data Sheet (SDS) are not intended for consumers, and does not address consumer use of the product. For information regarding consumer applications of this product, refer to the product label.

Classification of the substance or mixture in accordance with paragraph (d) of §1910.1200

HAZARD CLASS	HAZARD CATEGORY
EYE IRRITATION	2B

Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200

Signal word: WARNING
Hazard Statement(s): Causes eye irritation.
Symbol(s): None

Precautionary Statements:
Prevention: Wash thoroughly after handling.
Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical attention.
Storage: Not prescribed
Disposal: Not prescribed

Hazards not otherwise classified: Not available.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

The following chemicals are classified as health hazards in accordance with paragraph (d) of § 1910.1200.

Chemical Name*	CAS Number (Unique Identifier)	Concentration
Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	68585-34-2	5 – 10 %
1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs., hydroxides, inner salts	61789-40-0	1 - 5%
Glycerol	56-81-5	1 - 5%
Sodium chloride	7647-14-5	1 - 5%

*The specific chemical identity and/or exact percentage (concentration) of composition has been withheld because a trade secret is claimed in accordance with paragraph (i) of §1910.1200.

4. FIRST AID MEASURES

Description of necessary measures

Inhalation: First aid measures not required.
Skin contact: First aid measures not required. Cosmetic product and therefore not necessary.
Eye contact: Rinse eyes immediately with plenty of water, occasionally lifting upper and lower lids, until no evidence of product remains. Get medical attention if pain or irritation develops.
Ingestion: Dilution by rinsing the mouth and giving water or milk to drink is generally recommended. Contact physician or local poison control center.

Most important symptoms and effects, both acute and delayed

After eye contact: Causes mild to moderate irritation. After skin contact: Repeated or prolonged excessive exposure may cause irritation or dermatitis. After ingestion: Nausea and possible vomiting may occur. After inhalation: Unlikely to occur due to the physical properties of the product. At elevated temperatures, vapors or mists may cause irritation.

Indication of any immediate medical attention and special treatment needed

After eye contact: Rinse eyes with plenty of water until no evidence of product remains. After skin contact: Rinse affected area with large amounts of water until no evidence of product remains. After ingestion: Dilution by rinsing the mouth and giving a glass of water to drink is generally recommended. After inhalation: Remove from exposure area to fresh air.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Dry chemical, carbon dioxide, water spray or regular foam.
Unsuitable extinguishing media: None known

Specific hazards arising from the chemical

Oxides of carbon and oxides of nitrogen.

Special protective equipment and precautions for fire-fighters

In case of fire, wear a full-face positive-pressure self-contained breathing apparatus and protective suit. Avoid breathing vapors, keep upwind. Isolate area. Keep unnecessary personnel away.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear skin, eye and respiratory protection as recommended in Section 8. Stop leak if you can do it without risk. Spills present a slipping hazard. Keep unnecessary personnel away. Ventilate spill area if possible. Make sure area is slip-free before re-opening to traffic.

Environmental Precautions

Small or household quantities may be disposed in sewer or other liquid waste system. For larger quantities check with your local water treatment plant.

Methods and materials for containment and cleaning up

SMALL SPILLS: Contain and absorb with sand or other absorbent material and place into clean, dry containers for later disposal. Wash site of spillage thoroughly with water. LARGE SPILLS: Dike far ahead of spill to prevent further movement. Recover by pumping or by using a suitable absorbent material and place into containers for later disposal. Dispose in suitable waste container.

7. HANDLING AND STORAGE

Precautions for safe handling

Do not get in eyes. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists.

Conditions for safe storage, including any incompatibilities

Store in original containers in a cool dry area. Storage areas for large quantities (warehouse) should be well ventilated. Keep the containers tightly closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

Hazardous Component(s)	ACGIH	OSHA PEL	AIHA WEEL	OTHER
Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	None	None	None	None
Glycerol	None	5 mg/m3 PEL Respirable fraction. 15 mg/m3 PEL Total dust.	None	None
Sodium chloride	None	None	None	None

Appropriate engineering controls
Provide local exhaust or general dilution ventilation to keep exposure to airborne contaminants below the permissible exposure limits where mists or vapors may be generated.

Individual protection measures

Respiratory: Air contamination monitoring should be carried out where mists or vapors are likely to be generated, to assure that the employees are not exposed to airborne contaminants above the permissible exposure limits.

Eye: Splash-proof safety glasses are required to prevent eye contact where splashing of product may occur.

Hand/Body: Protective gloves are required where repeated or prolonged skin contact may occur.
Protective clothing is required where repeated or prolonged skin contact may occur.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid, colored
Odor: characteristic
Odor threshold: Not available
pH: 4.50 – 5.00 (25 °C)
Melting point/ range: Not available.
Boiling point/range: Not available.
Flash point: > 93.3 °C (> 199.94 °F)
Evaporation rate: Not available.
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Vapor pressure: Not available.
Vapor density: Not available.
Solubility in water: Soluble
Partition coefficient (n-octanol/water): Not available.
Autoignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: 8,000-24,000 mPa.s
VOC content: Not available.
Specific gravity: 1.03 – 1.05 g/ml

10. STABILITY AND REACTIVITY

Reactivity: This product may react with strong alkalies.

Chemical stability: Stable under normal ambient temperature (70°F, 21°C) and pressure (1 atm).

Possibility of hazardous reactions: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

Conditions to avoid: Avoid storing in direct sunlight and avoid extremes of temperature.

Incompatible materials: Strong oxidizers and alkalis.

Hazardous decomposition products: Thermal decomposition may release toxic and/or hazardous gases, including ammonia.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure including symptoms related to characteristics

Inhalation: Unlikely to occur due to the physical properties of the product. At elevated temperatures, vapors or mists may cause irritation.
Skin contact: Repeated or prolonged excessive exposure may cause irritation or dermatitis.
Eye contact: Causes mild to moderate irritation.
Ingestion: May cause mild gastrointestinal irritation with nausea, vomiting, diarrhea and abdominal pain.
Physical/Chemical: No physical/chemical hazards are anticipated for this product.

Other relevant toxicity information:
This product is a personal care or cosmetic product. Direct contact with eyes causes irritation. No adverse effects are anticipated to skin from normal use.

Numerical measures of toxicity, including delayed and immediate effect

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	None	Irritant
1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs. hydroxides, inner salts	None	Irritant, Allergen
Glycerol	None	Blood, Irritant, Kidney, Nuisance dust
Sodium chloride	Oral LD50 (RAT) = 3,000 mg/kg	Irritant

Carcinogenicity information

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	No	No	No
1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs. hydroxides, inner salts	No	No	No
Glycerol	No	No	No
Sodium chloride	No	No	No

Carcinogenicity None of the ingredients in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA).
Mutagenicity None of the ingredients in this product are known to cause mutagenicity.
Toxicity to reproduction None of the ingredients in this product are known to have reproductive, fetal, or developmental hazards.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity:
This product is anticipated to be safe for the environment at concentrations predicted in household settings under normal use conditions.

Toxicity to fish:
The aquatic toxicity profile of this product has not been determined.

Toxicity to aquatic invertebrates:
The aquatic toxicity profile of this product has not been determined.

Toxicity to algae:
The aquatic toxicity profile of this product has not been determined.

Persistence and Degradability: The persistence and degradability of this product has not been determined. The hazardous ingredients are readily biodegradable.

Hazardous substances	Result value	Route of application	Species	Method
Alcohols, C10-16, ethoxylated, sulfates, sodium salts, 2EO	Readily biodegradable	aerobic	80 – 83 %	OECD 301 B (CO_2 evolution)
1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs. hydroxides, inner salts	Readily biodegradable	aerobic	86 %	OECD 301 D (closed bottle)
Glycerol	Readily biodegradable	aerobic	90 – 94 %	EU Method C.4-E

Bioaccumulation Potential: The bioaccumulation potential of this product has not been determined.

Mobility: The mobility of this product (in soil and water) has not been determined.

13. DISPOSAL CONSIDERATIONS

Waste Number and Description: Not applicable, not regulated.

Disposal Considerations:
Disposal of products: This product is not a RCRA hazardous waste and can be disposed of in accordance with federal, state and local regulations.
Disposal of packages: Place in trash.

Additional information: Observe all federal, state and local regulations when storing or disposing of this substance

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

Occupational Safety and Health Act: Hazard Communication Standard, 29 CFR 1910.1200(g) Appendix D: The Occupational Safety and Health Administration (OSHA) require that the Safety Data Sheets (SDSs) are readily accessible to employees for all hazardous chemicals in the workplace. Since the use pattern and exposure in the workplace are generally not consistent with those experienced by consumers, this SDS may contain health hazard information not relevant to consumer use.

United States Regulatory Information:

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None above reporting de minimis
CERCLA/SARA Section 302: None above reporting de minimis
CERCLA/SARA Section 311/312: Not available.
CERCLA/SARA Section 313: None above reporting de minimis
California Proposition 65: No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information:

CEPA DSL/NDSL Status: One or more components are not listed on, and are not exempt from listing on either the Domestic Substances List or the Non-Domestic Substances List.

16. OTHER INFORMATION

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation and its affiliates ("Henkel") does not assume responsibility for any results obtained by persons over whose methods Henkel has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Henkel's products. In light of the foregoing, Henkel specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel's products. Henkel further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

This safety data sheet contains changes from the previous version in sections: 1

Prepared by: R&D Support Services

Issue date: 11/11/2015 **Supercedes:** Rev. 5, 06/25/2015

SAFETY DATA SHEET

Issuing Date: 19-Jan-2017 **Revision Date:** 19-Jan-2017 **Version** 1

This Safety Data Sheet (SDS) is not required under local legislation, implementing the UN Globally Harmonized System (GHS). This SDS is being provided as a courtesy to help assist in the safe handling and proper use of the product

1. IDENTIFICATION

Product Name	Gain Original Fresh
Product Identifier	91033402_RET_NG
Product Type:	Finished Product - Consumer (Retail) Use Only
Recommended Use	Laundry Care.
Details of the supplier of the safety data sheet	PROCTER & GAMBLE - Fabric and Home Care Division Ivorydale Technical Centre 5289 Spring Grove Avenue Cincinnati, Ohio 45217-1087 USA Procter & Gamble Inc. P.O. Box 355, Station A Toronto, ON M5W 1C5 1-800-331-3774
E-mail Address	pgsds.im@pg.com
Emergency Telephone	Transportation (24 HR) CHEMTREC - 1-800-424-9300 (U.S./ Canada) or 1-703-527-3887 Mexico toll free in country: 800-681-9531

2. HAZARD IDENTIFICATION

"Consumer Products", as defined by the US Consumer Product Safety Act and which are used as intended (typical consumer duration and frequency), are exempt from the OSHA Hazard Communication Standard (29 CFR 1910.1200). This SDS is being provided as a courtesy to help assist in the safe handling and proper use of the product.

This product is classifed under 29CFR 1910.1200(d) and the Canadian Hazardous Products Regulation as follows:.

Not Classified.

Hazard Statements	None
Hazard pictograms	None
Precautionary Statements	None
Precautionary Statements - Response	None

Precautionary Statements - Storage None

Precautionary Statements - Disposal None

Hazards not otherwise classified (HNOC) None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients are listed according to 29CFR 1910.1200 Appendix D and the Canadian Hazardous Products Regulation

Chemical Name	Synonyms	Trade Secret	CAS-No	Weight %
Tetramethyl Acetyloctahydronaphthalenes	Tetramethyl Acetyloctahydronaphthalenes	No	54464-57-2	0.1 - 1.0

4. FIRST AID MEASURES

First aid measures for different exposure routes

Eye contact Rinse with plenty of water. Get medical attention immediately if irritation persists.

Skin contact Rinse with plenty of water. Get medical attention if irritation develops and persists.

Ingestion Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately if symptoms occur.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Most important symptoms/effects, acute and delayed None under normal use conditions.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Dry chemical, CO_2, alcohol-resistant foam or water spray. Dry chemical. Alcohol-resistant foam.

Unsuitable Extinguishing Media None.

Special hazard None known.

Special protective equipment for fire-fighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Specific hazards arising from the chemical None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment. Do not get in eyes, on skin, or on clothing.

Advice for emergency responders Use personal protective equipment as required.

Environmental precautions Keep out of waterways
Do not discharge product into natural waters without pre-treatment or adequate dilution

Methods and materials for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Keep container closed when not in use. Never return spills in original containers for re-use. Keep out of the reach of children.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible products None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines No exposure limits noted for ingredient(s).

Exposure controls

Engineering Measures **Distribution, Workplace and Household Settings:**
Ensure adequate ventilation

Product Manufacturing Plant (needed at Product-Producing Plant ONLY):
Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction

Personal Protective Equipment

Eye Protection **Distribution, Workplace and Household Settings:**
No special protective equipment required

Product Manufacturing Plant (needed at Product-Producing Plant ONLY):
Use appropriate eye protection

Hand Protection **Distribution, Workplace and Household Settings:**
No special protective equipment required

Product Manufacturing Plant (needed at Product-Producing Plant ONLY):
Protective gloves

Skin and Body Protection

Distribution, Workplace and Household Settings:
No special protective equipment required

Product Manufacturing Plant (needed at Product-Producing Plant ONLY):
Wear suitable protective clothing

Respiratory Protection

Distribution, Workplace and Household Settings:
No special protective equipment required

Product Manufacturing Plant (needed at Product-Producing Plant ONLY):
In case of inadequate ventilation wear respiratory protection

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State @20°C	Liquid
Appearance	opaque green
Odor	characteristic, Perfume
Odor threshold	No information available

Property	Values	Note
pH value	2.7 - 3.8	
Melting/freezing point	No information available	
Boiling point/boiling range	No information available	
Flash point	No information available	.
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limits in Air		
Upper flammability limit	No information available	
Lower Flammability Limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Relative density	No information available	
Water solubility	No information available	
Partition coefficient: n-octanol/water	No information available	
Autoignition temperature	No information available	.
Decomposition temperature	No information available	.
Viscosity of Product	No information available	
VOC Content (%)	Products comply with US state and federal regulations for VOC content in consumer products.	

10. STABILITY AND REACTIVITY

Reactivity None under normal use conditions.

Stability Stable under normal conditions.

Hazardous polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

Conditions to Avoid None under normal processing.

Materials to avoid None in particular.

Hazardous Decomposition Products None under normal use conditions.

11. TOXICOLOGICAL INFORMATION

Product Information

Information on likely routes of exposure

Inhalation	No known effect.
Skin contact	No known effect.
Ingestion	No known effect.
Eye contact	No known effect.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Acute toxicity	No known effect.
Skin corrosion/irritation	No known effect.
Serious eye damage/eye irritation	No known effect.
Skin sensitization	No known effect.
Respiratory sensitization	No known effect.
Germ cell mutagenicity	No known effect.
Neurological Effects	No known effect.
Reproductive toxicity	No known effect.
Developmental toxicity	No known effect.
Teratogenicity	No known effect.
STOT - single exposure	No known effect.
STOT - repeated exposure	No known effect.
Target Organ Effects	No known effect.
Aspiration hazard	No known effect.
Carcinogenicity	No known effect.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The product is not expected to be hazardous to the environment.

Persistence and degradability	No information available.
Bioaccumulative potential	No information available.
Mobility	No information available.
Other adverse effects	No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment

Waste from Residues / Unused Products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations.
California Hazardous Waste Codes (non-household setting)	331

14. TRANSPORT INFORMATION

DOT	Not regulated
IMDG	Not regulated
IATA	Not regulated

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):.

Chemical Name	CAS-No	Hazardous Substances RQs	Extremely Hazardous Substances RQs	CERCLA/SARA 302 TPQ
Formic acid	64-18-6	5000 lb	-	
Sodium hydroxide	1310-73-2	1000 lb	-	
Hydrogen chloride	7647-01-0	5000 lb	5000 lb	500 lb

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following substance(s) which are either listed as hazardous air pollutants (HAPS) or VOC's per the Clean Air Act:

Chemical Name	CAS-No	CAA (Clean Air Act) - 1990 Hazardous Air Pollutants
Hydrogen chloride	7647-01-0	X

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):.

Chemical Name	CAS-No	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formic acid	64-18-6	5000 lb	-	-	X
Sodium hydroxide	1310-73-2	1000 lb	-	-	X
Hydrogen chloride	7647-01-0	5000 lb	-	-	X

California Proposition 65
This product is not subject to warning labeling under California Proposition 65.

U.S. State Regulations (RTK)
.

Chemical Name	CAS-No	Pennsylvania
Ethanol	64-17-5	X
Formic acid	64-18-6	X

International Inventories

United States
All intentionally-added components of this product(s) are listed on the US TSCA Inventory.

Canada
This product is in compliance with CEPA for import by P&G.

Legend
United States Toxic Substances Control Act Section 8(b) Inventory (TSCA)
CEPA - Canadian Environmental Protection Act

16. OTHER INFORMATION

Issuing Date: 19-Jan-2017
Revision Date: 19-Jan-2017
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

KIK CUSTOM PRODUCTS

SAFETY DATA SHEET

Revision Date 19-Apr-2015 **Version** 1

1. IDENTIFICATION

Product identifier

Product Name Frosty Acres Restaurant Pride Advantage Germicidal Ultra Bleach

Other means of identification

Product UPC 48200-26675
Product Code 11005915041

Recommended use of the chemical and restrictions on use

Recommended Use Disinfectant. Cleaning agent. Chlorine-based bleaching agents.
Uses advised against Do not mix with other chemicals

Details of the supplier of the safety data sheet

Manufacturer Address
KIK International LLC
33 Macintosh Blvd.
Concord, Ontario
Canada L4K 4L5
1-800-479-6603

Emergency telephone number

Emergency Telephone Poison Control Center (Medical) : (866) 366-5048
Chemtel (Transportation) 1-888-255-3924

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

Label elements

Emergency Overview

Danger

Hazard statements
Causes skin irritation
Causes serious eye damage

Color light yellow **Physical state** liquid **Odor** Chlorine

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Precautionary Statements - Storage
Keep out of reach of children. Store in a well-ventilated place. Store in a closed container. Protect from sunlight.

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No.	Weight-%
Sodium hypochlorite	7681-52-9	5-7*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact Wash skin with soap and water. If symptoms persist, call a physician.

Inhalation Remove to fresh air.

Ingestion Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical
No information available.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials Acids, Ammonia.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. .

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved

respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid		
Appearance	clear, light yellow	**Odor**	Chlorine
Color	light yellow	**Odor threshold**	No information available

Property	**Values**	**Remarks • Method**
pH	12.0 - 12.5	
Melting point/freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	No information available	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific Gravity	~1.08	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Density	No information available	
Bulk density	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available

10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Conditions to avoid
Do not mix with other chemicals. Extremes of temperature and direct sunlight.
Incompatible materials
Acids, Ammonia.
Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Avoid contact with eyes. May cause burns.

Skin contact Avoid contact with skin. May cause irritation.

Ingestion May be harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Sodium hypochlorite 7681-52-9	= 8200 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sodium hypochlorite 7681-52-9	-	Group 3	-	-

IARC (International Agency for Research on Cancer)
Not classifiable as a human carcinogen

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Sodium hypochlorite 7681-52-9	0.095: 24 h Skeletonema costatum mg/L EC50	0.06 - 0.11: 96 h Pimephales promelas mg/L LC50 flow-through 4.5 - 7.6: 96 h Pimephales promelas mg/L LC50 static 0.4 - 0.8: 96 h Lepomis macrochirus mg/L LC50 static 0.28 - 1: 96 h Lepomis macrochirus mg/L LC50 flow-through 0.05 - 0.771: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.03 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 0.18 - 0.22: 96 h Oncorhynchus mykiss mg/L LC50 static	0.033 - 0.044: 48 h Daphnia magna mg/L EC50 Static 2.1: 96 h Daphnia magna mg/L EC50

Persistence and degradability
No information available.

Bioaccumulation

No information available.

Mobility
No information available.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse container. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT Not regulated

IATA

UN/ID no.	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SODIUM HYPOCHLORITE)
Hazard Class	9
Packing Group	III
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SODIUM HYPOCHLORITE), 9, III

IMDG

UN/ID no.	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SODIUM HYPOCHLORITE)
Hazard Class	9
Packing Group	III
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SODIUM HYPOCHLORITE), 9, III
Marine pollutant	This material meets the definition of a marine pollutant

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hypochlorite 7681-52-9	100 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium hypochlorite 7681-52-9	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Sodium hypochlorite 7681-52-9	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number 70271-13-55020

EPA Statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label

DANGER: Corrosive. May cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses and rubber gloves when handling this product. Wash after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	**Health hazards** 2	**Flammability** 0	**Instability** 1	**Physical and Chemical Properties** -
HMIS	**Health hazards** 2	**Flammability** 0	**Physical hazards** 1	**Personal protection** B

Prepared By Regulatory Affairs
Revision Date 19-Apr-2015
Revision Note No information available

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination

with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Revision Date 06-May-2015 **Version** 1

1. IDENTIFICATION

Product identifier
Product Name Great Value Glass Cleaner

Other means of identification
Product UPC 78742-04960
Product Code 15403065644

Recommended use of the chemical and restrictions on use
Recommended Use Consumer use. Cleaning agent.
Uses advised against Do not mix with other chemicals

Details of the supplier of the safety data sheet

Manufacturer Address
KIK International LLC
33 Macintosh Blvd.
Concord, Ontario
Canada L4K 4L5
1-800-479-6603

Distributor
Wal-Mart Stores, Inc.
702 SW 8th ST.
Bentonville, AR 72712
1-877-505-2267

Emergency telephone number
Emergency Telephone Poison Control Center (Medical) : (866) 366-5048
Chemtel (Transportation) 1-888-255-3924

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health

Color blue **Physical state** liquid **Odor** Slight Ammonia

Hazards not otherwise classified (HNOC)
Not applicable

Other Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No.	Weight-%
Ethylene glycol, monobutyl ether acetate	112-07-2	0.5 - 1.5*
Ammonia	7664-41-7	0.1 - 0.5*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. If symptoms persist, call a physician.

Inhalation Remove to fresh air.

Ingestion Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical
No information available.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not mix with other chemicals.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethylene glycol, monobutyl ether acetate 112-07-2	TWA: 20 ppm	-	TWA: 5 ppm TWA: 33 mg/m^3
Ammonia 7664-41-7	STEL: 35 ppm TWA: 25 ppm	TWA: 50 ppm TWA: 35 mg/m^3 (vacated) STEL: 35 ppm (vacated) STEL: 27 mg/m^3	IDLH: 300 ppm TWA: 25 ppm TWA: 18 mg/m^3 STEL: 35 ppm STEL: 27 mg/m^3

NIOSH IDLH Immediately Dangerous to Life or Health

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid		
Appearance	aqueous solution	**Odor**	Slight Ammonia
Color	blue	**Odor threshold**	No information available

Property	**Values**	**Remarks • Method**
pH	11	
Melting point/freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	No information available	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific Gravity	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Density	No information available	
Bulk density	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available

10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Conditions to avoid
Do not mix with other chemicals. Extremes of temperature and direct sunlight.
Incompatible materials
None known based on information supplied.
Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	Avoid contact with eyes. May cause slight irritation.
Skin contact	Avoid contact with skin. Substance may cause slight skin irritation.

Ingestion Ingestion may cause irritation to mucous membranes.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ethylene glycol, monobutyl ether acetate 112-07-2	= 1600 mg/kg (Rat)	= 1480 mg/kg (Rabbit)	-
Ammonia 7664-41-7	= 350 mg/kg (Rat)	-	= 2000 ppm (Rat) 4 h

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Ethylene glycol, monobutyl ether acetate 112-07-2	A3	-	-	-

ACGIH (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity No information available.
Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .
ATEmix (inhalation-dust/mist) 112.8 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

98.57845% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ethylene glycol, monobutyl ether acetate 112-07-2	500: 72 h Desmodesmus subspicatus mg/L EC50	-	37: 48 h Daphnia magna mg/L EC50
Ammonia 7664-41-7	-	0.44: 96 h Cyprinus carpio mg/L LC50 0.26 - 4.6: 96 h Lepomis macrochirus mg/L LC50 1.17: 96 h Lepomis macrochirus mg/L LC50 flow-through 0.73 - 2.35: 96 h Pimephales promelas mg/L LC50 5.9: 96 h Pimephales promelas mg/L LC50 static 1.5: 96 h Poecilia reticulata mg/L LC50 1.19: 96 h Poecilia reticulata mg/L LC50 static	25.4: 48 h Daphnia magna mg/L LC50

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility
No information available.

Chemical Name	Partition coefficient
Ethylene glycol, monobutyl ether acetate 112-07-2	1.51
Ammonia 7664-41-7	-1.14

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse container. Refer to all federal, state and local regulations prior to disposal of container and unused contents by reuse, recycle or disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

IATA Not regulated

IMDG Not regulated

15. REGULATORY INFORMATION

International Inventories
TSCA Complies
DSL/NDSL Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Ethylene glycol, monobutyl ether acetate - 112-07-2	1.0

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21

and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonia 7664-41-7	100 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Ammonia 7664-41-7	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Ethylene glycol, monobutyl ether acetate 112-07-2	X	-	X
Ammonia 7664-41-7	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number This product does not contain any substances regulated as pesticides

Difference between SDS and CPSC label

This product is regulated under Consumer Product Safety Commission and is subject to certain labeling requirements under the Federal Hazardous Substances Act (16 CFR Part 1500) . These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace product labels.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	**Health hazards** 0	**Flammability** 0	**Instability** 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** 0	**Flammability** 0	**Physical hazards** 0	**Personal protection** X

Prepared By Regulatory Affairs
Revision Date 06-May-2015
Revision Note No information available

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Product Name: PERMECTRIN™ II
SDS Number: 122000008520

Use : Pesticide

Company
BAYER HEALTHCARE LLC
Animal Health Division
12707 Shawnee Mission Parkway
(West 63rd)
Shawnee, KS 66216-1846
USA
(800) 633-3796

In case of emergency: (800) 422-9874
Chemtrec: (800) 424-9300
BAYER INFORMATION PHONE:(800) 633-3796
INTERNATIONAL:(703) 527-3887

2. HAZARDS IDENTIFICATION

Emergency Overview

Colour: Light yellow to yellow **Form:** liquid **Odour:** oily.

GHS Classification:

Acute toxicity (Oral)	:	Category 4
Acute toxicity (Inhalation)	:	Category 4
Eye irritation	:	Category 2
Skin sensitization	:	Category 1
Germ cell mutagenicity	:	Category 1B
Carcinogenicity	:	Category 1B

GHS Label element:

Hazard pictograms :

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Other hazards which do not result in classification:

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Weight percent	Components	CAS-No.
10%	Permethrin	52645-53-1
1 - 5%	n-butanol	71-36-3

4. FIRST AID MEASURES

General advice: Take off all contaminated clothing immediately.

If inhaled: Remove to fresh air. Call a physician immediately.

In case of skin contact: After contact with skin, wash immediately with plenty of soap and water. If skin reactions occur, contact a physician.

In case of eye contact: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed: If swallowed, seek medical advice immediately and show this container or label.

Note to Physician: Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

Contact Number: Use the Bayer Emergency Number in Section 1

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media: High volume water jet

Specific hazards during firefighting: Fire may cause evolution of: Carbon monoxide (CO) Carbon dioxide (CO2)

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Further information: Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment.

Methods for cleaning up: Cover spilled product with liquid-binding material (sand, silica gel, acid binder, universal binder, hybilat). Take up mechanically and fill into labeled, closable containers.

Additional advice: No special precautions required.

Further Accidental Release Notes No special precautions required.

7. HANDLING AND STORAGE

Handling:
Avoid formation of aerosol. Only handle product with local exhaust ventilation. Avoid contact with skin, eyes and clothing.

No special protective measures against fire required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:
Recommended Filter type: Organic vapor with prefilter

None required for consumer use of this product.

Hand protection:
Chemically resistant gloves.
None required for consumer use of this product.

Eye protection:
Safety glasses

None required for consumer use of this product.

Other protective measures:
Wear suitable protective equipment.

Please consult label for end-user requirements.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	liquid
Colour:	Light yellow to yellow
Odour:	oily
Odour Threshold:	No applicable information is available
Melting point:	No applicable information is available
Boiling point/boiling range:	No applicable information is available
Density:	0.859 g/cm³
Bulk density:	No applicable information is available
Vapour pressure:	No applicable information is available
Viscosity, dynamic:	No applicable information is available
Viscosity, kinematic:	No applicable information is available
Flow time:	No applicable information is available
Surface tension:	No applicable information is available
Miscibility with water:	No applicable information is available
Water solubility:	No applicable information is available
pH:	4.86 at 10 g/l
Relative density:	No applicable information is available
Partition coefficient:	No applicable information is available
Solubility(ies):	No applicable information is available
Flash point:	151 °F (66.11 °C)
Flammability (solid, gas):	No applicable information is available
Ignition temperature:	No applicable information is available
Explosion limits:	No applicable information is available

10. STABILITY AND REACTIVITY

Conditions to avoid: No data available

Materials to avoid: Oxidizing agents

Hazardous reactions: No data available

Thermal decomposition:

No data available

Hazardous decomposition products:
Carbon monoxide (CO), Carbon dioxide (CO2)

Oxidizing properties:

No statements available.

Impact sensitivity:
No data available

11. TOXICOLOGICAL INFORMATION

Other information on toxicity:
Permethrin
Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

Other information on toxicity:
n-butanol
Liver and kidney injuries may occur.

After absorption of large quantities Dizziness, Liver disorders, drowsiness, headaches, Weakness

Acute oral toxicity:
Permethrin
LD50 Rat: 430 mg/kg

n-butanol
LD50 Rat: 790 mg/kg

Acute inhalation toxicity:
Permethrin
LC50 Rat: 2.3 mg/l, 4 h

n-butanol
LC50 Rat: 8000 ppm, 4 h

Acute dermal toxicity:
Permethrin
LD50 Rabbit: > 2,000 mg/kg

LD50 Rat: > 2,500 mg/kg

n-butanol
LD50 Rabbit: 3,400 mg/kg

Skin irritation:
Permethrin
Rabbit
Result: No skin irritation

n-butanol
Rabbit
Result: Mild skin irritation
Method: OECD 404

Eye irritation:
Permethrin
Rabbit
Result: Mild eye irritation

n-butanol
Rabbit
Result: Causes serious eye damage.
Method: OECD 405

Sensitisation:
Permethrin
Result: May cause sensitisation by skin contact.

n-butanol
Skin sensitization guinea pig
Result: Did not cause sensitisation on laboratory animals.
Method: OECD 406

Genotoxicity in vitro:
n-butanol
Ames test
Result: negative

Micronucleus test
Result: negative

In vitro gene mutation study in mammalian cells (Hamster V79-cells)
Result: No evidence of a genotoxic effect.
Method: OECD 476

Genotoxicity in vivo:
n-butanol
Micronucleus test, Mouse
Result: No evidence of a genotoxic effect.
Method: OECD 474

Reproductive toxicity:
n-butanol
NOAEL: 2000 ppm
Result: Animal testing did not show any effects on fertility.
Method: OECD Test Guideline 416

Pharmaceutic effects:
Permethrin
Insecticide

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

Experience with human exposure:
Components:
71-36-3 :
May cause skin irritation and/or dermatitis.

STOT - single exposure:
Components:

71-36-3 :
Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure:
No data available

12. ECOLOGICAL INFORMATION

General advice:
Do not allow to enter surface waters or groundwater.

Toxicity to fish:
Permethrin
LC50 0.0076 mg/l
Test species: Poecilia reticulata Duration of test: 48 h

n-butanol
Acute Fish toxicity: LC50 1,730 mg/l
Test species: Pimephales promelas (fathead minnow) Duration of test: 96 h

Toxicity to daphnia and other aquatic invertebrates:
Permethrin
EC50 37 µg/l
Test species: Daphnia magna (Water flea) Duration of test: 48 h
Method: OECD 202

EC50 0.00017 mg/l
Test species: Daphnia magna (Water flea) Duration of test: 48 h

n-butanol
EC50 1,983 mg/l
Test species: Daphnia magna (Water flea) Duration of test: 48 h

Toxicity to algae:
Permethrin
EC50 0.5 mg/l
Duration of test: 72 h

Biodegradability:
Permethrin
0 %, 28 d Not rapidly biodegradable

n-butanol
98 %, 28 d rapidly biodegradable
Method: OECD 301 E

13. DISPOSAL CONSIDERATIONS

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

14. TRANSPORT INFORMATION

Land transport (CFR)
non-regulated

US Sea transport (IMDG)
non-regulated

US Air transport (ICAO / IATA cargo aircraft only)
non-regulated

US Air transport (ICAO / IATA passenger and cargo aircraft)
non-regulated

International IATA

UN Number	3082
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN)
Class	9
Packaging group	III
Dangerous goods labels	9
Environmentally hazardous	yes

International IMDG

UN Number	3082
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN)
Class	9
Packaging group	III
IMDG-Labels	9
EmS Number	F-A
Marine pollutant	yes

15. REGULATORY INFORMATION

Other regulations: No statements available.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required
Components
Permethrin

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components

n-butanol	Reportable quantity: 5000 lbs

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists

Weight percent	Components	CAS-No.
7 - 13%	Permethrin	52645-53-1

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists

Weight percent	Components	CAS-No.
7 - 13%	Permethrin	52645-53-1

California Prop. 65

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

OSHA Hazcom Standard Rating Hazardous

16. OTHER INFORMATION

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET (SDS)

Compliant with OSHA Hazard Communication Standard as defined in 29 CFR 1910.1200.
Prepared to UN-GHS Revision 3.

Revised on 22 October 2013

1) PRODUCT AND COMPANY INFORMATION

Product identifier:

Trade name: Prima Glo & Prima Spray On & Prima Marc (paint)

Product Description: Livestock marking paint

Emergency telephone number:

Please call Chemtrec at 1-800-424-9300

Manufacturer/Supplier:
Prima Tech USA
P.O. Box 336, Kenansville, NC 28349
Phone: 1-910-296-6116
Fax: 1-910-296-0306
Toll-free: 1-888-833-7099
www.primatechusa.com
info@PrimaTechUSA.com

2) HAZARD IDENTIFICATION

- **Hazard classifications of the chemical**

 **WARNING** Skin irritation, category 2 Causes skin irritation Wear protective gloves. IF ON SKIN: Wash with plenty of water. Seek medical advice if irritation persists. Take off contaminated clothing and wash before reuse.	 **WARNING** Eye irritation, category 2A Causes serious eye irritation IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical advice if irritation persists.	 **WARNING** Specific target organ toxicity (single exposure), category 3 May cause drowsiness or dizziness IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.
 **DANGER** Aspiration hazard, category 1 May be fatal if swallowed and enters airways IF SWALLOWED: Immediately call a POISON CONTROL CENTER. Do **NOT** induce vomiting.	 **DANGER** Flammable aerosol, category 1 Extremely flammable aerosol Keep away from heat, sparks, open flames, and hot surfaces—No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F	 **WARNING** Dissolved gas Contains gas under pressure; may explode if heated Protect from sunlight. Store in a well-ventilated place.

(continued on page 2)

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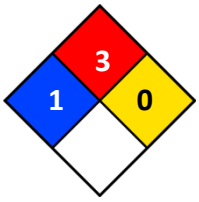
NFPA/HMIS Definitions:
0-Least, 1-Slight, 2-Moderate,
3-High, 4-Extreme (Scale 0-4)

NFPA:



HEALTH: 1

FLAMMABILITY: 3

REACTIVITY: 0

HMIS:

HEALTH	**1**
FIRE	**3**
REACTIVITY	**0**

KEEP OUT OF REACH OF CHILDREN

3) Composition/Information on Ingredients

- **Dangerous components of the mixture***

Chemical name:	**Identifier:**	**Concentration:**
Acetone	CAS: 67-64-1	15-40%
Heptane	CAS: 142-82-5	10-30%
Isobutane/Propellant blend	CAS: 68476-86-8	15-40%

*Mixture contains additional chemicals that are not considered hazardous and are not included on SDS

4) FIRST-AID MEASURES

- **GENERAL ADVICE:** Have SDS or product label if medical advice is needed. Seek a medical professional or doctor if you feel unwell or if irritation(s) persist.
- **IF SWALLOWED:** Do **NOT** induce vomiting. Call a POISON CONTROL CENTER or doctor immediately. Never give anything by mouth to an unconscious person. May be fatal if swallowed and enters airways.
- **IF INHALED:** Remove person to fresh air and keep at rest in a position comfortable for breathing. Victim may experience dizziness or drowsiness—do not operate machinery or drive if inhaled and dizziness persists. If not breathing or breathing is difficult, administer artificial respiration and/or oxygen as needed--seek medical aid if person can not breathe or has difficulty breathing.
- **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do—continue rinsing. Victim may experience serious eye irritation. Consult a doctor if irritation persists.
- **IF ON SKIN:** Wash with plenty of water. Take off contaminated clothing and wash before reuse. Victim may experience skin irritation. Consult a doctor if irritation persists.

5) FIRE-FIGHTING MEASURES

- **EXTINGUISHING METHODS:** Dry chemical, sand, or carbon dioxide after spray has stopped.
- **IF EXTINGUISHING METHODS ARE UNAVAILABLE:** Cool container with water if exposed to heat or flame, move container away from fire area if this can be done without further risk.
- **FIRE HAZARDS:** Contains gas under pressure, pressurized container: May explode if ignited or exposed to heat.
- **SUGGESTED EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:** No special measures are required.

6) ACCIDENTAL RELEASE MEASURES

- **IF ACCIDENTALLY RELEASED OR SPILLED:** Remove or eliminate all sources of ignition. Establish ventilation to keep atmospheric concentrations below limits. Avoid breathing vapors. Wear protective equipment. Keep unprotected persons away.
- **NEUTRALIZING CHEMICAL:** Absorb into clay-like absorbent material.
- **WASTE DISPOSAL METHOD:** Dispose of in accordance with state, local, and federal regulations. Prevent material from entering waterways or sewage. Container may be recycled if completely emptied.

7) HANDLING AND STORAGE

- **CONDITIONS FOR SAFE HANDLING:** Wear protective equipment. Follow instructions found on label.
- **CONDITIONS FOR SAFE STORAGE:** Do not expose to temperatures above 50°C/122°F. Store in a well-ventilated place. Protect from sunlight. Keep away from heat and other sources of ignition. Keep away from oxidizing agents.

8) EXPOSURE CONTROLS/PERSONAL PROTECTION

- **EXPOSURE LIMITS**

Chemical name:	Identifier:	PEL:	ACGIH:	NIOSH:
Acetone	CAS: 67-64-1	1000 ppm	750 ppm	250 ppm
Heptane	CAS: 142-82-5	500 ppm	500 ppm	440 ppm
Isobutane/Propellant Blend	CAS: 68476-86-8	5000 ppm	5000 ppm	5000 ppm

- **VENTILIATION REQUIREMENTS:** Good mechanical ventilation may be adequate for maintaining airborne concentrations below established exposure limits for large uncontrolled releases.
- **IF EXPOSURE LIMITS ARE EXCEDED AND INHALED:** Use a NOISH approved respirator.

Handle material with gloves and protective clothing. Inspect gloves prior to use. Use proper glove removal techniques so that no skin comes into contact with the outside of the glove. Gloves must be chemically resistant (such as rubber).

Use NIOSH/OSHA or EN 166 approved eye protection

(continued on page 4)

(continued from page 3)

Practice good industrial hygiene. Wash hands before breaks and at the end of the workday. Keep material away from foodstuffs, beverages, and feed. Wash and launder all contaminated clothing.

9) PHYSICAL AND CHEMICAL PROPERTIES

- **APPEARANCE:** Varies based on specific color/dye used in formulation
- **ODOR:** Solvent-like odor
- **ODOR THRESHOLD:** Not determined or not applicable
- **pH:** Not determined or not applicable
- **VAPOR PRESSURE:** Approximately 70psi at 70°F/21°C
- **DENSITY:** .88 g/cm³
- **SOLUBILITY:** 0%
- **MELTING/FREEZING POINT:** Not determined or not applicable
- **BOILING POINT:** 104°F/40°C
- **FLAMMABLE EXPLOSIVE LIMITS (% volume in air):** 1.2%-9.5%
- **FLASH POINT (TCC closed cup):** <20°F/-6.67°C
- **FLAME EXTENSION :** Does extend flame
- **FLAMMABILITY:** Contains flammable chemicals
- **AUTO-IGNITION TEMPERATURE:** Does not auto-ignite
- **DECOMPOSITION TEMPERATURE:** Not determined or not applicable
- **EVAPORATION RATE:** Not determined or not applicable
- **VISCOSITY:** Not determined or not applicable
- **VOLATILES BY VOLUME:** <85%

10) STABILITY AND REACTIVITY

- **CHEMICAL STABILITY:** Stable under normal conditions
- **HAZARDOUS POLYMERIZATION:** Can not occur
- **INCOMPATIBLE MATERIALS:** Strong oxidizing agents
- **HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon dioxide and carbon monoxide and other combustion products are possible
- **CONDITIONS TO AVOID:** Heat, sparks, open flames, ignition sources, and sunlight.

11) TOXICOLOGICAL INFORMATION

- **Most likely routes of exposure:** inhalation, ingestion, skin and eye contact
- **Symptoms are more likely to increase the longer the exposure to the chemical**
- **Symptoms may include (but are not limited to):**
  Headache, dizziness, vertigo, incoordination, hilarity
  Persistent gasoline taste in mouth
  Eye, nose, and respiratory irritation

(continued on page 5)

(continued from page 5)

- **The following mixture components are found on the National Toxicology Program Report:** No components listed on National Toxicology Program Report
- **The following mixture components are found on the International Agency for Research on Cancer Monograph list:** No components listed on International Agency for Research on Cancer Monograph list

12) ECOLOGICAL INFORMATION

- **TOXICITY TO AQUATIC LIFE:** Very toxic to aquatic life with long lasting effects
  Do not expose to open waterways or dispose of product through drains or sewage
- **MOBILITY IN SOIL:** not determined or not applicable
- **PERSISTENCE AND DEGRADABILITY:** not determined or not applicable
- **BIOACCUMULATIVE POTENTIAL:** not determined or not applicable
- **PBT and vPvB ASSESSMENT:** not determined or not applicable

13) DISPOSAL CONSIDERATIONS

- Please refer to section 8 for proper personal equipment for use when disposing of container
- Please refer to local, state, and national regulations for proper disposal methods
- Offer surplus and non-recyclables to a licensed disposal company.
- Product, when completely emptied, may be recycled if allowed by local ordinances
- Empty product completely before placed in trash or introduced to a landfill as the product may still burst if heated or damaged

14) TRANSPORT INFORMATION

- **UN IDENTIFICATION NUMBER:** 1950
- **UN SHIPPING NAME:** Flammable Gas Aerosol
- **TRANSPORT HAZARD CLASS:** 2.1
- **DEPARTMENT OF TRANSPORTATION SHIPPING NAME:** Consumer Commodity
- **DEPARTMENT OF TRANSPORTATION HAZARD CLASS:** ORM-D Level 3 Aerosol
- **SHIPPING LABEL:** Flammable gas, Marine pollutant

- **ENVIRONMENTAL HAZARDS:** Marine pollutant. Very toxic to aquatic life with long lasting effects
- **INTERNATIONAL BULK CHEMICAL CODE:** Not determined or not applicable
- **SPECIAL SHIPPING PRECAUTIONS:** Ship container up-right without excessive load on top

15) REGULATORY INFORMATION

- This product is for industrial/institutional use only and is not to be used by general consumers
- The product is regulated by the OSH Act which is found in 29 CFR 1910.1200 of the United States code
- **SARA 302 COMPONENTS:** No components of mixture are subject to reporting
- **SARA 313 COMPONENTS:** This product may contain trace-levels of Formaldehyde (CAS: 50-00-0)
- **MASSACHUSETTS RIGHT TO KNOW COMPONENTS:** This product may contain trace-levels of Formaldehyde (CAS: 50-00-0)
- **PENNSYLVANIA RIGHT TO KNOW COMPONENTS:** This product may contain trace-levels of Formaldehyde (CAS: 50-00-0)
- **NEW JERSEY RIGHT TO KNOW COMPONENTS:** This product may contain trace-levels of Formaldehyde (CAS: 50-00-0)
- **CALIFORNIA PROP 65 COMPONENTS:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm

16) OTHER INFORMATION

- This SDS was completed using the most up to date information available at the time of its completion; however, no representation, warranty, or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself/herself as to the suitability and completeness of such information for his or her particular use. We do not accept any liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement. The SDS does not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
- Abbreviations and acronyms used: ACGIH: American Conference of Governmental Industrial Hygienists. CAS: Chemical Abstracts Service. CFR: Code of Federal Regulations. GHS: Globally Harmonized System. HMIS: Hazardous Materials Identification System. NFPA: National Fire Protection Association. NOISH: National Institute for Occupational Safety and Health. OSHA: Occupational Safety and Health Administration. PEL: Permissible Exposure Limit. SARA: Superfund Amendments and Reauthorization Act (regulation by the EPA). UN: United Nations.

SAFETY DATA SHEET

Prima Glo Fluorescent Green

SECTION 1 - IDENTIFICATION

Product Identifier

Product Number(s) *N7518CT*

Product Name *Prima Glo Fluorescent Livestock Marking Paint - Green - Inverted Tip*

Other Means of Identification *None*

Recommended Use and Restrictions on Use

Recommended Use *Livestock marking dye.*

Restrictions on Use *None Identified*

24 hr Emergency Phone Number

800-255-3924

(Chem-Tel)

MANUFACTURER DETAILS		SUPPLIER DETAILS	
Name	*Chem-Pak, Inc.*	**Name**	*Neogen Corporation*
Address	*242 Corning Way Martinsburg WV 25405*	**Address**	*279 Faison W. McGowan Road Kenansville NC 28349*
Phone Number	*800-336-9828*	**Phone Number**	*910-296-6020*
Fax Number	*304-262-9643*	**Fax Number**	

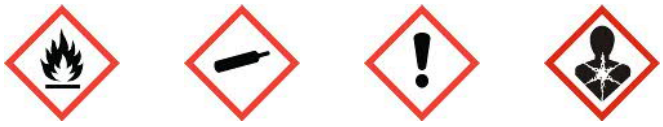
SECTION 2 - IDENTIFICATION

Hazard Classification

HEALTH HAZARDS				PHYSICAL HAZARDS					
Acute Tox. Oral	4	Mutagenicity		Unstable Explosive		Refrigerated Liq. Gas		Pyrophoric Solid	
Acute Tox. Skin		Carcinogenicity		Explosive		Flammable Liquid		Emits Flammable Gas	
Acute Tox. Inhalation		Tox. to Reproduction		Flammable Gas		Flammable Solid		Oxidizing Liquid	
Skin Irritation		STOT SE	1	Aerosol	1	Self-Reactive Sub.		Oxidizing Solid	
Eye Irritation		STOT RE		Oxidizing Gas		Pyrophoric Liquid		Organic Peroxide	
Resp. Sensitization		Aspiration Hazard		Gas Under Pressure	X	Self-Heating Substance		Corrosive to Metal	
Skin Sensitization				**ENVIRONMENTAL HAZARDS** *(GHS Rev 3 Only)*					
				Aquatic Acute		Aquatic Chronic		Ozone Depleting	

Signal Word *Danger*

Hazard Pictograms



Hazard Statements *Extremely flammable aerosol. Contains gas under pressure; may explode if heated. Harmful if swallowed. Causes damage to organs.*

Precautionary Statements

General *Keep out of reach of children.*

Prevention *Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe spray. Wash hands thoroughly after handling. Do not eat, drink , or smoke when using this product.*

Response *IF exposed: Call a doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor if you feel unwell. Rinse mouth.*

Storage *Store in a well-ventilated place. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.*

Disposal *Dispose of contents/container in accordance with local regulations.*

Hazards Not Otherwise Classified *None identified.*

Unknown Acute Toxicity *5 % by wt*

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

ID	INGREDIENT	CAS NUMBER	% WT RANGE*
1	*Liquefied Petroleum Gas*	*0068476-86-8*	*30 - 60*
2	*Ethanol*	*0000064-17-5*	*30 - 60*
3	*Methanol*	*0000067-56-1*	*7 - 13*
4	*Acetone*	*0000067-64-1*	*3 - 7*
5	*Ethyl Acetate*	*0000141-78-6*	*1 - 5*

** Exact percentages of composition withheld as trade secret*

SECTION 4 - FIRST AID MEASURES

Description of First-Aid Measures

General *If exposed or concerned seek medical advice/attention.*

Eye Contact *Immediately flush with clear water for at least 15 minutes, including under the eyelids. Consult a doctor.*

Skin Contact *Remove with soap and water, rinsing and repeating for 15 minutes. Use skin cream to counter any resulting dryness. Consult a physician if irritation continues. If large skin area is affected, remove contaminated clothing.*

Ingestion *Do not induce vomiting! Immediately have the victim drink plenty of water. Do not give milk or digestible oils. Keep airways free. Contact a physician. Never give anything by mouth if victim is rapidly losing consciousness, unconscious, or convulsing.*

Inhalation *Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.*

First-Aid Responder Protection *Wear adequate personal protective equipment based on the nature and severity of the emergency.*

Most Important Symptoms and Effects, Both Acute and Delayed

Eye Contact *Liquid contact may cause pain along with moderate eye irritation.*

Skin Contact *Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin. May cause more severe response if confined to skin.*

Ingestion *Due to being an aerosol, the product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat, and gastrointestinal tract resulting in vomiting and/or cramps. Aspiration of vomit into the lungs may cause inflammation, and possible chemical pneumonitis, bronchopneumonia, or pulmonary edema.*

Inhalation *Prolonged or repeated overexposure is anesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion or death. Irritation of the mucous membranes, coughing, and dyspnea are also possible.*

Indication of Immediate Medical Attention and Special Treatment

Notes to Physician *Treat symptomatically.*

Specific Treatments/Antidotes *No information available.*

Immediate Medical Attention *No information available.*

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media *Water, CO2, dry chemical, or universal aqueous film forming foam*

Unsuitable Extinguishing Media *Water jet*

Specific Hazards Arising from the Chemical or Mixture

Decomposition Products *Oxides of carbon (CO, CO2), smoke, and/or vapors*

Hazards from the Product *CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. In a fire or if heated, a pressure increase will occur which may result in the container bursting. Vapours heavier than air may spread along the ground and travel to an ignition source.*

Advice for Firefighters

Protective Actions *Use water spray to cool fire exposed containers as contents may rupture violently from heat developed pressure.*

Protective Equipment *As with any fire wear SCBA pressure-demand, MSHA/NIOSH approved, and full protective gear.*

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel *No action should be taken by non-emergency personnel without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill. Remove ignition sources and provide adequate ventilation only if it is safe to do so.*

For Emergency Responders *Use personal protection as recommended in Section 8. Observe precautions provided for non-emergency personnel.*

Environmental Precautions

Precautions *Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.*

Methods and Materials for Containment and Cleaning Up

Containment Procedures *Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content may be contained with oil/solvent absorbent pads, socks, and/or absorbents. DO NOT use combustible material such as sawdust.*

Cleanup Procedures *Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.*

Other Information *Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal.*

Prohibited Materials *Combustible absorbent material such as sawdust, use of equipment that may cause sparking.*

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling

General Handling Precautions *KEEP OUT OF THE REACH OF CHILDREN. Avoid prolonged or repeated skin contact. Avoid breathing of vapors. Do not incinerate (burn) containers. Always replace overcap when not in use. Avoid use around open flames or other sources of ignition. Exposure to heat or prolonged exposure to sun may cause can to burst. Use only with adequate ventilation, opening doors or windows to achieve cross-ventilation. Wash hands after use.*

Hygiene Recommendations *Do not eat, drink or smoke when using this product. Wash hands thoroughly after use. Remove contaminated clothing and protective equipment before entering eating or smoking areas.*

Conditions for Safe Storage Including Any Incompatibilities

Storage Requirements *Storage of individual cans should be done in an area below 50 °C (122 °F), and away from heat sources. Ensure can is in a secure place to prevent knocking over and accidental rupture. For storage of pallet quantities, compliance with NFPA 30B (Manufacture and Storage of Aerosol Products) is recommended. This product is classified as a Level 3 Aerosol.*

Incompatibilities *Segregate storage away from materials indicated in Section 10*

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

ID	OSHA			NIOSH				ACGIH			AIHA
	PEL	STEL	CEILING	IDLH	REL	STEL	CEILING	TLV	STEL	CEILING	WEEL
1	1000 ppm	–	–	2000 ppm	1000 ppm	–	–	1000 ppm	–	–	–
2	–	–	–	3300 ppm	1000 ppm	–	–	1000 ppm	–	–	–
3	200 ppm	–	–	6000 ppm	200 ppm	250 ppm	–	200 ppm	250 ppm	–	–
4	1000 ppm	–	–	2500 ppm	250 ppm	–	–	500 ppm	250 ppm	–	–
5	400 ppm	–	–	2000 ppm	400 ppm	–	–	400 ppm	–	–	–

Biological Exposure Indices

ID	DETERMINANT	SAMPLING TIME	BEI	NOTATION
3	*Methanol in urine*	*End of shift*	*15 mg/L*	*B, Ns*
4	*Acetone in urine*	*End of shift*	*50 mg/L*	*Ns*

Other Control Parameters *Not Available*

Appropriate Engineering Control

Engineering Measures *Use only with adequate ventilation. General ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system may be necessary to control air contamination below that of the lowest OEL from the table above.*

Individual Protection Measures

Hygiene Considerations *Avoid breathing vapors and contact with the skin and eyes. Always replace overcap when not in use. Keep out the reach of children. Wash hands after use.*

Thermal Protection *This product does not present a thermal hazard.*

Respiratory Protection *An approved respirator with organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed occupational exposure limits. If respirators are needed, compliance with OSHA standard 29 CFR 1910.134 is necessary.*

Skin Protection *For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or repeated contact could occur, use protective clothing impervious to the ingredients listed in Section 2.*

Eye/Face Protection *Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact with this material could occur, chemical splash proof goggles are recommended.*

Other Protective Equipment *Safety showers and eye-wash stations should be available in the workplace near where the material will be used.*

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Properties

Boiling Point	*> 56.1 °C (133.0 °F)*	***Melting / Freezing Point***	*>-97.7 °C (-143.0 °F)*
Flash Point, Liquid	*> -17.0 °C (1.4 °F)*	***Flash Point, Propellant***	*-104.4 °C (-156.0 °F)*
Explosive Limits	*2.50% - 36.00%*	***Autoignition Temperature, Liquid***	*385.0 °C (725.0 °F)*
Flammability	*Extremely Flammable Aerosol*	***Relative Density (H2O = 1)***	*0.674 g/cc*
Molecular Weight	*Not Available*	***Weight***	*5.624 lbs/gal*
Vapor Pressure	*70.00 psig*	***pH***	*Not Available*
Vapor Density	*2.000 g/cc Maximum*	***Evaporation Rate***	*Not Available*
Form	*Pressurized Product*	***Partition Coefficient***	*Not Available*
Viscosity	*Not Available*	***Refractive Index***	*Not Available*
Odor Threshold	*Not Available*	***Heat of Combustion (△Hc)***	*Not Available*
Odor	*Paint Like*	***Water Solubility***	*Not Available*
Appearance / Color	*Green Liquid*	***Decomposition Temperature***	*Not Available*

Air Quality Properties

Percent Volatile	*95% Wt (95% Vol) Max*	***VOC Regulatory***	*5.264 lbs/gal (630.723 g/L)*
Percent VOC	*90% Wt (91% Vol) Max*	***VOC Actual***	*5.04 lbs/gal (603.854 g/L)*
Percent HAP	*12% Wt (10% Vol) Max*	***HAP Content***	*0.65 lbs/gal (77.803 g/L)*
Solids/Non Volatile Content	*6% Wt (6% Vol) Max*	***Maximum Incremental Reactivity***	*1.14 g O3/g*
Global Warming Potential	*3.548*		

SECTION 10 - STABILITY AND REACTIVITY

Reactivity *No specific test data related to reactivity is available for this product or its ingredients.*

Chemical Stability *This product is stable.*

Hazardous Reactions *Under normal conditions of storage and use, hazardous reactions are not expected to occur.*

Conditions to Avoid *Keep away from heat, sparks, flame, and red hot metal.*

Material Incompatibility *Acids, Activated Carbon, Alkali Metals, Alkalis, Ammonia, Carbon Tetrachloride, Chlorine Dioxide, Diethyl Zinc, Hexachloromelamine, Hydrogen Peroxide, Isocyanates, Isoprene, Lithium Aluminum Hydride, Mineral Acids, Nitrates, Potassium Tert-Butoxide, Strong Oxidizing Agents, Strong Reducing Agents, Sulfur Dichloride,Trichloromelamine*

Decomposition Productions *Oxides of Carbon, Acetic Acid, Formaldehyde, Hydrogen Peroxide, Isoproanol, Methanol may be formed depending on fire conditions.*

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity Estimates *(mixture)*

Oral LD_{50} *627 mg/kg*

Dermal LD_{50} *16441 mg/kg*

Inhalation LC_{50} *657 mg/L 4-hour*

Acute Toxicity on Ingredients

ID	ORAL LD50		DERMAL LD50		INHALATION LC50		
	VALUE	SPECIES	VALUE	SPECIES	VALUE	TIME	SPECIES
1	–	–	–	–	658 mg/L	4h	rat
2	7060 mg/kg	rat	>15800 mg/kg	rabbit	>32380 ppm	4h	rat
3	143 mg/kg	human	17100 mg/kg	rabbit	128.2 mg/L	4h	rat
4	5800 mg/kg	rat	20000 mg/kg	rabbit	50100 mg/m3	8h	rat
5	5620 mg/kg	rat	>18000 mg/kg	rabbit	10600 ppm	4h	rat

Health Hazard Classification

Skin Corrosion / Irritation *Classification criteria not met*

Eye Damage / Irritation *Classification criteria not met*

Respiratory Irritation *Classification criteria not met*

Respiratory / Skin Sensitization *Classification criteria not met*

Germ Cell Mutagenicity *Classification criteria not met*

Reproductive Toxicity *Classification criteria not met*

STOT - Single Exposure *Cateogry 1*

STOT - Repeated Exposure *Classification criteria not met*

Aspiration Hazard *Classification criteria not met*

Carcinogen Data

ID	Calif Prop-65	OSHA	NIOSH	ACGIH	NTP	IARC
–	No	No	No	No	No	No

Information on the Likely Routes of Exposure

Routes of Exposure *Skin contact, skin absorption, eye contact, inhalation, ingestion*

Information on Physical, Chemical and Toxicological Effects

Symptoms of Exposure *Asphyxia, Blindness, Central Nervous System Depression, Cough, Dermatitis, Dizziness, Drowsiness, Skin Irritation, Throat Irritation, Upper Respiratory System Irritation, Visual Disturbance, Vomiting*

Delayed and Immediate Effects and also Chronic Effects from Short and Long-Term Exposure

Delayed Effects *No known delayed effects.*

Immediate Effects *No known immediate effects.*

Chronic Effects *Reports have associated repeated and prolonged occupational overexposure to solvents with irreversible brain and nervous system damage (sometimes referred to as "Solvent or Painter's Syndrome"). Intentional misuse by concentrating and inhaling this product may be harmful or fatal.*

Medical Conditions Aggravated *May aggravate personnel with pre-existing disorders associated with any of the Target Organs.*

Target Organs *Cardiovascular System, Central Nervous System, Eyes, Liver, Lumphoid System, Respiratory System, Skin*

SECTION 12 - ECOLOGICAL INFORMATION

Acute Aquatic Toxicity

ID	FISH			INVERTEBRATES			AQUATIC PLANTS			MICROORGANISMS		
	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD
2	LC50	11000 mg/L	96h	EC50	10800 mg/L	24h	LOEC	1450 mg/L	8d	LOEC	6500 mg/L	16h
3	LC50	15400 mg/L	96h	EC50	>10000 mg/L	48h	EC50	22000 mg/L	96h	EC5	6600 mg/L	16h
4	LC50	5540 mg/L	96h	LC50	8800 mg/L	48h	NOEC	530 mg/L	8d	EC5	1700 mg/L	16h
5	LC50	230 mg/L	96h	EC50	717 mg/L	48h	IC50	3300 mg/L	48h	EC10	2900 mg/L	16h

Ecological Data

ID	PERSISTENCE AND DEGRADABILITY				BIOACCUMULATIVE POTENTIAL		MOBILITY
	PERSISTENCE	BOD	COD	ThOD	Pow / Kow	BCF	Koc
2	–	930 mg/g / 5d	1700 mg/g	2.1 mg/g	-0.31 log Pow	–	–
3	72% / 5 days	850 mg/g	1420 mg/g	1500 mg/g	-77 log Pow	0.48 log BCF	0.44 log Koc
4	90.9% / 28 days	1.85 mg/g / 5 d	2.07 mg/g	2.21 g/g	-0.24 log Pow	0.69 BCF	1.26 log Koc
5	100% / 28 days	1 g/g	1.69 g/g	1.82 g/g	0.73 log Pow	1.48 log BCF	0.788 log Koc

Other Adverse Effects *No additional information available.*

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal *Characteristics and waste stream classification can change with product use and location. It is the responsibility of the user to determine the proper storage, transportation, treatment, and/or disposal methodologies for spent materials and residues at the time of disposition. All waste must be disposed of in compliance with the respective national, federal, state, and/or local regulations.*

Waste Disposal of Packaging *An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6)), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.*

Landfill Precautions *Not available*

Incineration Precautions *** DO NOT INCINERATE ** CONTENTS UNDER PRESSURE ****

SECTION 14 - TRANSPORTATION INFORMATION

Transportation Information	***Ground Transportation*** *(DOT)*	***Air Transportation*** *(IATA)*	***Ocean Transportation*** *(IMDG)*
UN Number	*UN1950*	*UN1950*	*UN1950*
Proper Shipping Name	*Aerosols, Limited Quantity*	*Aerosols, Flammable, Limited Quantity*	*Aerosols, Limited Quantity*
Hazard Class(es)	*2.1*	*2.1*	*2.1*
Packaging Group	—	—	—
Marine Pollutant	*No*	*No*	*No*
Hazard Label(s)			

SECTION 15 - REGULATORY INFORMATION

Federal Regulations

ID	TSCA	SARA 302					SARA 311/312				CLEAN AIR ACT		CLEAN
	LISTED	EHS TPQ	RCRA	CERCLA	SARA 313	FIRE	REACTIVITY	ACUTE	CHRONIC	PRESSURE	HAP	SOCMI	WATER ACT
1	Yes	–	–	–	–	Yes	–	–	–	–	–	–	–
2	Yes	–	–	–	–	Yes	–	–	–	--	–	–	–
3	Yes	–	U154	5000	12%	Yes	–	Yes	–	–	Yes	Yes	–

ID	TSCA LISTED	SARA 302 EHS TPQ	RCRA	CERCLA	SARA 313	FIRE	SARA 311/312 REACTIVITY	SARA 311/312 ACUTE	SARA 311/312 CHRONIC	SARA 311/312 PRESSURE	CLEAN AIR ACT HAP	CLEAN AIR ACT SOCMI	CLEAN WATER ACT
4	Yes	–	U112	5000	–	Yes	–	Yes	–	–	–	–	–
5	Yes	–	U112	5000-	–	Yes	–	Yes	–	–	–	–	–

State Regulations

ID	CA P-65	DE RQ	MA RTK CODES	ME TYPE	ME RQ	MN RTK	MN AIR	MN WATER	NJ RTK	NY AIR	NY LAND	NY ACUTE	PA LISTED	WA PEL TWA	WI TABLE	WV TAP
2	–	–	2,4,5,6 * T1*	–	–	AO	–	–	–	–	–	–	Yes	1000 ppm	–	–
3	D	5000	2,4,5,6 F8 F9	–	2000	ANO	1	–	–	5000	1	–	Yes-E	200 ppm	–	–
4	–	5000	2,4,5,6 F8 F9	–	20000	AON	–	–	--	5000	1	–	Yes-E	750 ppm	–	–
5	–	5000	2,4,5,6 F8	–	20000	AO	–	–	–	5000	1	–	Yes-E	400 ppm	–	–

SECTION 16 - OTHER INFORMATION

SDS Revision History

Revision 1, 11/03/2015, Original in GHS Version 3 Format.

SDS Compliance

This SDS complies with the below listed regulations only. For SDS that comply with other countries, please contact our Regulatory Department at msds@chem-pak.com

OSHA Hazard Communication Standard (HCS 2012) 29 CFR 1910.1200
Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Revision 3

Disclaimer of Liability

The information contained herein is based upon data provided to us by our suppliers, and reflects our best judgement. However, no warranty of merchantability, fitness for any use, or any other warranty or guarantee is expressed or implied regarding the accuracy of such data, or the results to be obtained from use thereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of such application. This information is furnished upon the condition that the persons receiving it shall make their own determinations of the suitability of the material for any particular use. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist.

SAFETY DATA SHEET

Prima Glo Fluorescent Orange

SECTION 1 - IDENTIFICATION

Product Identifier

Product Number(s) *N7519CT*

Product Name *Prima Glo Fluorescent Livestock Marking Paint - Orange - Inverted Tip*

Other Means of Identification *None*

Recommended Use and Restrictions on Use

Recommended Use *Livestock marking dye.*

Restrictions on Use *None Identified*

24 hr Emergency Phone Number

800-255-3924

(Chem-Tel)

MANUFACTURER DETAILS		SUPPLIER DETAILS	
Name	*Chem-Pak, Inc.*	**Name**	*Neogen Corporation*
Address	*242 Corning Way Martinsburg WV 25405*	**Address**	*279 Faison W. McGowan Road Kenansville NC 28349*
Phone Number	*800-336-9828*	**Phone Number**	*910-296-6020*
Fax Number	*304-262-9643*	**Fax Number**	

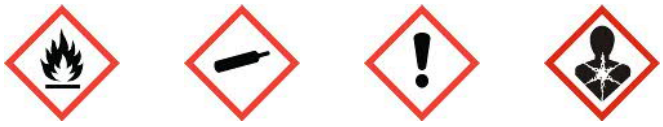
SECTION 2 - IDENTIFICATION

Hazard Classification

HEALTH HAZARDS				PHYSICAL HAZARDS					
Acute Tox. Oral	4	Mutagenicity		Unstable Explosive		Refrigerated Liq. Gas		Pyrophoric Solid	
Acute Tox. Skin		Carcinogenicity		Explosive		Flammable Liquid		Emits Flammable Gas	
Acute Tox. Inhalation		Tox. to Reproduction		Flammable Gas		Flammable Solid		Oxidizing Liquid	
Skin Irritation		STOT SE	1	Aerosol	1	Self-Reactive Sub.		Oxidizing Solid	
Eye Irritation		STOT RE		Oxidizing Gas		Pyrophoric Liquid		Organic Peroxide	
Resp. Sensitization		Aspiration Hazard		Gas Under Pressure	X	Self-Heating Substance		Corrosive to Metal	
Skin Sensitization				**ENVIRONMENTAL HAZARDS** *(GHS Rev 3 Only)*					
				Aquatic Acute		Aquatic Chronic		Ozone Depleting	

Signal Word *Danger*

Hazard Pictograms



Hazard Statements *Extremely flammable aerosol. Contains gas under pressure; may explode if heated. Harmful if swallowed. Causes damage to organs.*

Precautionary Statements

General *Keep out of reach of children.*

Prevention *Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe spray. Wash hands thoroughly after handling. Do not eat, drink , or smoke when using this product.*

Response *IF exposed: Call a doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor if you feel unwell. Rinse mouth.*

Storage *Store in a well-ventilated place. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.*

Disposal *Dispose of contents/container in accordance with local regulations.*

Hazards Not Otherwise Classified *None identified.*

Unknown Acute Toxicity *5 % by wt*

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

ID	INGREDIENT	CAS NUMBER	% WT RANGE*
1	*Liquefied Petroleum Gas*	*0068476-86-8*	*30 - 60*
2	*Ethanol*	*0000064-17-5*	*30 - 60*
3	*Methanol*	*0000067-56-1*	*7 - 13*
4	*Acetone*	*0000067-64-1*	*3 - 7*
5	*Ethyl Acetate*	*0000141-78-6*	*1 - 5*

** Exact percentages of composition withheld as trade secret*

SECTION 4 - FIRST AID MEASURES

Description of First-Aid Measures

General *If exposed or concerned seek medical advice/attention.*

Eye Contact *Immediately flush with clear water for at least 15 minutes, including under the eyelids. Consult a doctor.*

Skin Contact *Remove with soap and water, rinsing and repeating for 15 minutes. Use skin cream to counter any resulting dryness. Consult a physician if irritation continues. If large skin area is affected, remove contaminated clothing.*

Ingestion *Do not induce vomiting! Immediately have the victim drink plenty of water. Do not give milk or digestible oils. Keep airways free. Contact a physician. Never give anything by mouth if victim is rapidly losing consciousness, unconscious, or convulsing.*

Inhalation *Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.*

First-Aid Responder Protection *Wear adequate personal protective equipment based on the nature and severity of the emergency.*

Most Important Symptoms and Effects, Both Acute and Delayed

Eye Contact *Liquid contact may cause pain along with moderate eye irritation.*

Skin Contact *Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin. May cause more severe response if confined to skin.*

Ingestion *Due to being an aerosol, the product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat, and gastrointestinal tract resulting in vomiting and/or cramps. Aspiration of vomit into the lungs may cause inflammation, and possible chemical pneumonitis, bronchopneumonia, or pulmonary edema.*

Inhalation *Prolonged or repeated overexposure is anesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion or death. Irritation of the mucous membranes, coughing, and dyspnea are also possible.*

Indication of Immediate Medical Attention and Special Treatment

Notes to Physician *Treat symptomatically.*

Specific Treatments/Antidotes *No information available.*

Immediate Medical Attention *No information available.*

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media *Water, CO2, dry chemical, or universal aqueous film forming foam*

Unsuitable Extinguishing Media *Water jet*

Specific Hazards Arising from the Chemical or Mixture

Decomposition Products *Oxides of carbon (CO, CO2), smoke, and/or vapors*

Hazards from the Product *CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. In a fire or if heated, a pressure increase will occur which may result in the container bursting. Vapours heavier than air may spread along the ground and travel to an ignition source.*

Advice for Firefighters

Protective Actions *Use water spray to cool fire exposed containers as contents may rupture violently from heat developed pressure.*

Protective Equipment *As with any fire wear SCBA pressure-demand, MSHA/NIOSH approved, and full protective gear.*

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel *No action should be taken by non-emergency personnel without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill. Remove ignition sources and provide adequate ventilation only if it is safe to do so.*

For Emergency Responders *Use personal protection as recommended in Section 8. Observe precautions provided for non-emergency personnel.*

Environmental Precautions

Precautions *Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.*

Methods and Materials for Containment and Cleaning Up

Containment Procedures *Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content may be contained with oil/solvent absorbent pads, socks, and/or absorbents. DO NOT use combustible material such as sawdust.*

Cleanup Procedures *Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.*

Other Information *Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal.*

Prohibited Materials *Combustible absorbent material such as sawdust, use of equipment that may cause sparking.*

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling

General Handling Precautions *KEEP OUT OF THE REACH OF CHILDREN. Avoid prolonged or repeated skin contact. Avoid breathing of vapors. Do not incinerate (burn) containers. Always replace overcap when not in use. Avoid use around open flames or other sources of ignition. Exposure to heat or prolonged exposure to sun may cause can to burst. Use only with adequate ventilation, opening doors or windows to achieve cross-ventilation. Wash hands after use.*

Hygiene Recommendations *Do not eat, drink or smoke when using this product. Wash hands thoroughly after use. Remove contaminated clothing and protective equipment before entering eating or smoking areas.*

Conditions for Safe Storage Including Any Incompatibilities

Storage Requirements *Storage of individual cans should be done in an area below 50 °C (122 °F), and away from heat sources. Ensure can is in a secure place to prevent knocking over and accidental rupture. For storage of pallet quantities, compliance with NFPA 30B (Manufacture and Storage of Aerosol Products) is recommended. This product is classified as a Level 3 Aerosol.*

Incompatibilities *Segregate storage away from materials indicated in Section 10*

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

ID	OSHA			NIOSH				ACGIH			AIHA
	PEL	STEL	CEILING	IDLH	REL	STEL	CEILING	TLV	STEL	CEILING	WEEL
1	1000 ppm	–	–	2000 ppm	1000 ppm	–	–	1000 ppm	–	–	–
2	–	–	–	3300 ppm	1000 ppm	–	–	1000 ppm	–	–	–
3	200 ppm	–	–	6000 ppm	200 ppm	250 ppm	–	200 ppm	250 ppm	–	–
4	1000 ppm	–	–	2500 ppm	250 ppm	–	–	500 ppm	250 ppm	–	–
5	400 ppm	–	–	2000 ppm	400 ppm	–	–	400 ppm	–	–	–

Biological Exposure Indices

ID	DETERMINANT	SAMPLING TIME	BEI	NOTATION
3	*Methanol in urine*	*End of shift*	*15 mg/L*	*B, Ns*
4	*Acetone in urine*	*End of shift*	*50 mg/L*	*Ns*

Other Control Parameters *Not Available*

Appropriate Engineering Control

Engineering Measures *Use only with adequate ventilation. General ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system may be necessary to control air contamination below that of the lowest OEL from the table above.*

Individual Protection Measures

Hygiene Considerations *Avoid breathing vapors and contact with the skin and eyes. Always replace overcap when not in use. Keep out the reach of children. Wash hands after use.*

Thermal Protection *This product does not present a thermal hazard.*

Respiratory Protection *An approved respirator with organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed occupational exposure limits. If respirators are needed, compliance with OSHA standard 29 CFR 1910.134 is necessary.*

Skin Protection *For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or repeated contact could occur, use protective clothing impervious to the ingredients listed in Section 2.*

Eye/Face Protection *Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact with this material could occur, chemical splash proof goggles are recommended.*

Other Protective Equipment *Safety showers and eye-wash stations should be available in the workplace near where the material will be used.*

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Properties

Boiling Point	*> 56.1 °C (133.0 °F)*	***Melting / Freezing Point***	*>-97.7 °C (-143.0 °F)*
Flash Point, Liquid	*> -17.0 °C (1.4 °F)*	***Flash Point, Propellant***	*-104.4 °C (-156.0 °F)*
Explosive Limits	*2.50% - 36.00%*	***Autoignition Temperature, Liquid***	*385.0 °C (725.0 °F)*
Flammability	*Extremely Flammable Aerosol*	***Relative Density (H2O = 1)***	*0.674 g/cc*
Molecular Weight	*Not Available*	***Weight***	*5.624 lbs/gal*
Vapor Pressure	*70.00 psig*	***pH***	*Not Available*
Vapor Density	*2.000 g/cc Maximum*	***Evaporation Rate***	*Not Available*
Form	*Pressurized Product*	***Partition Coefficient***	*Not Available*
Viscosity	*Not Available*	***Refractive Index***	*Not Available*
Odor Threshold	*Not Available*	***Heat of Combustion (△Hc)***	*Not Available*
Odor	*Paint Like*	***Water Solubility***	*Not Available*
Appearance / Color	*Orange Liquid*	***Decomposition Temperature***	*Not Available*

Air Quality Properties

Percent Volatile	*95% Wt (95% Vol) Max*	***VOC Regulatory***	*5.264 lbs/gal (630.723 g/L)*
Percent VOC	*90% Wt (91% Vol) Max*	***VOC Actual***	*5.04 lbs/gal (603.854 g/L)*
Percent HAP	*12% Wt (10% Vol) Max*	***HAP Content***	*0.65 lbs/gal (77.803 g/L)*
Solids/Non Volatile Content	*6% Wt (6% Vol) Max*	***Maximum Incremental Reactivity***	*1.14 g O3/g*
Global Warming Potential	*3.548*		

SECTION 10 - STABILITY AND REACTIVITY

Reactivity *No specific test data related to reactivity is available for this product or its ingredients.*

Chemical Stability *This product is stable.*

Hazardous Reactions *Under normal conditions of storage and use, hazardous reactions are not expected to occur.*

Conditions to Avoid *Keep away from heat, sparks, flame, and red hot metal.*

Material Incompatibility *Acids, Activated Carbon, Alkali Metals, Alkalis, Ammonia, Carbon Tetrachloride, Chlorine Dioxide, Diethyl Zinc, Hexachloromelamine, Hydrogen Peroxide, Isocyanates, Isoprene, Lithium Aluminum Hydride, Mineral Acids, Nitrates, Potassium Tert-Butoxide, Strong Oxidizing Agents, Strong Reducing Agents, Sulfur Dichloride,Trichloromelamine*

Decomposition Productions *Oxides of Carbon, Acetic Acid, Formaldehyde, Hydrogen Peroxide, Isoproanol, Methanol may be formed depending on fire conditions.*

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity Estimates *(mixture)*

Oral LD_{50} *627 mg/kg*

Dermal LD_{50} *16441 mg/kg*

Inhalation LC_{50} *657 mg/L 4-hour*

Acute Toxicity on Ingredients

ID	ORAL LD50		DERMAL LD50		INHALATION LC50		
	VALUE	SPECIES	VALUE	SPECIES	VALUE	TIME	SPECIES
1	–	–	–	–	658 mg/L	4h	rat
2	7060 mg/kg	rat	>15800 mg/kg	rabbit	>32380 ppm	4h	rat
3	143 mg/kg	human	17100 mg/kg	rabbit	128.2 mg/L	4h	rat
4	5800 mg/kg	rat	20000 mg/kg	rabbit	50100 mg/m3	8h	rat
5	5620 mg/kg	rat	>18000 mg/kg	rabbit	10600 ppm	4h	rat

Health Hazard Classification

Skin Corrosion / Irritation *Classification criteria not met*

Eye Damage / Irritation *Classification criteria not met*

Respiratory Irritation *Classification criteria not met*

Respiratory / Skin Sensitization *Classification criteria not met*

Germ Cell Mutagenicity *Classification criteria not met*

Reproductive Toxicity *Classification criteria not met*

STOT - Single Exposure *Cateogry 1*

STOT - Repeated Exposure *Classification criteria not met*

Aspiration Hazard *Classification criteria not met*

Carcinogen Data

ID	Calif Prop-65	OSHA	NIOSH	ACGIH	NTP	IARC
–	No	No	No	No	No	No

Information on the Likely Routes of Exposure

Routes of Exposure *Skin contact, skin absorption, eye contact, inhalation, ingestion*

Information on Physical, Chemical and Toxicological Effects

Symptoms of Exposure *Asphyxia, Blindness, Central Nervous System Depression, Cough, Dermatitis, Dizziness, Drowsiness, Skin Irritation, Throat Irritation, Upper Respiratory System Irritation, Visual Disturbance, Vomiting*

Delayed and Immediate Effects and also Chronic Effects from Short and Long-Term Exposure

Delayed Effects *No known delayed effects.*

Immediate Effects *No known immediate effects.*

Chronic Effects *Reports have associated repeated and prolonged occupational overexposure to solvents with irreversible brain and nervous system damage (sometimes referred to as "Solvent or Painter's Syndrome"). Intentional misuse by concentrating and inhaling this product may be harmful or fatal.*

Medical Conditions Aggravated *May aggravate personnel with pre-existing disorders associated with any of the Target Organs.*

Target Organs *Cardiovascular System, Central Nervous System, Eyes, Liver, Lumphoid System, Respiratory System, Skin*

SECTION 12 - ECOLOGICAL INFORMATION

Acute Aquatic Toxicity

ID	FISH			INVERTEBRATES			AQUATIC PLANTS			MICROORGANISMS		
	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD
2	LC50	11000 mg/L	96h	EC50	10800 mg/L	24h	LOEC	1450 mg/L	8d	LOEC	6500 mg/L	16h
3	LC50	15400 mg/L	96h	EC50	>10000 mg/L	48h	EC50	22000 mg/L	96h	EC5	6600 mg/L	16h
4	LC50	5540 mg/L	96h	LC50	8800 mg/L	48h	NOEC	530 mg/L	8d	EC5	1700 mg/L	16h
5	LC50	230 mg/L	96h	EC50	717 mg/L	48h	IC50	3300 mg/L	48h	EC10	2900 mg/L	16h

Ecological Data

ID	PERSISTENCE AND DEGRADABILITY				BIOACCUMULATIVE POTENTIAL		MOBILITY
	PERSISTENCE	BOD	COD	ThOD	Pow / Kow	BCF	Koc
2	–	930 mg/g / 5d	1700 mg/g	2.1 mg/g	-0.31 log Pow	–	–
3	72% / 5 days	850 mg/g	1420 mg/g	1500 mg/g	-77 log Pow	0.48 log BCF	0.44 log Koc
4	90.9% / 28 days	1.85 mg/g / 5 d	2.07 mg/g	2.21 g/g	-0.24 log Pow	0.69 BCF	1.26 log Koc
5	100% / 28 days	1 g/g	1.69 g/g	1.82 g/g	0.73 log Pow	1.48 log BCF	0.788 log Koc

Other Adverse Effects — *No additional information available.*

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal — *Characteristics and waste stream classification can change with product use and location. It is the responsibility of the user to determine the proper storage, transportation, treatment, and/or disposal methodologies for spent materials and residues at the time of disposition. All waste must be disposed of in compliance with the respective national, federal, state, and/or local regulations.*

Waste Disposal of Packaging — *An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6)), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.*

Landfill Precautions — *Not available*

Incineration Precautions — *** DO NOT INCINERATE ** CONTENTS UNDER PRESSURE ****

SECTION 14 - TRANSPORTATION INFORMATION

Transportation Information	***Ground Transportation*** *(DOT)*	***Air Transportation*** *(IATA)*	***Ocean Transportation*** *(IMDG)*
UN Number	*UN1950*	*UN1950*	*UN1950*
Proper Shipping Name	*Aerosols, Limited Quantity*	*Aerosols, Flammable, Limited Quantity*	*Aerosols, Limited Quantity*
Hazard Class(es)	*2.1*	*2.1*	*2.1*
Packaging Group	—	—	—
Marine Pollutant	*No*	*No*	*No*
Hazard Label(s)			

SECTION 15 - REGULATORY INFORMATION

Federal Regulations

ID	TSCA	SARA 302				SARA 311/312					CLEAN AIR ACT		CLEAN
	LISTED	EHS TPQ	RCRA	CERCLA	SARA 313	FIRE	REACTIVITY	ACUTE	CHRONIC	PRESSURE	HAP	SOCMI	WATER ACT
1	Yes	–	–	–	–	Yes	–	–	–	–	–	–	–
2	Yes	–	–	–	–	Yes	–	–	–	--	–	–	–
3	Yes	–	U154	5000	12%	Yes	–	Yes	–	–	Yes	Yes	–

ID	TSCA LISTED	SARA 302 EHS TPQ	RCRA	CERCLA	SARA 313	FIRE	REACTIVITY	SARA 311/312 ACUTE	SARA 311/312 CHRONIC	SARA 311/312 PRESSURE	CLEAN AIR ACT HAP	CLEAN AIR ACT SOCMI	CLEAN WATER ACT
4	Yes	–	U112	5000	–	Yes	–	Yes	–	–	–	–	–
5	Yes	–	U112	5000-	–	Yes	–	Yes	–	–	–	–	–

State Regulations

ID	CA P-65	DE RQ	MA RTK CODES	ME TYPE	ME RQ	MN RTK	MN AIR	MN WATER	NJ RTK	NY AIR	NY LAND	NY ACUTE	PA LISTED	WA PEL TWA	WI TABLE	WV TAP
2	–	–	2,4,5,6 * T1*	–	–	AO	–	–	–	–	–	–	Yes	1000 ppm	–	–
3	D	5000	2,4,5,6 F8 F9	–	2000	ANO	1	–	–	5000	1	–	Yes-E	200 ppm	–	–
4	–	5000	2,4,5,6 F8 F9	–	20000	AON	–	–	--	5000	1	–	Yes-E	750 ppm	–	–
5	–	5000	2,4,5,6 F8	–	20000	AO	–	–	–	5000	1	–	Yes-E	400 ppm	–	–

SECTION 16 - OTHER INFORMATION

SDS Revision History

Revision 1, 11/03/2015, Original in GHS Version 3 Format.

SDS Compliance

This SDS complies with the below listed regulations only. For SDS that comply with other countries, please contact our Regulatory Department at msds@chem-pak.com

OSHA Hazard Communication Standard (HCS 2012) 29 CFR 1910.1200
Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Revision 3

Disclaimer of Liability

The information contained herein is based upon data provided to us by our suppliers, and reflects our best judgement. However, no warranty of merchantability, fitness for any use, or any other warranty or guarantee is expressed or implied regarding the accuracy of such data, or the results to be obtained from use thereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of such application. This information is furnished upon the condition that the persons receiving it shall make their own determinations of the suitability of the material for any particular use. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist.

SAFETY DATA SHEET

Prima Spray-On II Blue

SECTION 1 - IDENTIFICATION

Product Identifier

Product Number(s) *N7468CT*

Product Name *Prima Spray-On II Blue Livestock Marking Dye - Inverted Tip*

Other Means of Identification *None*

Recommended Use and Restrictions on Use

Recommended Use *Livestock marking dye.*

Restrictions on Use *None Identified*

24 hr Emergency Phone Number

800-255-3924

(Chem-Tel)

MANUFACTURER DETAILS		SUPPLIER DETAILS	
Name	*Chem-Pak, Inc.*	**Name**	*Neogen Corporation*
Address	*242 Corning Way* *Martinsburg WV 25405*	**Address**	*279 Faison W. McGowan Road* *Kenansville NC 28349*
Phone Number	*800-336-9828*	**Phone Number**	*910-296-6020*
Fax Number	*304-262-9643*	**Fax Number**	

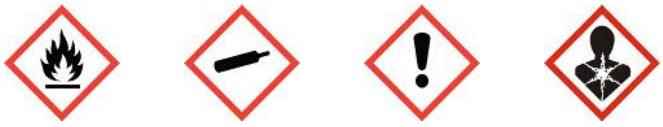
SECTION 2 - IDENTIFICATION

Hazard Classification

HEALTH HAZARDS				PHYSICAL HAZARDS					
Acute Tox. Oral	4	Mutagenicity		Unstable Explosive		Refrigerated Liq. Gas		Pyrophoric Solid	
Acute Tox. Skin		Carcinogenicity		Explosive		Flammable Liquid		Emits Flammable Gas	
Acute Tox. Inhalation		Tox. to Reproduction		Flammable Gas		Flammable Solid		Oxidizing Liquid	
Skin Irritation		STOT SE	1	Aerosol	1	Self-Reactive Sub.		Oxidizing Solid	
Eye Irritation		STOT RE		Oxidizing Gas		Pyrophoric Liquid		Organic Peroxide	
Resp. Sensitization		Aspiration Hazard		Gas Under Pressure	X	Self-Heating Substance		Corrosive to Metal	
Skin Sensitization				**ENVIRONMENTAL HAZARDS** *(GHS Rev 3 Only)*					
				Aquatic Acute		Aquatic Chronic		Ozone Depleting	

Signal Word *Danger*

Hazard Pictograms



Hazard Statements *Extremely flammable aerosol. Contains gas under pressure; may explode if heated. Harmful if swallowed. Causes damage to organs.*

Precautionary Statements

General *Keep out of reach of children.*

Prevention *Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe spray. Wash hands thoroughly after handling. Do not eat, drink , or smoke when using this product.*

Response *If exposed: Call a doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor if you feel unwell. Rinse mouth.*

Storage *Store in a well-ventilated place. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.*

Disposal *Dispose of contents/container in accordance with local regulations.*

Hazards Not Otherwise Classified *None identified.*

Unknown Acute Toxicity *3 % by wt*

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

ID	INGREDIENT	CAS NUMBER	% WT RANGE*
1	*Ethanol*	*0000064-17-5*	*40 - 70*
2	*Liquefied Petroleum Gas*	*0068476-86-8*	*15 - 40*
3	*Methanol*	*0000067-56-1*	*5 - 10*
4	*Ethyl Acetate*	*0000141-78-6*	*1 - 5*
5	*Butyl Cellosolve*	*0000111-76-2*	*1 - 5*

** Exact percentages of composition withheld as trade secret*

SECTION 4 - FIRST AID MEASURES

Description of First-Aid Measures

General *If exposed or concerned seek medical advice/attention.*

Eye Contact *Immediately flush with clear water for at least 15 minutes, including under the eyelids. Consult a doctor.*

Skin Contact *Remove with soap and water, rinsing and repeating for 15 minutes. Use skin cream to counter any resulting dryness. Consult a physician if irritation continues. If large skin area is affected, remove contaminated clothing.*

Ingestion *Do not induce vomiting! Immediately have the victim drink plenty of water. Do not give milk or digestible oils. Keep airways free. Contact a physician. Never give anything by mouth if victim is rapidly losing consciousness, unconscious, or convulsing.*

Inhalation *Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.*

First-Aid Responder Protection *Wear adequate personal protective equipment based on the nature and severity of the emergency.*

Most Important Symptoms and Effects, Both Acute and Delayed

Eye Contact *Liquid contact may cause pain along with moderate eye irritation.*

Skin Contact *Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin. May cause more severe response if confined to skin.*

Ingestion *Due to being an aerosol, the product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat, and gastrointestinal tract resulting in vomiting and/or cramps. Aspiration of vomit into the lungs may cause inflammation, and possible chemical pneumonitis, bronchopneumonia, or pulmonary edema.*

Inhalation *Prolonged or repeated overexposure is anesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion or death. Irritation of the mucous membranes, coughing, and dyspnea are also possible.*

Indication of Immediate Medical Attention and Special Treatment

Notes to Physician *Treat symptomatically.*

Specific Treatments/Antidotes *No information available.*

Immediate Medical Attention *No information available.*

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media *Water, CO2, dry chemical, or universal aqueous film forming foam*

Unsuitable Extinguishing Media *Water jet*

Specific Hazards Arising from the Chemical or Mixture

Decomposition Products *Oxides of carbon (CO, CO2), smoke, and/or vapors*

Hazards from the Product *CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. In a fire or if heated, a pressure increase will occur which may result in the container bursting. Vapours heavier than air may spread along the ground and travel to an ignition source.*

Advice for Firefighters

Protective Actions *Use water spray to cool fire exposed containers as contents may rupture violently from heat developed pressure.*

Protective Equipment *As with any fire wear SCBA pressure-demand, MSHA/NIOSH approved, and full protective gear.*

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel *No action should be taken by non-emergency personnel without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill. Remove ignition sources and provide adequate ventilation only if it is safe to do so.*

For Emergency Responders *Use personal protection as recommended in Section 8. Observe precautions provided for non-emergency personnel.*

Environmental Precautions

Precautions *Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.*

Methods and Materials for Containment and Cleaning Up

Containment Procedures *Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content may be contained with oil/solvent absorbent pads, socks, and/or absorbents. DO NOT use combustible material such as sawdust.*

Cleanup Procedures *Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.*

Other Information *Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal.*

Prohibited Materials *Combustible absorbent material such as sawdust, use of equipment that may cause sparking.*

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling

General Handling Precautions *KEEP OUT OF THE REACH OF CHILDREN. Avoid prolonged or repeated skin contact. Avoid breathing of vapors. Do not incinerate (burn) containers. Always replace overcap when not in use. Avoid use around open flames or other sources of ignition. Exposure to heat or prolonged exposure to sun may cause can to burst. Use only with adequate ventilation, opening doors or windows to achieve cross-ventilation. Wash hands after use.*

Hygiene Recommendations *Do not eat, drink or smoke when using this product. Wash hands thoroughly after use. Remove contaminated clothing and protective equipment before entering eating or smoking areas.*

Conditions for Safe Storage Including Any Incompatibilities

Storage Requirements *Storage of individual cans should be done in an area below 50 °C (122 °F), and away from heat sources. Ensure can is in a secure place to prevent knocking over and accidental rupture. For storage of pallet quantities, compliance with NFPA 30B (Manufacture and Storage of Aerosol Products) is recommended. This product is classified as a Level 3 Aerosol.*

Incompatibilities *Segregate storage away from materials indicated in Section 10*

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

ID	OSHA			NIOSH				ACGIH			AIHA
	PEL	STEL	CEILING	IDLH	REL	STEL	CEILING	TLV	STEL	CEILING	WEEL
1	–	–	–	3300 ppm	1000 ppm	–	–	1000 ppm	–	–	–
2	1000 ppm	–	–	2000 ppm	1000 ppm	–	–	1000 ppm	–	–	–
3	200 ppm	–	–	6000 ppm	200 ppm	250 ppm	–	200 ppm	250 ppm	–	–
4	400 ppm	–	–	2000 ppm	400 ppm	–	–	400 ppm	–	–	–
5	50 ppm	–	–	700 ppm	5 ppm	–	–	20 ppm	–	–	–

Biological Exposure Indices

ID	DETERMINANT	SAMPLING TIME	BEI	NOTATION
3	*Methanol in urine*	*End of shift*	*15 mg/L*	*B, Ns*
5	*Butoxyacetic acid (BAA) in urine*	*End of shift*	*200 mg/g creatinine*	*–*

Other Control Parameters *Not Available*

Appropriate Engineering Control

Engineering Measures *Use only with adequate ventilation. General ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system may be necessary to control air contamination below that of the lowest OEL from the table above.*

Individual Protection Measures

Hygiene Considerations *Avoid breathing vapors and contact with the skin and eyes. Always replace overcap when not in use. Keep out the reach of children. Wash hands after use.*

Thermal Protection *This product does not present a thermal hazard.*

Respiratory Protection *An approved respirator with organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed occupational exposure limits. If respirators are needed, compliance with OSHA standard 29 CFR 1910.134 is necessary.*

Skin Protection *For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or repeated contact could occur, use protective clothing impervious to the ingredients listed in Section 2.*

Eye/Face Protection *Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact with this material could occur, chemical splash proof goggles are recommended.*

Other Protective Equipment *Safety showers and eye-wash stations should be available in the workplace near where the material will be used.*

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Properties

Boiling Point	*> 64.6 °C (148.2 °F)*	***Melting / Freezing Point***	*>-97.7 °C (-143.0 °F)*
Flash Point, Liquid	*> 11.0 °C (51.8 °F)*	***Flash Point, Propellant***	*-104.4 °C (-156.0 °F)*
Explosive Limits	*6.00% - 36.00%*	***Autoignition Temperature, Liquid***	*385.0 °C (725.0 °F)*
Flammability	*Extremely Flammable Aerosol*	***Relative Density (H2O = 1)***	*0.716 g/cc*
Molecular Weight	*Not Available*	***Weight***	*5.978 lbs/gal*
Vapor Pressure	*70.00 psig*	***pH***	*Not Available*
Vapor Density	*1.110 g/cc Maximum*	***Evaporation Rate***	*Not Available*
Form	*Pressurized Product*	***Partition Coefficient***	*Not Available*
Viscosity	*Not Available*	***Refractive Index***	*Not Available*
Odor Threshold	*Not Available*	***Heat of Combustion (△Hc)***	*Not Available*
Odor	*Paint Like*	***Water Solubility***	*Not Available*
Appearance / Color	*Blue Liquid*	***Decomposition Temperature***	*Not Available*

Air Quality Properties

Percent Volatile	*97% Wt (97% Vol) Max*	***VOC Regulatory***	*5.788 lbs/gal (693.453 g/L)*
Percent VOC	*97% Wt (97% Vol) Max*	***VOC Actual***	*5.788 lbs/gal (693.453 g/L)*
Percent HAP	*7% Wt (6% Vol) Max*	***HAP Content***	*0.388 lbs/gal (46.377 g/L)*
Solids/Non Volatile Content	*4% Wt (4% Vol) Max*	***Maximum Incremental Reactivity***	*1.339 g O3/g*
Global Warming Potential	*2.181*		

SECTION 10 - STABILITY AND REACTIVITY

Reactivity *No specific test data related to reactivity is available for this product or its ingredients.*

Chemical Stability *This product is stable.*

Hazardous Reactions *Under normal conditions of storage and use, hazardous reactions are not expected to occur.*

Conditions to Avoid *Keep away from heat, sparks, flame, and red hot metal.*

Material Incompatibility *Acids, Alkali Metals, Alkalis, Ammonia, Bases, Carbon Tetrachloride, Chlorine Dioxide, Diethyl Zinc, Hydrogen Peroxide, Isocyanates, Lithium Aluminum Hydride, Mineral Acids, Nitrates, Potassium Tert-Butoxide, Strong Oxidizing Agents*

Decomposition Productions *Oxides of Carbon, Acetic Acid, Isoproanol, Peroxides may be formed depending on fire conditions.*

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity Estimates *(mixture)*

Oral LD_{50} *1117 mg/kg*

Dermal LD_{50} *11086 mg/kg*

Inhalation LC_{50} *1055 mg/L 4-hour*

Acute Toxicity on Ingredients

ID	ORAL LD50		DERMAL LD50		INHALATION LC50		
	VALUE	SPECIES	VALUE	SPECIES	VALUE	TIME	SPECIES
1	7060 mg/kg	rat	>15800 mg/kg	rabbit	>32380 ppm	4h	rat
2	–	–	–	–	658 mg/L	4h	rat
3	143 mg/kg	human	17100 mg/kg	rabbit	128.2 mg/L	4h	rat
4	5620 mg/kg	rat	>18000 mg/kg	rabbit	10600 ppm	4h	rat
5	880 mg/kg	rat	1060 mg/kg	rabbit	2211 mg/m3	4h	rat

Health Hazard Classification

Skin Corrosion / Irritation *Classification criteria not met*

Eye Damage / Irritation *Classification criteria not met*

Respiratory Irritation *Classification criteria not met*

Respiratory / Skin Sensitization *Classification criteria not met*

Germ Cell Mutagenicity *Classification criteria not met*

Reproductive Toxicity *Classification criteria not met*

STOT - Single Exposure *Cateogry 1*

STOT - Repeated Exposure *Classification criteria not met*

Aspiration Hazard *Classification criteria not met*

Carcinogen Data

ID	Calif Prop-65	OSHA	NIOSH	ACGIH	NTP	IARC
5	No	–	–	A3	–	3

Information on the Likely Routes of Exposure

Routes of Exposure *Skin contact, skin absorption, eye contact, inhalation*

Information on Physical, Chemical and Toxicological Effects

Symptoms of Exposure *Asphyxia, Blindness, Cough, Dermatitis, Dizziness, Drowsiness, Skin Irritation, Throat Irritation, Upper Respiratory System Irritation, Visual Disturbance, Vomiting*

Delayed and Immediate Effects and also Chronic Effects from Short and Long-Term Exposure

Delayed Effects *No known delayed effects.*

Immediate Effects *No known immediate effects.*

Chronic Effects *Reports have associated repeated and prolonged occupational overexposure to solvents with irreversible brain and nervous system damage (sometimes referred to as "Solvent or Painter's Syndrome"). Intentional misuse by concentrating and inhaling this product may be harmful or fatal.*

Medical Conditions Aggravated *May aggravate personnel with pre-existing disorders associated with any of the Target Organs.*

Target Organs *Bladder, Blood, Cardiovascular System, Central Nervous System, Eyes, Liver, Lumphoid System, Respiratory System, Skin*

SECTION 12 - ECOLOGICAL INFORMATION

Acute Aquatic Toxicity

ID	FISH			INVERTEBRATES			AQUATIC PLANTS			MICROORGANISMS		
	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD	TYPE	VALUE	PERIOD
1	LC50	11000 mg/L	96h	EC50	10800 mg/L	24h	LOEC	1450 mg/L	8d	LOEC	6500 mg/L	16h
3	LC50	15400 mg/L	96h	EC50	>10000 mg/L	48h	EC50	22000 mg/L	96h	EC5	6600 mg/L	16h
4	LC50	230 mg/L	96h	EC50	717 mg/L	48h	IC50	3300 mg/L	48h	EC10	2900 mg/L	16h
5	LC50	1474 mg/L	96h	EC50	1550 mg/L	48h	LOEC	900 mg/L	7d	EC5	911 mg/L	48h

Ecological Data

ID	PERSISTENCE AND DEGRADABILITY				BIOACCUMULATIVE POTENTIAL		MOBILITY
	PERSISTENCE	BOD	COD	ThOD	Pow / Kow	BCF	Koc
1	–	930 mg/g / 5d	1700 mg/g	2.1 mg/g	-0.31 log Pow	–	–
3	72% / 5 days	850 mg/g	1420 mg/g	1500 mg/g	-77 log Pow	0.48 log BCF	0.44 log Koc
4	100% / 28 days	1 g/g	1.69 g/g	1.82 g/g	0.73 log Pow	1.48 log BCF	0.788 log Koc
5	90.4% / 28 days	–	–	–	0.81 log Pow	0.5 log BCF	–

Other Adverse Effects *No additional information available.*

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal *Characteristics and waste stream classification can change with product use and location. It is the responsibility of the user to determine the proper storage, transportation, treatment, and/or disposal methodologies for spent materials and residues at the time of disposition. All waste must be disposed of in compliance with the respective national, federal, state, and/or local regulations.*

Waste Disposal of Packaging *An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6)), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.*

Landfill Precautions *Not available*

Incineration Precautions *** DO NOT INCINERATE ** CONTENTS UNDER PRESSURE ****

SECTION 14 - TRANSPORTATION INFORMATION

Transportation Information	***Ground Transportation*** *(DOT)*	***Air Transportation*** *(IATA)*	***Ocean Transportation*** *(IMDG)*
UN Number	*UN1950*	*UN1950*	*UN1950*
Proper Shipping Name	*Aerosols, Limited Quantity*	*Aerosols, Flammable, Limited Quantity*	*Aerosols, Limited Quantity*
Hazard Class(es)	*2.1*	*2.1*	*2.1*
Packaging Group	—	—	—
Marine Pollutant	*No*	*No*	*No*
Hazard Label(s)			

SECTION 15 - REGULATORY INFORMATION

Federal Regulations

ID	TSCA	SARA 302						SARA 311/312			CLEAN AIR ACT		CLEAN
	LISTED	EHS TPQ	RCRA	CERCLA	SARA 313	FIRE	REACTIVITY	ACUTE	CHRONIC	PRESSURE	HAP	SOCMI	WATER ACT
1	Yes	–	–	–	–	Yes	–	–	–	–	–	–	–
2	Yes	–	–	–	–	Yes	–	–	–	--	–	–	–
3	Yes	–	U154	5000	6%	Yes	–	Yes	–	–	Yes	Yes	–
4	Yes	–	U112	5000	–	Yes	–	Yes	–	–	–	–	–
5	Yes	–	–	--	–	–	–	Yes	–	–	–	–	–

State Regulations

ID	CA P-65	DE RQ	MA RTK CODES	ME TYPE	ME RQ	MN RTK	MN AIR	MN WATER	NJ RTK	NY AIR	NY LAND	NY ACUTE	PA LISTED	WA PEL TWA	WI TABLE	WV TAP
1	–	–	2,4,5,6 * T1*	–	–	AO	–	–	–	–	–	–	Yes	1000 ppm	–	–
3	D	5000	2,4,5,6 F8 F9	–	2000	ANO	1	–	–	5000	1	–	Yes-E	200 ppm	–	–
4	–	5000	2,4,5,6 F8	–	20000	AO	–	–	--	5000	1	–	Yes-E	400 ppm	–	–
5	–	–	2,4,6 F8	–	–	AO	–	–	–	–	–	–	Yes	25 ppm	A	–

SECTION 16 - OTHER INFORMATION

SDS Revision History

Revision 1, 11/03/2015, Original in GHS Version 3 Format.

SDS Compliance

This SDS complies with the below listed regulations only. For SDS that comply with other countries, please contact our Regulatory Department at msds@chem-pak.com

OSHA Hazard Communication Standard (HCS 2012) 29 CFR 1910.1200
Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Revision 3

Disclaimer of Liability

The information contained herein is based upon data provided to us by our suppliers, and reflects our best judgement. However, no warranty of merchantability, fitness for any use, or any other warranty or guarantee is expressed or implied regarding the accuracy of such data, or the results to be obtained from use thereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of such application. This information is furnished upon the condition that the persons receiving it shall make their own determinations of the suitability of the material for any particular use. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist.

Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **Starbar QuikStrike Fly Bait**

Synonyms • 100508297; 100508298; 100508299; EPA Reg. No.: 2724-812

Product Description • Blue granular solid.

Relevant identified uses of the substance or mixture and uses advised against

Recommended use • For control of house flies in industrial, commercial and agricultural settings.

Restrictions on use •

KEEP OUT OF THE REACH OF CHILDREN. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks and flames.

Details of the supplier of the safety data sheet

Manufacturer • Wellmark International

1501 E. Woodfield Road, Suite 200 West
Schaumburg, IL 60173
United States

Emergency telephone number

Manufacturer • 1-800-424-9300 - CHEMTREC

Manufacturer • 1-703-527-3887 - CHEMTREC - Outside North America - Collect Calls Accepted

Manufacturer • 1-800-347-8272

Section 2: Hazard Identification

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Combustible Dust

Label elements

OSHA HCS 2012

WARNING

Hazard statements • May form combustible dust concentrations in air.

Other hazards

OSHA HCS 2012 •

This pesticide is highly toxic to bees. This pesticide is toxic to shrimp. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this

product is considered hazardous.

Section 3 - Composition/Information on Ingredients

Substances

- Material does not meet the criteria of a substance.

Mixtures

Composition		
Chemical Name	**Identifiers**	**%**
Dinotefuran	**CAS:**165252-70-0	0.5%
9-Tricosene, (Z)	**CAS:**27519-02-4	0.04%
Sucrose	**CAS:**57-50-1	> 99%
Other ingredients	NDA	< 1%

Section 4: First-Aid Measures

Description of first aid measures

Inhalation

- IF INHALED: If breathing is difficult, remove person to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin

- IF ON SKIN: Wash skin with soap and water.

Eye

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms occur.

Ingestion

- IF SWALLOWED: Call a POISON CONTROL center or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

- Treat symptomatically and supportively.

Other information

- None specified.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media

- Use water spray or water fog.

Unsuitable Extinguishing Media

- Avoid use of pressurized dry-chemical extinguishers on powdered materials to prevent

dust suspensions and dust explosion hazards. Hose streams should be used with great care to avoid creating dust clouds. Fog nozzles should be used.

Firefighting Procedures

- Combustible dust - use low-pressure medium fog streams to avoid dust clouds.
Ventilate closed spaces before entering.
Eliminate ignition sources.
Non-sparking tools such as scoop shovels or natural-bristle brooms may be appropriate.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Combustion Products

- Decomposes upon heating and may produce toxic vapors/gases.

Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Keep all sources of ignition away and avoid creating dusty conditions. Use appropriate Personal Protective Equipment (PPE).

Emergency Procedures

- Contain spill and monitor for excessive dust accumulation. Use normal clean up procedures. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Ventilate closed spaces before entering. Turn off electric power to area. Evacuate area.

Environmental precautions

- Avoid generating dust. Do NOT wash away into sewer.

Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Dust Deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.
Sweep or scoop up spills, dispose of any unusable material in approved landfill. Non-sparking tools should be used.

Section 7 - Handling and Storage

Precautions for safe handling

Handling

- Avoid contact with skin, eyes, and clothing. Remove clothing immediately if product gets inside. Wash thoroughly and put on clean clothing. No open flames, no sparks and no smoking. Avoid breathing dust. To minimize dust generation and accumulation, spills should be cleaned up, and, dust accumulations should be removed promptly.

Conditions for safe storage, including any incompatibilities

Storage

- Do not contaminate water, food, or feed by storage or disposal. Keep container/package tightly closed in a cool, well-ventilated place. Keep only in the

original container. Keep out of reach of children. Store away from heat or open flame.

Incompatible Materials or Ignition Sources
- Oxidizing agents. Strong acids. Heat, sparks, open flame.

Section 8 - Exposure Controls/Personal Protection

Control parameters

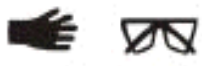
Exposure Limits/Guidelines
- No data available.

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
Sucrose (57-50-1)	TWAs	10 mg/m3 TWA	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Exposure controls

Engineering Measures/Controls
- Local exhaust ventilation.

Personal Protective Equipment

Pictograms
- 

Respiratory
- If airborne dust is present or in case of inadequate ventilation, use appropriate respiratory protection.

Eye/Face
- Wear safety glasses.

Hands
- Wear appropriate gloves.

Skin/Body
- If prolonged exposure is anticipated, it is recommended for handlers to wear appropriate clothing to prevent skin contact.

General Industrial Hygiene Considerations
- Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls
- Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Blue granules.
Color	Blue	Odor	Fish-like
Odor Threshold	No data available		
General Properties			
Boiling Point	No data available	Melting Point/Freezing Point	No data available
Decomposition Temperature	No data available	pH	6.15 in 1% aq. solution
Specific Gravity/Relative Density	= 0.93 Water=1	Bulk Density	50 lb(s)/ft³

Water Solubility	Soluble	Viscosity	Not relevant
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
Flammability			
Flash Point	Not relevant	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

Section 10: Stability and Reactivity

Reactivity

- This material is friable and can create small dust particles during any handling, processing, and transfer operations. This material can form explosive dust/air suspensions that are ignitable under some conditions.

Chemical stability

- Stable under normal temperatures and pressures.

Possibility of hazardous reactions

- Hazardous polymerization will not occur.

Conditions to avoid

- Heat, sparks, open flame. Excessive heat.

Incompatible materials

- Strong oxidizers. Strong acids.

Hazardous decomposition products

- Decomposes on heating above 401°F (205°C) and may produce toxic fumes/gases.

Section 11 - Toxicological Information

Information on toxicological effects

Components		
Dinotefuran (0.5%)	165252-70-0	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 2000-2804 mg/kg; Inhalation-Rat LC50 • >4.09 mg/L 4 Hour (s); Skin-Rabbit LD50 • >2000 mg/kg; **Irritation:** Eye-Rabbit • Essentially non-irritating; Skin-Rabbit • Essentially non-irritating
9-Tricosene, (Z) (0.04%)	27519-02-4	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >5000 mg/kg; Inhalation-Rat LC50 • >5 g/m³; Skin-Rabbit LD50 • >2000 mg/kg

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012** • Acute Toxicity - Dermal - Classification criteria not met; Acute Toxicity - Inhalation - Classification criteria not met; Acute Toxicity - Oral - Classification criteria not met
Skin corrosion/Irritation	**OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**OSHA HCS 2012** • Classification criteria not met

Skin sensitization	**OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**OSHA HCS 2012** • Classification criteria not met
Aspiration Hazard	**OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**OSHA HCS 2012** • Classification criteria not met
STOT-SE	**OSHA HCS 2012** • Classification criteria not met
STOT-RE	**OSHA HCS 2012** • Classification criteria not met

Potential Health Effects

Inhalation

Acute (Immediate)
- Exposure to dust may cause respiratory irritation.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Exposure to dust may cause irritation.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Exposure to dust may cause irritation.

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- No data available

Mutagenic Effects
- Dinotefuran technical was negative in the following in vitro assays: Ames Assay, mouse lymphoma (L5178Y), mammalian cytogenetics (CHL/IU) or DNA Repair.

Carcinogenic Effects
- No component of this product present at 0.1% or greater is listed by IARC, OSHA or NTP.

Reproductive Effects
- Dinotefuran technical did not produce developmental effects in rats at doses up to 1000 mg/kg/day (the highest does tested). 9-Tricosene, (Z) did not produce developmental effects in rats.

Section 12 - Ecological Information

Toxicity

Components		
Dinotefuran (0.5%)	165252-70-0	**Aquatic Toxicity-Fish:** 96 Hour(s) LC50 *Rainbow Trout* >100 mg/L [Acute] **Aquatic Toxicity-Crustacea:** 48 Hour(s) LC50 *Daphnia magna* >1000 mg/L [Acute]
9-Tricosene, (Z) (0.04%)	27519-02-4	**Aquatic Toxicity-Fish:** 96 Hour(s) LC50 *Rainbow Trout* >1000 mg/L [Acute] 96 Hour(s) LC50 *Blue Gill* >1000 mg/L [Acute] **Aquatic Toxicity-Crustacea:** 48 Hour(s) LC50 *Daphnia magna* 1.08 mg/L [Acute]

Persistence and degradability

- No data available.

Bioaccumulative potential

- No data available

Mobility in Soil

- No data available

Other adverse effects

Potential Environmental Effects

- This pesticide is toxic to shrimp and highly toxic to bees.

Section 13 - Disposal Considerations

Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. Do not contaminate water, food, or feed by storage disposal. Do not allow into any sewer on the ground, or into any body of water.

Packaging waste

- Do not reuse or refill this container. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	UN number	UN proper shipping name	Transport hazard class (es)	Packing group	Environmental hazards
DOT	Not Applicable	Not Regulated	Not Applicable	Not Applicable	Not Applicable
IMO/IMDG	Not Applicable	Not Regulated	Not Applicable	Not Applicable	Not Applicable
IATA/ICAO	Not Applicable	Not Regulated	Not Applicable	Not Applicable	Not Applicable

Special precautions for user

- None specified.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- No data available

Other information

IMO/IMDG

- No data available

IATA/ICAO

- No data available

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Not classified

FIFRA – Pesticide Labeling

This material is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION

Precautionary Statements •

Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
Users should wash hands with plenty of soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet. Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
Keep away from fire, sparks and heated surface.
KEEP OUT OF THE REACH OF CHILDREN.

Hazards to Humans and Domestic Animals •

HAZARDS TO HUMANS AND DOMESTIC ANIMALS - CAUTION- Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear long-sleeved shirt and long pants, socks, shoes and gloves. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

First Aid •

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth if possible. Call poison control center or doctor for treatment advice.
IF ON SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
IF SWALLOWED: Call a poison control center or doctor for treatment advice. Have a person sip a glass of water, if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-347-8272 for emergency medical treatment information.

Environmental Hazards •

This product is toxic to shrimp. Do not apply directly to water, areas where surface water is present, or to intertidal areas below the mean high water mark. Drift or runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters. This product is highly toxic to bees exposed to direct treatment. Do not apply this product if bees are foraging in the treatment areas.

Inventory		
Component	**CAS**	**TSCA**
9-Tricosene, (Z)	27519-02-4	Yes
Dinotefuran	165252-70-0	No
Sucrose	57-50-1	Yes

Section 16 - Other Information

Revision Date • 04/January/2016

Last Revision Date • 04/January/2016

Preparation Date • 04/January/2016

Disclaimer/Statement of • The information and statements herein are believed to be reliable but are not to be

Liability

construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IF MADE.

SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER

Version *1*.2 Print Date 07/02/2015

Revision Date 02/24/2015 SDS Number 350000004370

1. PRODUCT AND COMPANY IDENTIFICATION

Product information

Product name : **SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER**

Recommended use : Hard Surface Cleaner

Manufacturer, importer, supplier : S.C. Johnson & Son, Inc.
1525 Howe Street
Racine WI 53403-2236

Telephone : +18005585252

Emergency telephone number : 24 Hour Medical Emergency Phone: (866)231-5406
24 Hour International Emergency Phone: (703)527-3887
24 Hour Transport Emergency Phone: (800)424-9300

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Globally Harmonized System (GHS) Classification

Hazard classification	Hazard category	Hazards identification
Skin irritation	Category 2	Causes skin irritation.
Eye irritation	Category 2A	Causes serious eye irritation.

Labelling
Hazard symbols
Exclamation mark

Signal word
Warning

Hazard statements
Causes skin irritation.
Causes serious eye irritation.

Precautionary statements
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Specific treatment (see supplemental first aid instructions on this label).
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/ attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
Wear protective gloves/ eye protection/ face protection.
Wash hands thoroughly after handling.

Other hazards : None identified

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Weight percent
Sodium carbonate	497-19-8	1.00 - 5.00
Sodium hypochlorite	7681-52-9	1.00 - 5.00
Sodium chloride	7647-14-5	1.00 - 5.00

The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

For additional information on product ingredients, see www.whatsinsidescjohnson.com.

4. FIRST AID MEASURES

Eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Skin contact : Wash off with plenty of water. Take off contaminated clothing and wash before reuse.

Inhalation : No special requirements.

Ingestion : No special requirements

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards during : Container may melt and leak in heat of fire.

firefighting

Further information	:	Fight fire with normal precautions from a reasonable distance. Standard procedure for chemical fires. Wear full protective clothing and positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment.
Personal precautions	:	Wear personal protective equipment. Wash thoroughly after handling.
Environmental precautions	:	Outside of normal use, avoid release to the environment.
Methods and materials for containment and cleaning up	:	Dike large spills. Clean residue from spill site.

7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Avoid contact with skin, eyes and clothing. For personal protection see section 8. Use only as directed. KEEP OUT OF REACH OF CHILDREN AND PETS. Wash thoroughly after handling.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers	:	Keep container closed when not in use.

SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER

Version *1*.2 Print Date 07/02/2015

Revision Date 02/24/2015 SDS Number 350000004370

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Components	CAS-No.	mg/m3	ppm	Non-standard units	Basis
Sodium carbonate	497-19-8	10 mg/m3	-	-	SUPPLIER

Personal protective equipment

Respiratory protection : Substantial amounts of mist/vapors can be controlled with local exhaust ventilation or respiratory protection.

Hand protection : Wear suitable gloves.

Eye protection : Safety glasses with side-shields

Skin and body protection : No special requirements.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid

Color : light yellow

Odor : Bleach

Odour Threshold : No data available

pH : 12.5 - 13.5

Melting point/freezing point : 0 C

Initial boiling point and boiling range : 100 °C

SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER

Version *1*.2 Print Date 07/02/2015

Revision Date 02/24/2015 SDS Number 350000004370

Flash point	:	does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper/lower flammability or explosive limits	:	No data available
Vapour pressure	:	No data available
Vapour density	:	No data available
Relative density	:	1.09 g/cm3
Solubility(ies)	:	completely soluble
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, dynamic	:	similar to water
Viscosity, kinematic	:	similar to water
Oxidizing properties	:	No data available
Volatile Organic	:	0 % - additional exemptions may apply

Compounds **Total VOC (wt. %)***		*as defined by US Federal and State Consumer Product Regulations
Other information	:	None identified

10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	If accidental mixing occurs and toxic gas is formed, exit area immediately. Do not return until well ventilated.
Conditions to avoid	:	Direct sources of heat.
Incompatible materials	:	Do not mix with bleach or any other household cleaners. Strong bases
Hazardous decomposition products	:	Thermal decomposition can lead to release of irritating gases and vapours.

11. TOXICOLOGICAL INFORMATION

Emergency Overview	:	Warning
Acute oral toxicity	:	LD50 Measured > 5,000 mg/kg
Acute inhalation toxicity	:	No data available
Acute dermal toxicity	:	LD50 Measured > 2,000 mg/kg

GHS Properties	Classification	Routes of entry
Acute toxicity	No classification proposed	-
Skin irritation	Category 2	-

Eye irritation	Category 2A	-
Skin sensitisation	No classification proposed	-
Respiratory sensitisation	No classification proposed	-
Germ cell mutagenicity	No classification proposed	-
Carcinogenicity	No classification proposed	-
Reproductive toxicity	No classification proposed	-
Specific target organ toxicity - single exposure	No classification proposed	-
Specific target organ toxicity - repeated exposure	No classification proposed	-
Aspiration hazard	No classification proposed	-

Aggravated Medical Condition : None known.

12. ECOLOGICAL INFORMATION

Product : The product itself has not been tested.

Toxicity
The ingredients in this formula have been reviewed and no adverse impact to the environment is expected when used according to label directions.

Toxicity to fish

Components	End point	Species	Value	Exposure time
Sodium carbonate	static test LC50	Lepomis macrochirus	300 mg/l	96 h
Sodium hypochlorite	semi-static test LC50	Oncorhynchus mykiss (rainbow trout)	0.03 - < 0.19 mg/l	96 h

	NOEC		0.01 - < 0.1 mg/l	28 d
Sodium chloride	flow-through test LC50	Lepomis macrochirus	5,840 mg/l	96 h
	NOEC	Pimephales promelas (fathead minnow)	252 mg/l	33 d

Toxicity to aquatic invertebrates

Components	End point	Species	Value	Exposure time
Sodium carbonate	semi-static test EC50	Ceriodaphnia sp.	200 - 227 mg/l	248 h
Sodium hypochlorite	static test EC50	Daphnia magna (Water flea)	0.033 - 0.044 mg/l	48 h
Sodium chloride	static test EC50	Daphnia magna (Water flea)	340.7 - 469.2 mg/l	48 h
	NOEC	Daphnia pulex	314 mg/l	21 d

Toxicity to aquatic plants

Components	End point	Species	Value	Exposure time
Sodium carbonate	No data available			
Sodium hypochlorite	EC50	Skeletonema costatum	0.095 mg/l	72 h

Sodium chloride	IC50	Algae	3,014 mg/l	72 h

Persistence and degradability

Component	Biodegradation	Exposure time	Summary
Sodium carbonate	No data available		
Sodium hypochlorite	No data available		
Sodium chloride	No data available		

Bioaccumulative potential

Component	Bioconcentration factor (BCF)	Partition Coefficient n-Octanol/water (log)
Sodium carbonate	No data available	No data available
Sodium hypochlorite	No data available	-3.42
Sodium chloride	1.09 QSAR	0.54

Mobility

Component	End point	Value
Sodium carbonate	No data available	
Sodium hypochlorite	No data available	
Sodium chloride	No data available	

PBT and vPvB assessment

Component	Results
Sodium carbonate	Not fulfilling PBT and vPvB criteria
Sodium hypochlorite	Not fulfilling PBT and vPvB criteria
Sodium chloride	Not fulfilling PBT and vPvB criteria

Other adverse effects : None known.

13. DISPOSAL CONSIDERATIONS

Consumer may discard empty container in trash, or recycle where facilities exist.

SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER

Version *1*.2 Print Date 07/02/2015

Revision Date 02/24/2015 SDS Number 350000004370

14. TRANSPORT INFORMATION

Please refer to the Bill of Lading/receiving documents for up-to-date shipping information.

Land transport
Not classified as dangerous in the meaning of transport regulations.

Sea transport
Not classified as dangerous in the meaning of transport regulations.

Air transport
Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

Notification status	:	All ingredients of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
Notification status	:	All ingredients of this product comply with the New Substances Notification requirements under the Canadian Environmental Protection Act (CEPA).
California Prop. 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Ratings

Health	3
Flammability	0
Reactivity	0

SCRUBBING BUBBLES® FOAMING BLEACH BATHROOM CLEANER

Version *1*.2 Print Date 07/02/2015

Revision Date 02/24/2015 SDS Number 350000004370

NFPA Ratings

Health	3
Fire	0
Reactivity	0
Special	-

This information is being provided in accordance with the Occupational Safety and Health Administration (OSHA) regulation (29 CFR 1910.1200). The information supplied is designed for workplaces where product use and frequency of exposure exceeds that established for the labeled consumer use.

Further information

This document has been prepared using data from sources considered to be technically reliable. It does not constitute a warranty, expressed or implied, as to the accuracy of the information contained herein. Actual conditions of use are beyond the seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

Prepared by	SC Johnson Global Safety Assessment & Regulatory Affairs (GSARA)

SECTION 1: Identification of the substance/mixture and of the company

1.1 Product identifier

- Product Name: **Synergize™**
- Product Part Number(s): **403381, 409038, 433600, 433602, 433605, 434700**
- Brand(s): Preserve International
- ABN(s): Synergize Cool™, Synergize NF™, Synergize NP™, Synergize NP-NF™

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Use of the substance/preparation: Disinfectant
- Uses advised against: It is a violation of Federal law to use this product in a manner inconsistent with its label. Read the entire label before use and follow all Directions for Use, Use Restrictions, and Precautions.

1.3 Details of the supplier of the safety data sheet

- Manufactured By: Preserve International
- Address: 944 Nandino Blvd.
  Lexington, Kentucky 40511
  USA

Preserve International is a wholly-owned subsidiary of Neogen Corporation.

- Telephone: 859/254-1221 • 800/627-8829
- Email: Inform@neogen.com

1.4 Emergency telephone numbers

- Medical: 1-800-498-5743 (United States and Canada)
- Spill: 1-800-424-9300 (United States and Canada)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (29 CFR 1910.1200)

- Acute toxicity, oral, Cat. 4, H302, Skin corrosion, Cat. 1B, H314, Serious eye damage, Cat. 1, H318, Sensitization, skin, Cat. 1, H317, Sensitization, respiratory, Cat. 1, H334; Aspiration hazard, Cat. 2, H305, Hazardous to the aquatic environment, acute hazard, Cat. 1, H400

Classification (WHMIS 2015 HPR)

- Acute toxicity, oral, Cat. 4, H302, Skin corrosion, Cat. 1B, H314, Serious eye damage, Cat. 1, H318, Sensitization, skin, Cat. 1, H317, Sensitization, respiratory, Cat. 1, H334; Aspiration hazard, Cat. 2, H305, Hazardous to the aquatic environment, acute hazard, Cat. 1, H400

2.2 Label elements

GHS05 GHS07 GHS08 GHS09

- Signal Word (OSHA/HPR): **DANGER**
- Signal Word (EPA-FIFRA): **DANGER**
- Symbols: GHS05, GHS07, GHS08, GHS09
- Hazard phrases
  Harmful if swallowed.
  Causes severe skin burns and eye damage.
  May cause an allergic skin reaction.
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  May be fatal if swallowed and enters airways.
  Very toxic to aquatic life.
- Precautionary phrases
  Do not breathe mist/fumes/vapors/spray.
  Wash hands thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  Use only outdoors or in a well-ventilated area.
  Contaminated work clothing should not be allowed out of the workplace.
  Avoid release to the environment.

SECTION 2: Hazards identification (continued)

Wear protective gloves/protective clothing/eye protection/face protection.
In case of inadequate ventilation wear respiratory protection.
If swallowed: Immediately call a poison center or doctor/physician.
Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Immediately remove all contaminated clothing. Rinse skin with water/shower.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison center or doctor/physician.
Collect spillage. Hazardous to the aquatic environment.
Store locked up.
Dispose of contents/container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

- Keep out of reach of children and animals.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

This product is a mixture of the substances listed below with the addition of non-hazardous materials

Chemical	Concentration*	CAS No.	H-Statements	Symbols
Quaternary ammonium compounds	20.0-30.0%	68391-01-5	H302, H314, H400	GHS05, GHS07, GHS09
Glutaraldehyde	5.0-10.0%	111-30-8	H301, H314, H317, H331, H334, H400	GHS05, GHS06, GHS08, GHS09
Phosphoric acid	1.0-5.0%	7664-38-2	H314, H318	GHS05
Pine oil	1.0-2.0%	8002-09-3	H226, H305, H315, H317, H411	GHS02, GHS07, GHS08

*The exact percentage (concentration) of composition has been withheld as a trade secret.
Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
For full text of H-Statements, see Section 16.

SECTION 4 First aid measures

4.1 Description of first aid measures

- General
  Have safety data sheet, product container, or label with you when calling 1-800-498-5743, a poison control center, or doctor.
  In case of doubt, or when symptoms persist, seek medical attention.
  When used as directed, the hazards associated with this product can be minimized, but like any other chemical, it should be treated with care, respect, and common sense.
- Contact with skin
  Causes severe skin burns. May cause an allergic skin reaction.
  Immediately remove contaminated clothing.
  Wash affected area with plenty of soap and water/shower.
  If skin irritation or rash occurs: Call 1-800-498-5743, a poison control center, or doctor for medical advice/attention.
  Contaminated clothing should be laundered before reuse.
- Contact with eyes
  Causes serious eye damage.
  If substance has gotten into eyes, rinse with plenty of water for at least 15 minutes.
  Irrigate eyes thoroughly while lifting eyelids.
  Remove contact lenses, if present and easy to do. Continue rinsing.
  If eye irritation persists: Call 1-800-498-5743, a poison control center, or doctor for medical advice/attention.

SECTION 4 First aid measures (continued)

- Ingestion
  Harmful if swallowed.
  May be fatal if swallowed and enters airways.
  If swallowed, rinse mouth with water.
  Do NOT induce vomiting.
  Immediately call 1-800-498-5743, a poison control center, or doctor for medical advice/ attention.
- Inhalation
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
  If experiencing respiratory symptoms: Call 1-800-498-5743, a poison control center, or doctor for medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

- The most important known symptoms are described in the labeling (see Section 2.2) and/or in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically.
- Further information is available from the ProPharma Emergency Number (1-800-498-5743) provided in this document.

SECTION 5: Fire-fighting measures

5.1 Suitable (and unsuitable) extinguishing media

- In case of fire: use water spray, foam, carbon dioxide or dry agent for extinction.
- If water is to be used to fight fire, dike and collect runoff.

5.2 Special hazards arising from the substance or mixture

- Smoke from fires is toxic. Take precautions to protect personnel from exposure.
- Material is lighter than water and a fire may be spread by the use of water.
- Containers may explode in the heat of a fire.
- Vapors may be heavier than air.
- Avoid excess runoff from fire-fighting from entering lakes, streams, ponds, or other open waters.
- See Section 10 for additional Stability and Reactivity information.

5.3 Advice for firefighters

- Flammable liquid and vapor.
- Keep container(s) exposed to fire cool by spraying with water.
- Wear chemical protection suit and positive-pressure breathing apparatus.
- Wear protective clothing as per Section 8.

5.4 Hazardous Combustion Products

- Hazardous combustion products include carbon monoxide, phosphine, oxides of phosphorus, and hydrogen gas.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Spills should be cleaned up immediately to avoid slip and fall accidents and injuries.
- Wear personal protective clothing, and observe precautions outlined Section 8.
- Evacuate personnel not directly involved in spill clean-up.
- Shut off source of leak/release, if safe to do so.
- Shut down and/or remove equipment in spill area, if safe to do so.
- Avoid breathing vapors.
- Wash thoroughly after dealing with spillage.

6.2 Environmental Precautions

- Do not allow to enter public sewers and watercourses.
- Avoid releasing to the environment.

6.3 Methods and material for containment and cleaning up

- Material is lighter than water and may be spread by the use of water.
- Absorb spillage in inert material and shovel up.
- Dike large spills as necessary.

SECTION 6: Accidental release measures (continued)

- Place in sealable containers and label them.
- Ventilate the area and wash spill site after material pick-up is complete.
- Dispose of contaminated materials and wastes in accordance with local/national/international regulations.

6.4 Reference to other sections

- See Section 7 for storage. For disposal, see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Do not breathe vapor/mist/spray/fumes.
- Avoid contact with skin, eyes, and clothing.
- Do not eat, drink, smoke, or apply cosmetics when using this product.
- Ensure adequate ventilation.
- Eyewash bottles should be available.
- Use personal protective equipment, as required by label instructions and/or workplace procedures.
- Wash hands thoroughly after using this product.
- Do not reuse or refill product container. See label or Section 13 for disposal instructions.

7.2 Conditions for safe storage, including any incompatibilities

- Store locked up.
- Do not contaminate water, food, or feed by storage or disposal.
- Keep container tightly closed in a cool, dry, well-ventilated place.
- Carefully reseal opened containers and store upright to prevent leakage.
- Store away from metals, strong oxidizing agents, excessive heat, and ignition sources.
- Incompatible with strong oxidizing agents. Reacts with most common metals to produce hydrogen gas. Corrosive to many materials including leather, rubber, and many organics.

7.3 Specific end use(s)

- Disinfectant

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING, AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Basis
Glutaraldehyde	111-30-8	Ceiling	0.2 ppm, 0.8 mg/m^3	USA-NIOSH Recommended Exposure Limits
Phosphoric acid	7664-38-2	TWA	1 mg/m^3	USA-OSHA Table Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 mg/m^3	USA-NIOSH Recommended Exposure Limits
		STEL	3 mg/m^3	USA-NIOSH Recommended Exposure Limits
		TWA	1 mg/m^3	USA-ACGIH Threshold Limit Values (TLV)
		STEL	3 mg/m^3	USA-ACGIH Threshold Limit Values (TLV)

8.2 Exposure controls

- Eyewash bottles should be available.
- Wear air-purifying full-face respirators with organic vapor cartridges tested and approved under MSHA/NIOSH standards for chemicals.
- Handle with gloves. Wash the outside of gloves before removing. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good industrial hygiene. Wash and dry hands.
- Wear safety glasses and face shield (8-inch minimum) or chemical safety goggles approved under appropriate government standards such as ANSI or MSHA/NIOSH.

SECTION 8: Exposure controls/personal protection (continued)

- Handlers must wear a long-sleeved shirt, long pants, and shoes plus socks.
- Wear a chemical-resistant apron when cleaning equipment, mixing, or loading.
- Personal Protective Equipment (PPE) must be inspected before use. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables use detergent and hot water. Keep and wash PPE separately from other laundry.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Clear liquid
Odor:	Mild pine odor
pH:	4.5 – 5.25
Melting Point/Range:	No data available
Boiling Point/Range:	No data available
Flash Point (Test Method):	No data available
Evaporation Rate:	No data available
Flammable Limits (% in air):	No data available
Flammability:	Extremely flammable aerosol
Vapor Pressure:	No data available
Vapor Density:	No data available
Specific Gravity:	1.02 – 1.05
Relative Density:	8.5 – 8.75 lbs/gallon
Solubility in water:	Completely soluble
Partition Coefficient (n-Octanol/Water):	No data available
Autoignition Temperature:	Product is not self-igniting
Viscosity:	No data available
Explosive Properties:	No data available
Oxidizing Properties:	Product is not classified as an oxidizer

9.2 Other information

- No additional data available

SECTION 10: Stability and reactivity

10.1 Reactivity

- No information available

10.2 Chemical stability

- Considered stable under recommended storage and handling conditions

10.3 Possibility of hazardous reactions

- No hazardous reactions known if used for its intended purpose.
- Reacts with most common metals to produce hydrogen gas.

10.4 Conditions to avoid

- Ignition sources, excessive heat

10.5 Incompatible materials

- Strong oxidizing agents, metals

10.6 Hazardous decomposition products

- Carbon monoxide, phosphine, oxides of phosphorus, and hydrogen gas

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Causes burns by all exposure routes. May cause central nervous system depression.
- Contact with skin
  Causes severe skin burns. May cause an allergic skin reaction.
  ATEmix=31,250 mg/kg (dermal)
  Based on available data, the acute toxicity classification criteria are not met.
- Contact with eyes
  Causes serious eye damage/irritation.

SECTION 11: Toxicological information (continued)

- Ingestion
  Harmful if swallowed. May be fatal if swallowed and enters airways.
  ATEmix=1,515 mg/kg (oral)
- Inhalation
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  Inhalation of high concentrations may cause coughing and shortness of breath. May cause chemical burns to the respiratory tract.
  ATEmix=9.8 mg/L (inhalation – vapors)
  Based on available data, the acute toxicity classification criteria are not met.
- Carcinogenicity
  Not listed in the National Toxicology Program (NTP) 13th Report on Carcinogens.
  Not listed in the International Agency for Research on Cancer (IARC) Monographs, Volumes 1-112.
  Not listed in OSHA standard 1910.1003 Carcinogens.
- Mutagenicity
  No information available
- Teratogenicity
  No information available

SECTION 12: Ecological information

12.1 Toxicity
- This product is classified as hazardous to the environment under U.S. regulations, with acute and chronic effects.
- No data available.

12.2 Persistence and degradability
- No data available

12.3 Bioaccumulation potential
- No data available

12.4 Mobility in soil
- No data available

12.5 Other adverse effects
- To the best of our knowledge, the properties of this product have not been fully evaluated.
- An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

12.6 Ecological information, as required on the FIFRA label
- Do not discharge effluent containing this product directly to water. Do not contaminate water when disposing of equipment wash water or rinsate.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Do not contaminate water, food, or feed by storage or disposal.
- Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law.
- If wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or Hazard Waste representative at nearest EPA Regional Office for guidance.
- Do not discharge into drains or the environment, dispose to an authorized hazardous waste collection point.
- Do not reuse or refill empty containers.

SECTION 14: Transport information

14.1 Domestic surface transport (US DOT)
- Proper Shipping Name: Disinfectant, liquid, corrosive, n.o.s. (Phosphoric acid mixture)
- DOT UN No.: UN1903
- DOT Hazard Class: 8
- DOT Packing Group: III
- DOT Label(s): Corrosive
- Special Provisions: Not applicable

SECTION 14: Transport information (continued)

14.2 Ocean/Sea (IMO/IMDG)

- Proper Shipping Name: DISINFECTANT, LIQUID, CORROSIVE, N.O.S. (PHOSPHORIC ACID MIXTURE)
- IMDG UN No.: UN1903
- IMDG Hazard Class: 8
- IMDG Packing Group: III
- IMDG Label(s): Corrosive
- Special Provisions: UN Specification packagings must meet packing group II performance standards.

14.3 Air (ICAO/IATA)

- Proper Shipping Name: Disinfectant, liquid, corrosive, n.o.s. (Phosphoric acid mixture)
- ICAO UN No.: UN1903
- ICAO Hazard Class: 8
- ICAO Packing Group: III
- ICAO Label(s): Corrosive

Special Provisions: UN Specification packagings must meet packing group II performance standards.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law (FIFRA). These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

KEEP OUT OF REACH OF CHILDREN
DANGER
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Corrosive. Causes irreversible eye damage and skin burns. May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing. Do not breathe spray mist. Wear goggles or face shield and. Wear a dust/mist/filtering respirator (MSHA/NIOSH approval number TC-21C) or a NIOSH-approved respirator with any N, P, R, or HE prefilter. Wear protective clothing and rubber gloves. Prolonged or frequent repeated skin contact may cause allergic reaction in some individuals. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

EPA Registration Number: 66171-7

15.2 United States Regulatory Information

EPA SARA Title III Classifications

SARA 302 (EHS) Reportable Quantity (RQ):

No components listed

Section 311/312 Hazard Classes:

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

Section 313 Toxic Chemicals:

Phosphoric acid, CAS No. 7664-38-2

CERLCA Reportable Quantity (RQ):

Phosphoric acid, CAS No. 7664-38-2 = 5,000 lbs.

RCRA Hazardous Waste Classification (40 CFR 261):

No components subject to reporting requirements

Clean Air Act (CAA) 112(r) Threshold Quantity (TQ):

No components subject to reporting requirements

Toxic Substance Control Act (TSCA):

This product is exempt from TSCA, subject to FIFRA

SECTION 15: Regulatory information (continued)

State Right-to-Know

Massachusetts

Phosphoric acid, CAS No. 7664-38-2
Glutaraldehyde, CAS No. 111-30-8
Pine oil, CAS No. 8002-09-3

New Jersey

Phosphoric acid, CAS No. 7664-38-2
Glutaraldehyde, CAS No. 111-30-8

Pennsylvania

Phosphoric acid, CAS No. 7664-38-2
Glutaraldehyde, CAS No. 111-30-8

California Prop 65

This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

15.3 Canadian Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR). The labelling may differ subject to the requirements of the Food and Drugs Act (FDA).

WHMIS Classification: Exempt

DIN: 02260336

Inventory Status

Domestic Substances List (DSL)	Listed
Non-Domestic Substances List (NDSL)	Not listed

SECTION 16: Other information

Document Number: SDS-1100.00, Synergize
Date of Preparation: February 8, 2017
Revision: Rev. 00
Replaces: New issue

Text not given with phrase codes where they are used elsewhere in this safety data sheet: H226: Flammable liquid and vapor. H301: Toxic if swallowed. H302: Harmful if swallowed. H305: May be fatal if swallowed and enters airways. H314: Causes severe skin burns and eye damage. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H319: Causes serious eye irritation. H331: Toxic if inhaled. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335: May cause respiratory irritation. H372: Causes damage to organs with prolonged or repeated exposure. H400: Very toxic to aquatic life. H411: Toxic to aquatic life with long-lasting effects.

For non-emergency (e.g. current product information)
Call: **1-800-621-8829**

This document is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. Preserve International and Neogen Corporation shall not be held liable for any damage resulting from handling or from contact with the above product. These suggestions should not be confused with state, municipal or insurance requirements, and constitute NO WARRANTY.

APPENDIX B
SPILL FORM

SPILL DESCRIPTION FORM

(Information to be provided when reporting spill)

Reporter/Caller Information

Full Name _____ Position/Title _____

Normal Phone Number _____ Emergency Phone Number _____

Company Information

Name _____ Organization Type _____

Street Address _____

City _____ State _____ Zip _____

Facility Oil Storage Capacity _____ Units _____

Facility Latitude _____ Facility Longitude _____

Required Reporting Information

Were Materials Discharged? _____ Confidential Materials? _____

Meeting Federal Obligations to Report? _____ Date Called _____

Calling for Responsible Party? _____ Time Called _____

Spill or Release Information

Spill or Release Description _____

Date of Incident _____ Time _____ AM or PM

Incident Address or Location _____

State _____ Zip _____ County _____

Nearest City _____ Direction from City _____

Distance from City _____ Units _____

Section _____ Township _____ Range _____

Spilled or Released Material Information

Material Name _____ CHRIS Code _____

Quantity Released _____ Units _____

Source of Release _____

Container Type _____ Capacity _____ Units _____

Contaminated Media (Soil or Water) _____

Quantity on/in Water _____ Units _____ Quantity on/in Soil _____ Units _____

Actions Taken to Stop Spill or Release _____

Number of Injuries _____ Number of Deaths _____

Evacuations Performed _____ Number Evacuated _____

Damages _____ Estimated Cost of Damages _____

Notifications Made

NRC: ☐ U.S. EPA: ☐ State: ☐

Fire: ☐ Police: ☐ Other: _____

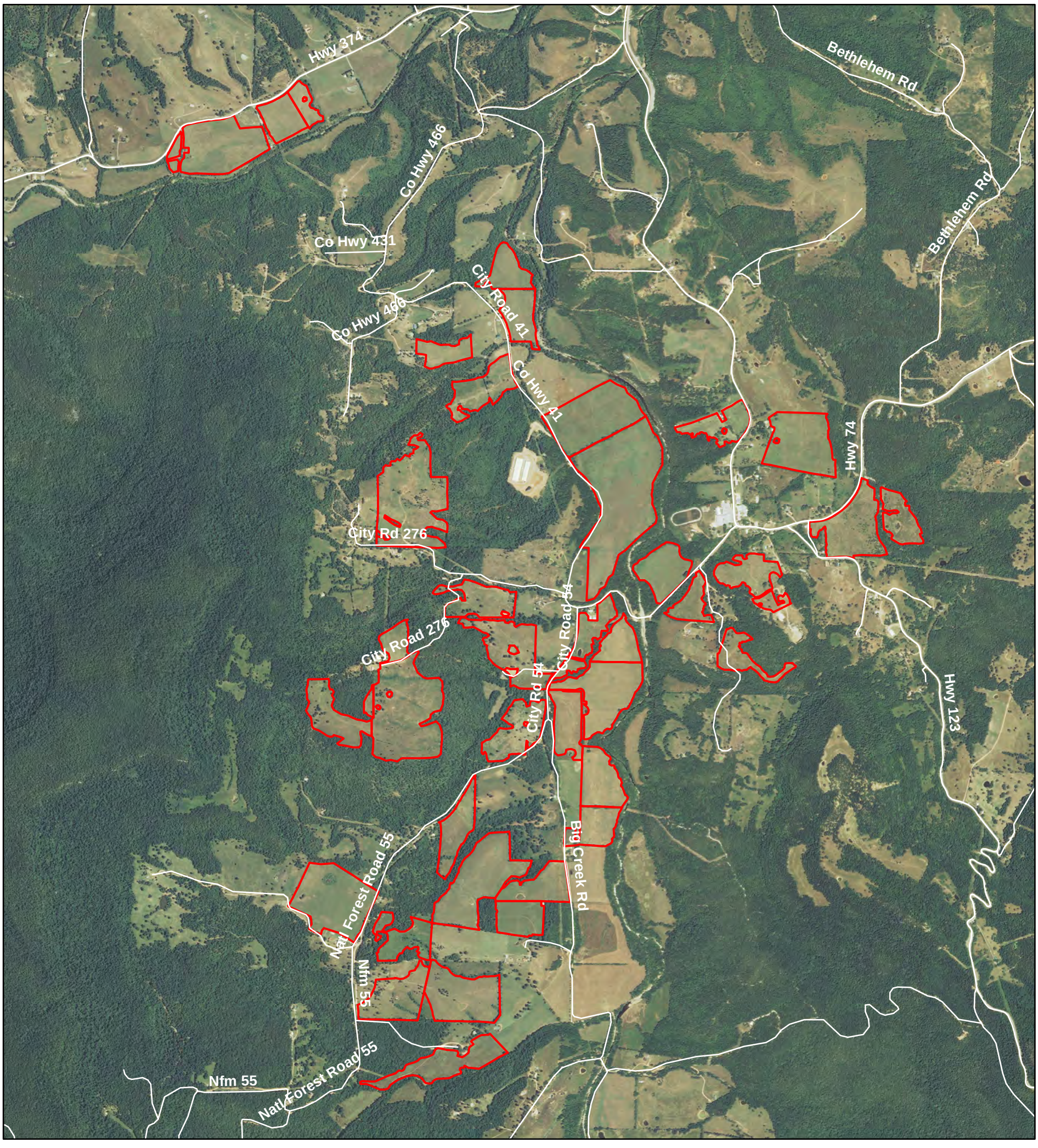
Land Application Fields
Appendix E

TABLE 1

Summary of Land Application Fields

Field Number	Open Acres	Spreadable Acres	Percent Usable
1	17.7	8.2	46%
2	8.8	6.0	68%
3	16.7	13.2	79%
4	10.9	7.2	66%
5	13.3	9.7	73%
6	9.1	5.6	62%
6A	17.5	7.3	42%
7	72.9	62.5	86%
7A	35.1	28.3	81%
8	10.7	7.2	67%
8A	2.9	1.4	48%
9	29.6	24.6	83%
9A	11.6	10.3	89%
10	14.7	13.6	93%
10A	17.7	16.4	93%
11	19.2	13.3	69%
12	13.1	11.2	85%
13	13.0	11.6	89%
13A	36.9	29.8	81%
13B	15.5	8.1	52%
14	15.1	7.6	50%
15	28.2	21.5	76%
15A	14.2	10.4	73%
15B	21.0	13.7	65%
16	21.3	15.2	71%
17	36.1	30.9	86%
18	29.6	21.7	73%
19	13.3	10.1	76%
20	24.8	20.7	83%
21	49.8	18.6	37%
21A	19.8	15.6	79%
21B	7.1	6.0	85%
22	46.4	35.2	76%
23	33.8	28.1	83%
24	11.6	8.0	69%
32	11.9	10.0	84%
33	5.9	3.4	58%
34	16.5	12.8	78%
35	26.3	18.4	70%
36	12.1	8.4	69%
Total			
40	831.7	611.8	74%

County Road Map Overview



Legend

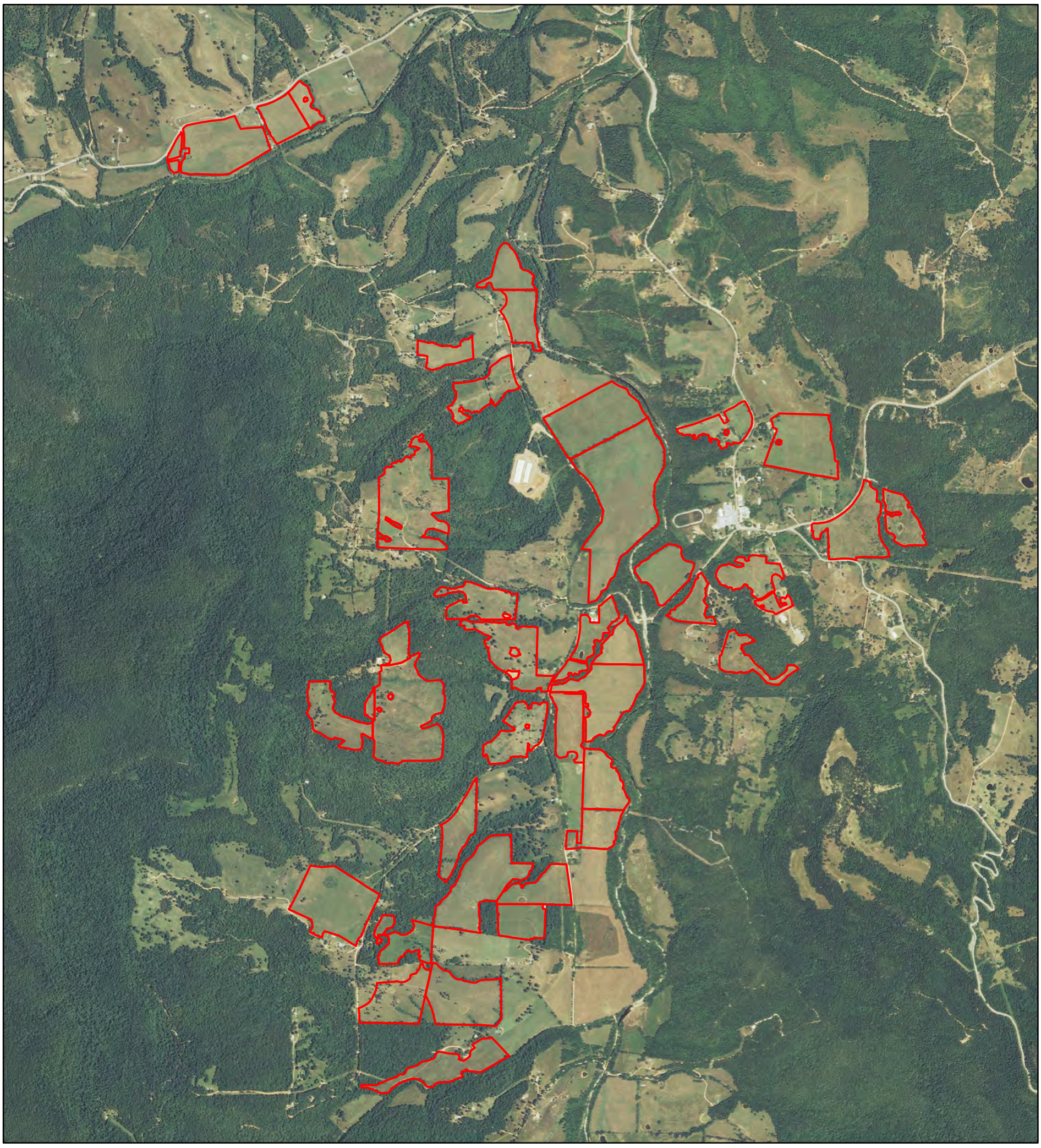
road_tanw_l_ar101

Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200 Feet

N

Correct Field Boundaries



Legend

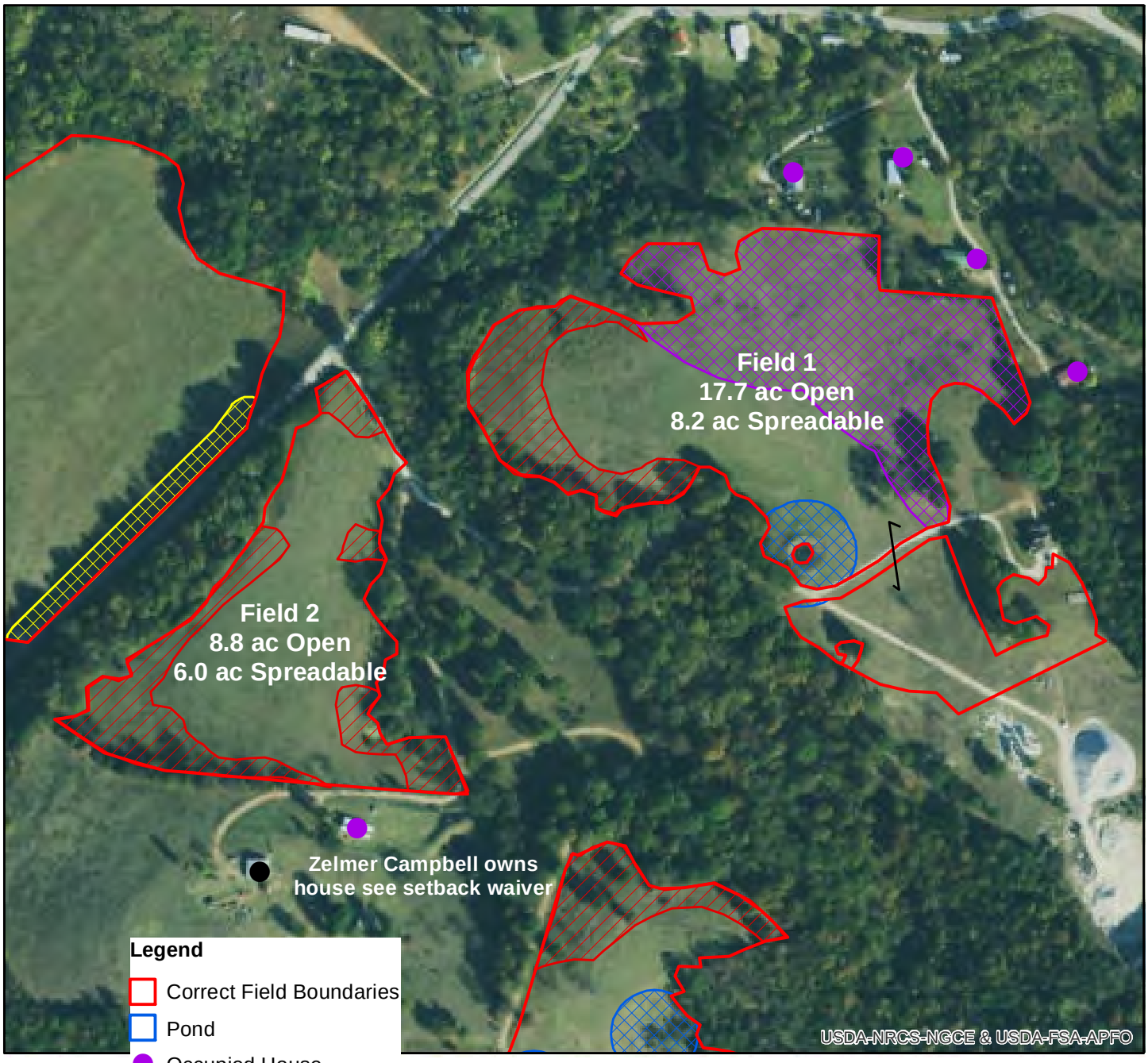
Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200

Feet

N

Buffered Field Map
Field 1 and 2
Jason Henson
T15N, R20W, S25
Mt. Judea Quad



Legend

- Correct Field Boundaries
- Pond
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

200 0 200 400 600 800 Feet

N

Buffered Field Map
Field 4
Jason Henson
T15N, R20W, S36
Mt. Judea Quad

Legend

- Correct Field Boundaries
- Pond
- Occupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer

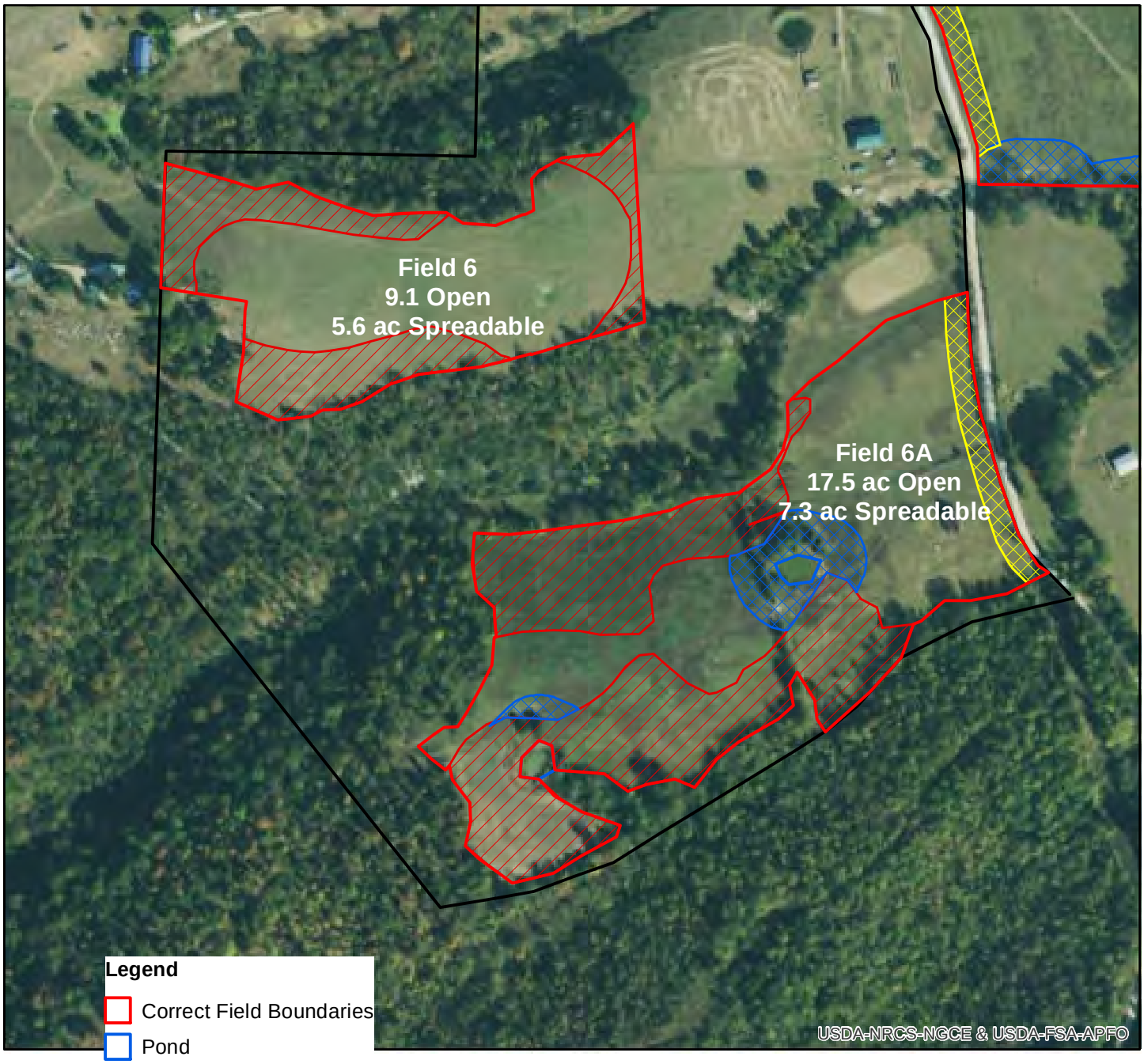
140 0 140 280 420 560 Feet

5

N

Buffered Field Map
Field 5
Louetta/Glen Ricketts
T15N, R20W, S23
Mt. Judea Quad

Buffered Field Map
Field 6 Louetta/Glen Ricketts
Field 6A Shawn Ricketts
T15N, R20W, S26
Mt. Judea Quad



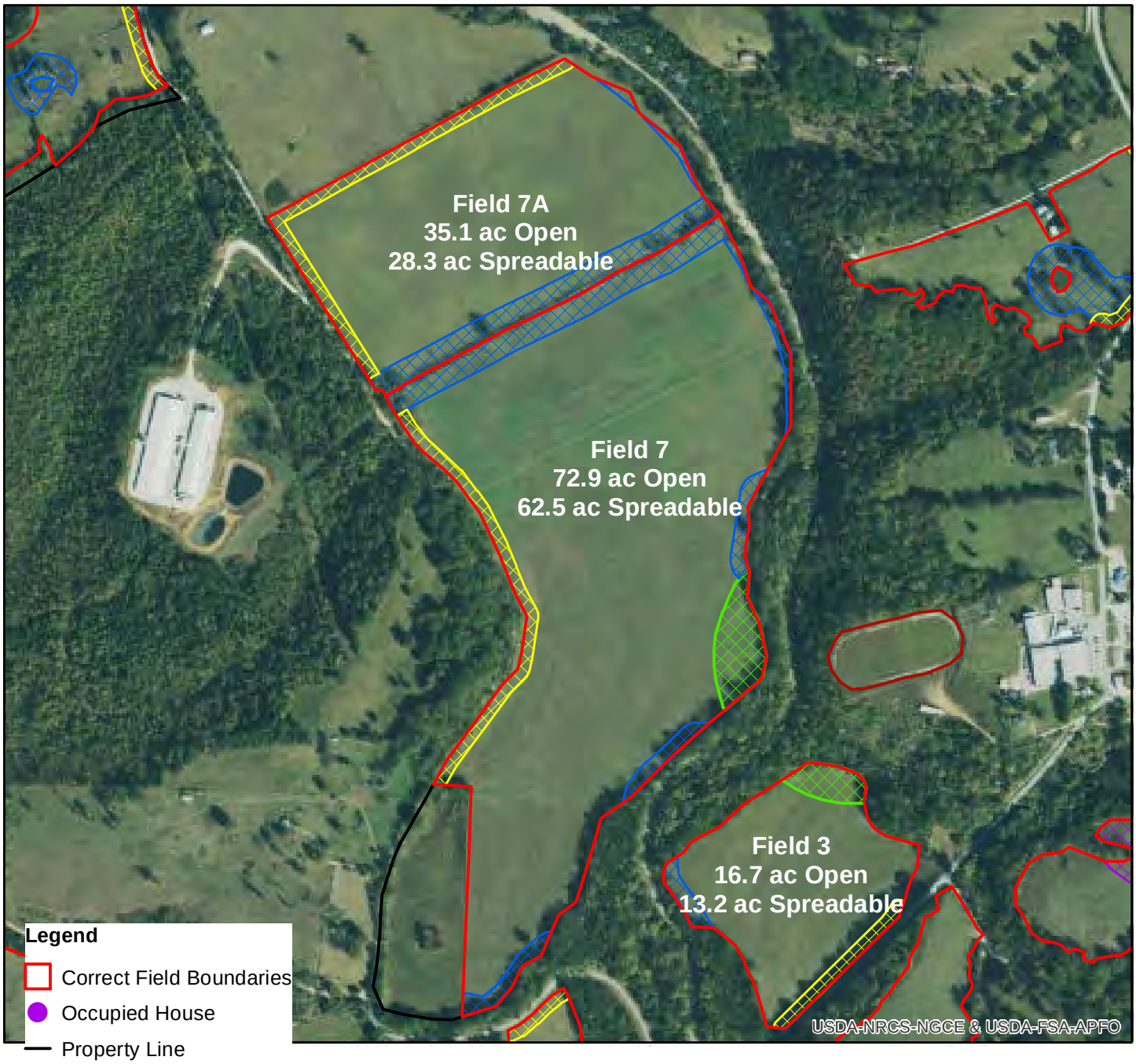
Legend

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

190 0 190 380 570 760 Feet

N

Buffered Field Map
Field 7 and 7A
E.G. Campbell
Field 3 Charles Campbell
T15N, R20W, S25 and S26
Mt. Judea Quad



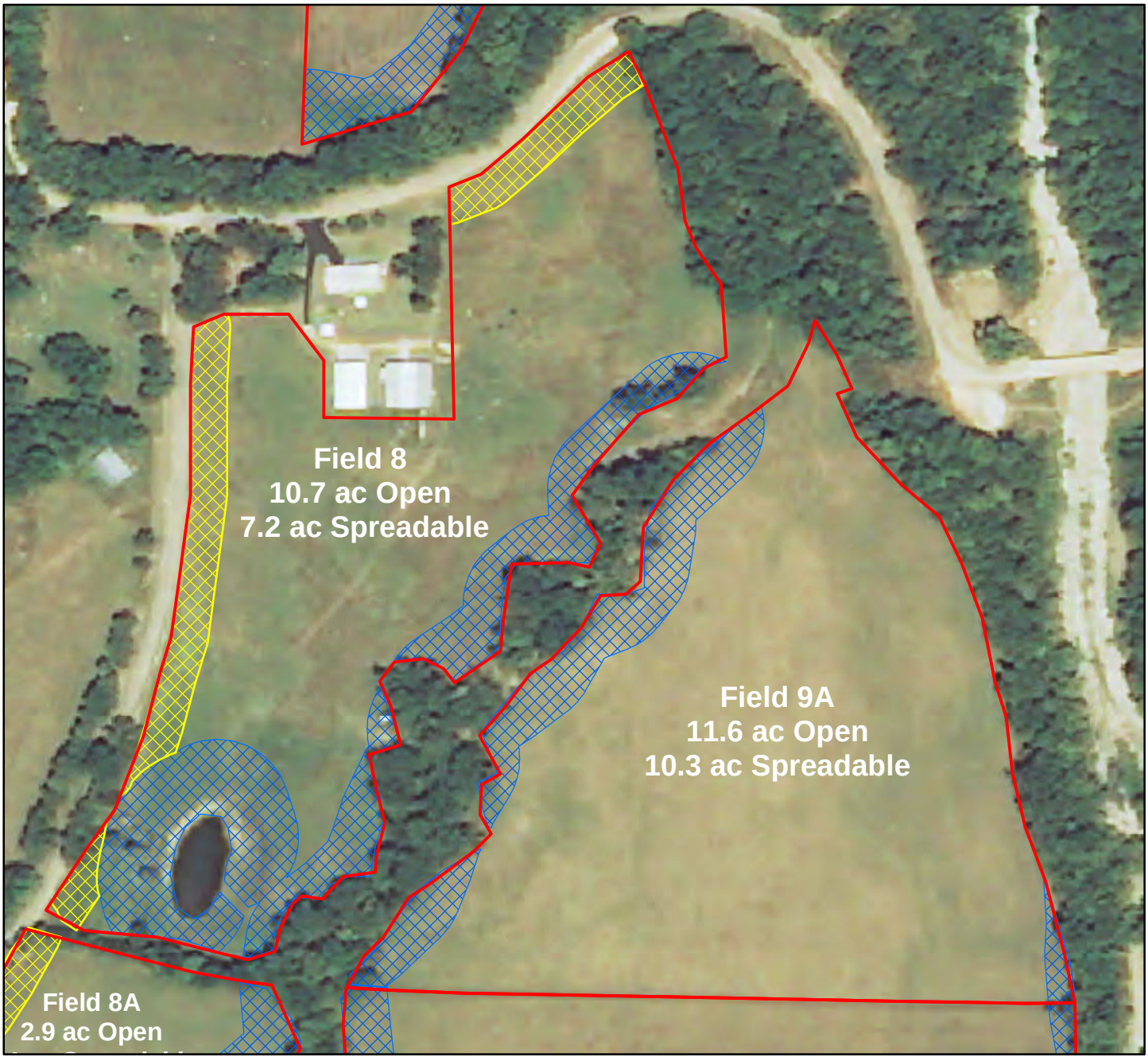
Legend

- Correct Field Boundaries
- Occupied House
- Property Line
- Pond
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Track Line
- Track Line 500 Ft Buffer
- NAIP

380 0 380 760 1,140 1,520
Feet

N

Buffered Field Map
Charles Campbell
Fields 8 and 9A
T15N, R20W, S26 & S35
Mt. Judea Quad



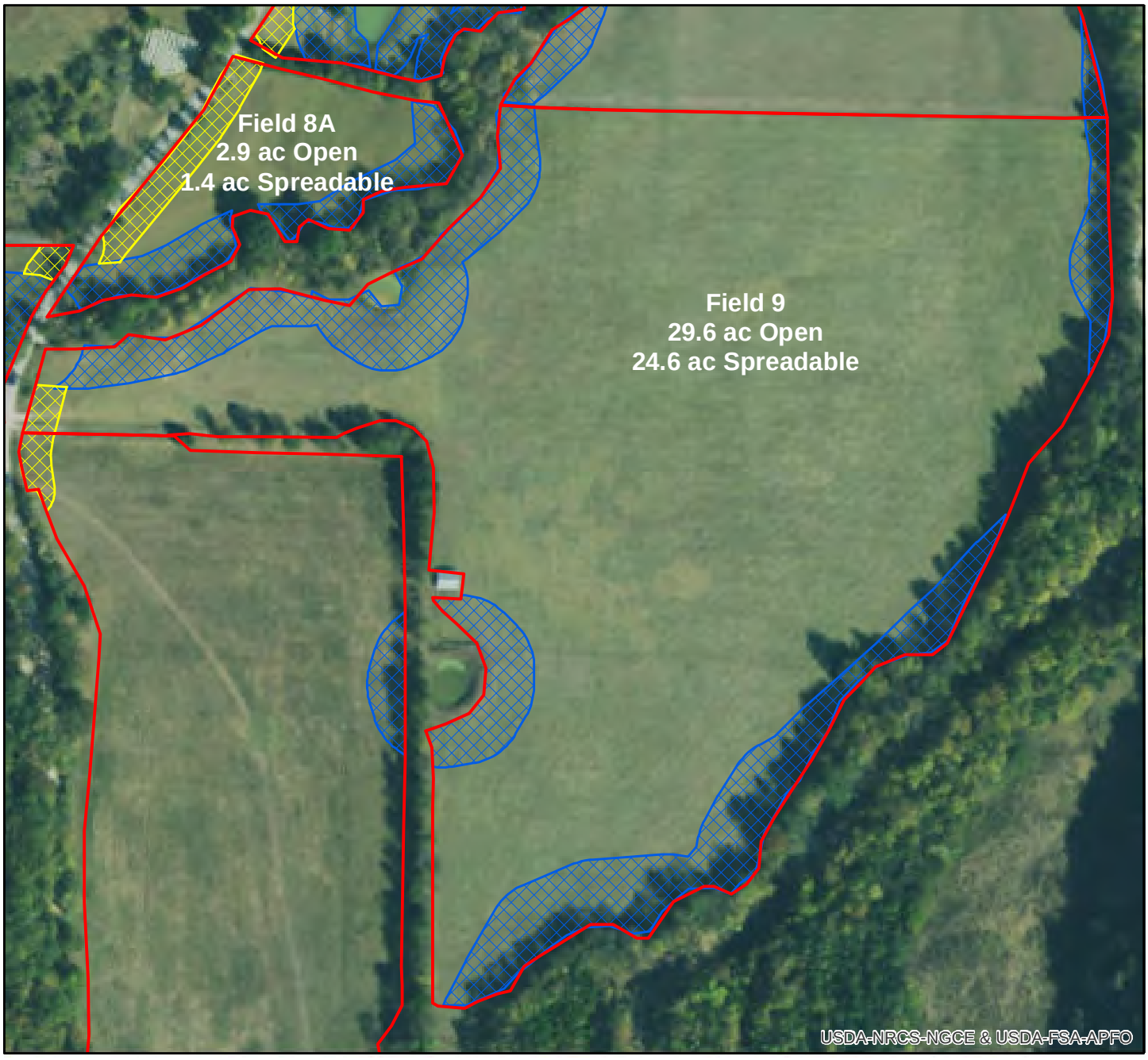
Legend

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

120 0 120 240 360 480 Feet

N

Buffered Field Map
Charles Campbell
Fields 8A and 9
T15N, R20W, S35
Mt. Judea Quad



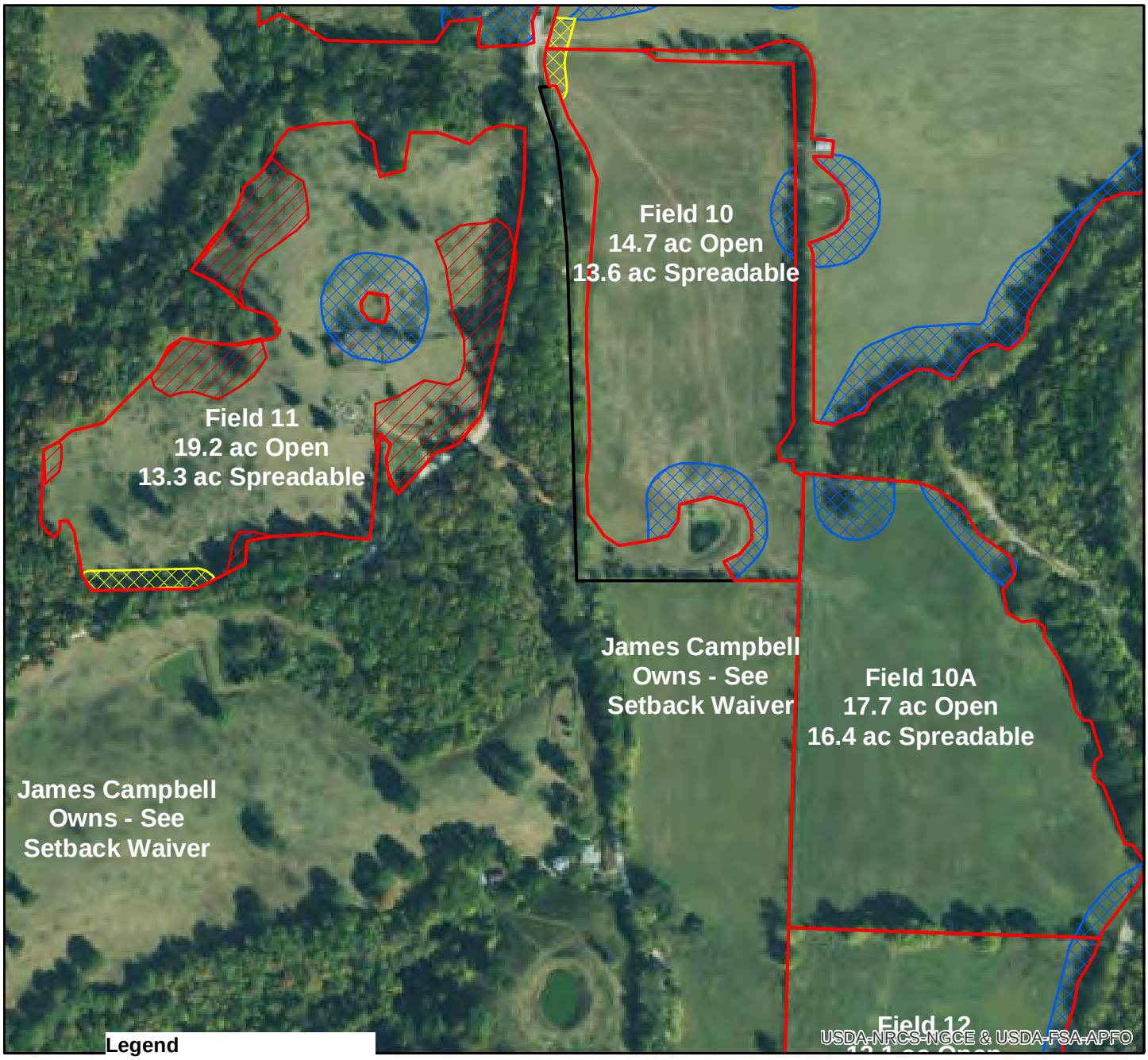
Legend

- Correct Field Boundaries
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

140 0 140 280 420 560 Feet
10

N

Buffered Field Map
Fields 10 and 11 Fayma Dickey
Field 10A Billy F. Cheatham
T15N, R20W, S35
Mt. Judea Quad



Legend

- Correct Field Boundaries
- Property Line
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

220 0 220 440 660 880 Feet

N

Buffered Field Map
Robert Flud
Field 12
T15N, R20W, S35
Mt. Judea Quad

Legend

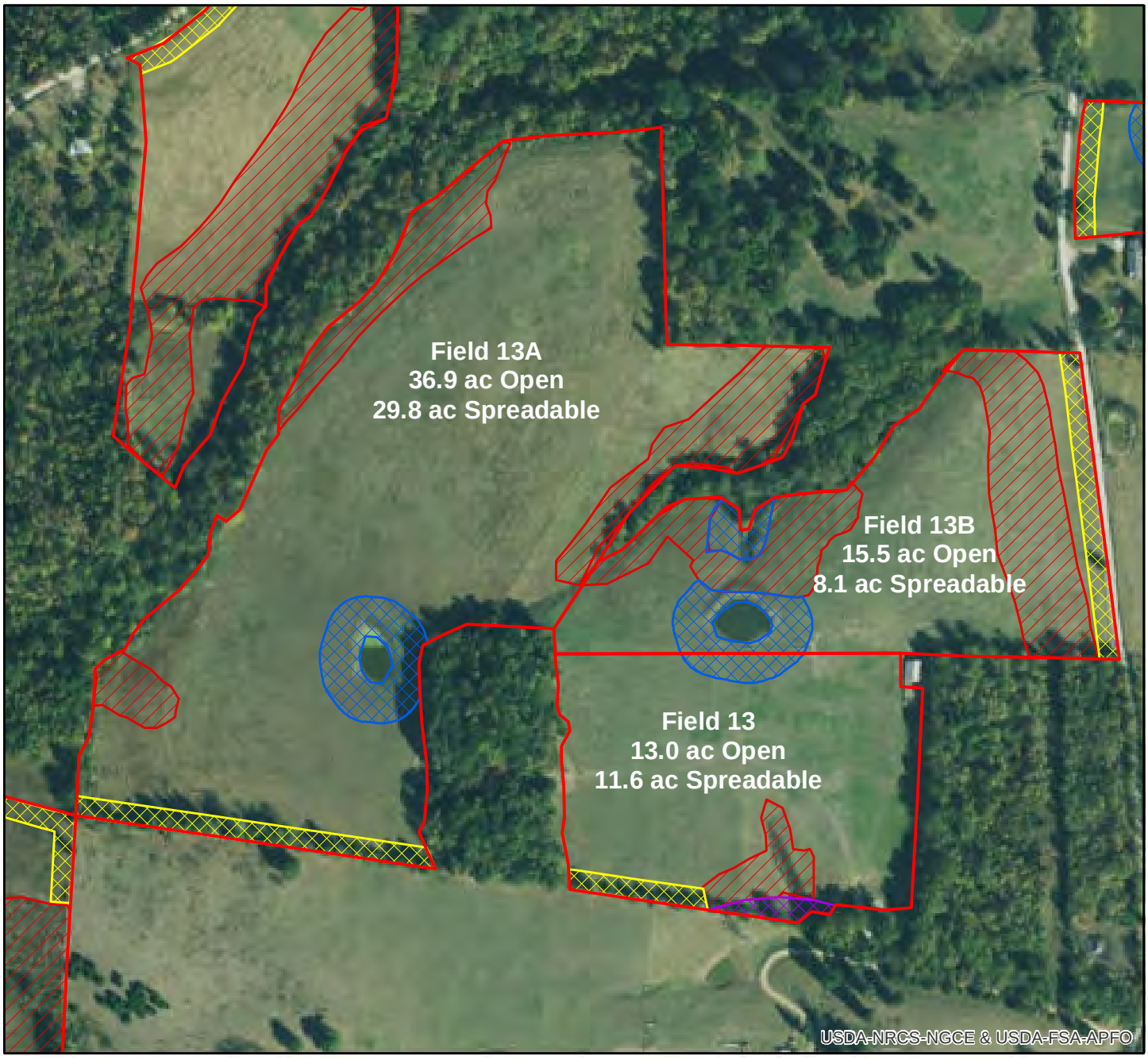
- Correct Field Boundaries
- Pond
- Occupied House
- Property Line
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

120 0 120 240 360 480 Feet

12

N

Buffered Field Map
Fields 13, 13A, 13B
Charles Campbell
T15N, R20W, S35
T14N, R20W, S2
Mt. Judea Quad



Legend

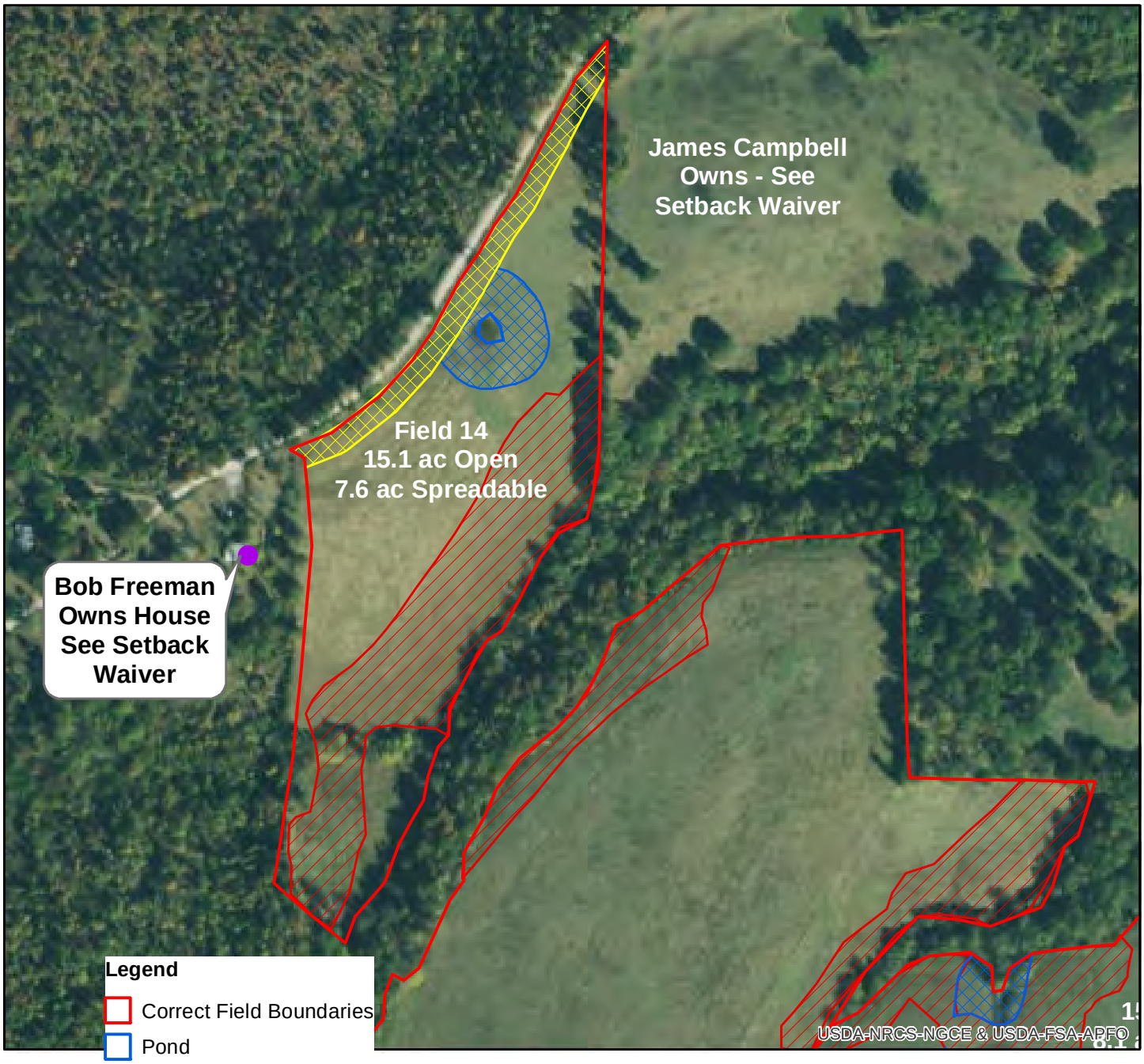
- Correct Field Boundaries
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

220 0 220 440 660 880 Feet

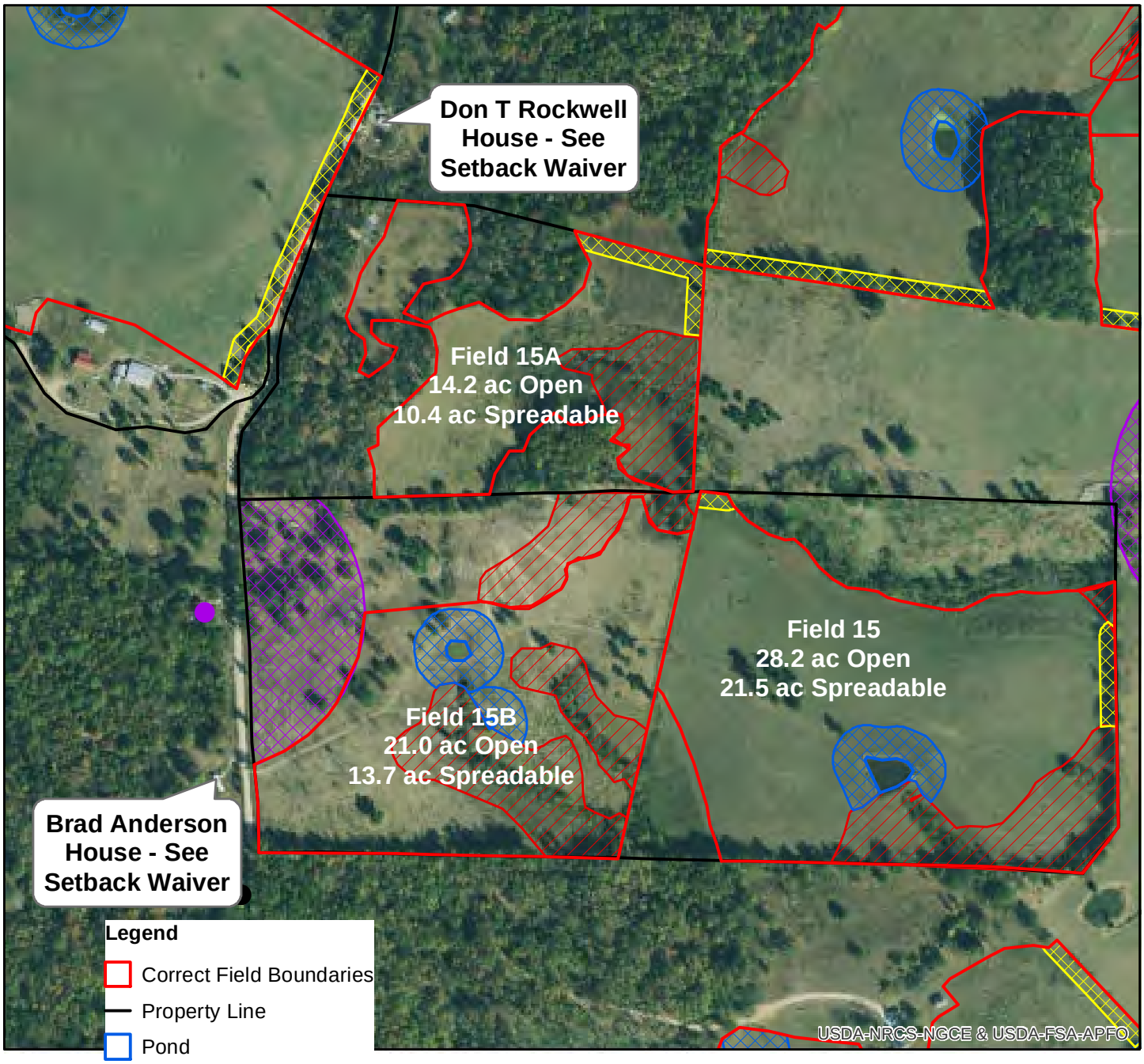
13

N

Buffered Field Map
Field 14
Charles Campbell
T15N, R20W, S35
Mt. Judea Quad

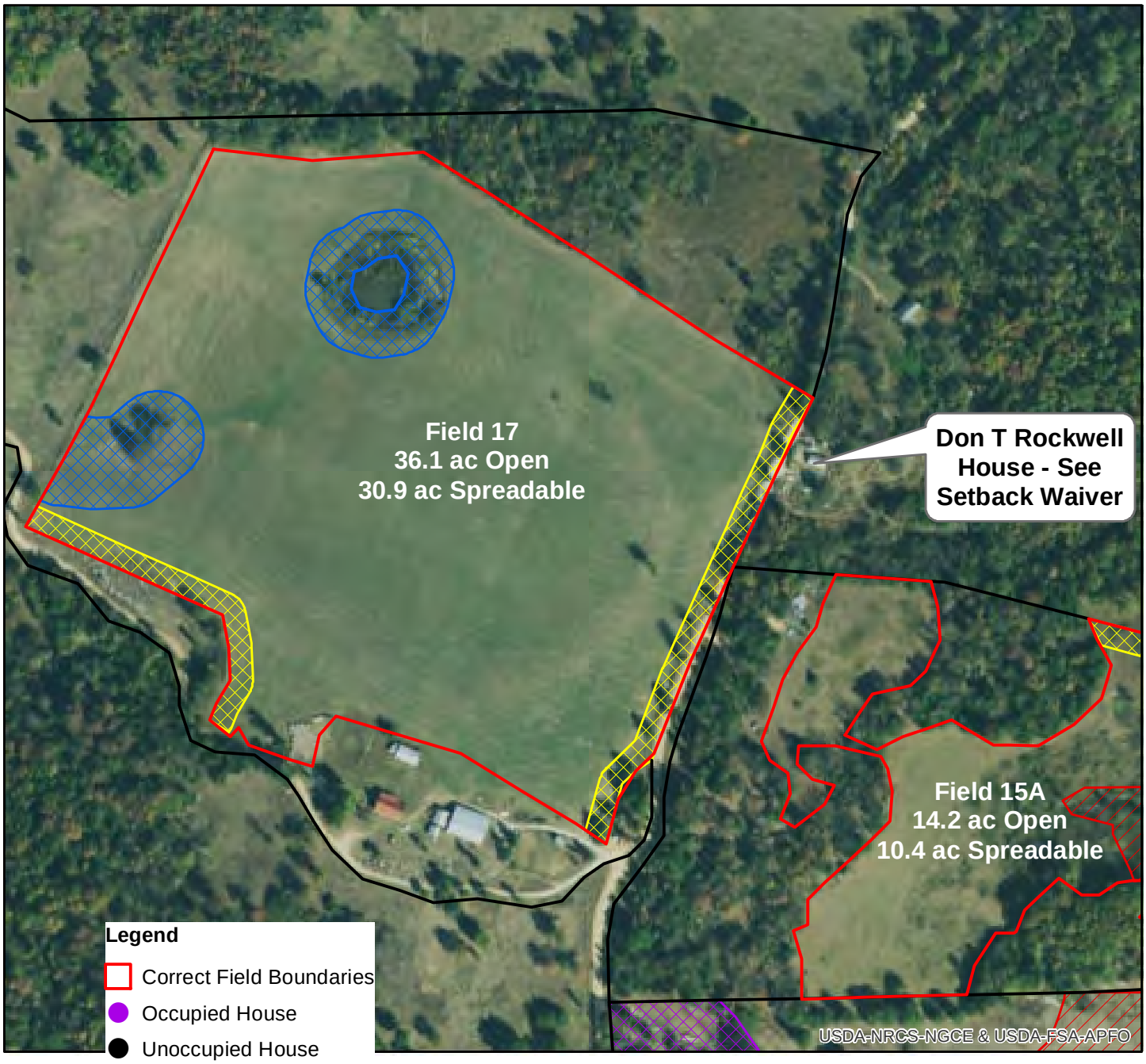


Buffered Field Map
Fields 15, 15A, 15B
Clayel Criner
T14N, R20W, S2
Mt. Judea Quad



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

Buffered Field Map
Field 17
Jason Criner
T15N, R20W, S34 & 35
T14N, R20W, S2 & 3
Mt. Judea Quad



Legend

- Correct Field Boundaries
- Occupied House
- Unoccupied House
- Pond
- Property Line
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

190 0 190 380 570 760 Feet

17

N

Buffered Field Map
Field 18
Murl Bryant
T15N, R20W, S25
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

140 0 140 280 420 560 Feet

18

N

Buffered Field Map
Field 19
Murl Bryant
T15N, R20W, S25
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

140 0 140 280 420 560 Feet

19

N

Buffered Field Map
Field 20
Rondal Campbell
T15N, R20W, S35
Mt. Judea Quad

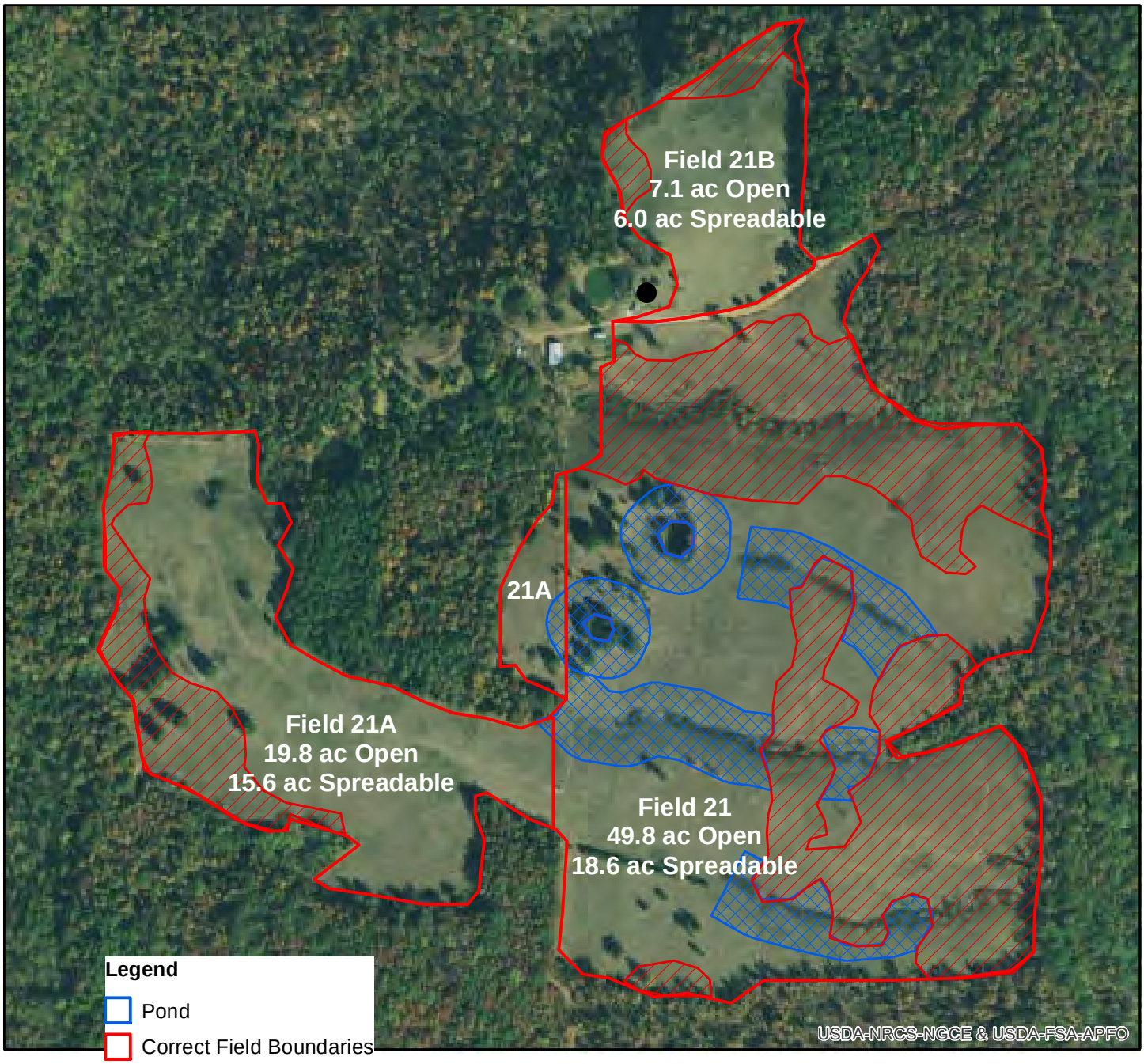
Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

140 0 140 280 420 560 Feet
20

N

Buffered Field Map
Fields 21, 21A, 21B
Rondal Campbell
T15N, R20W, S34 and S35
Mt. Judea Quad



Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- Steep Slope Buffer
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- NAIP

240 0 240 480 720 960 Feet

21

N

Buffered Field Map
Field 22
Kelis Campbell
T15N, R20W, S26
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- Steep Slope Buffer
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- NAIP

200 0 200 400 600 800 Feet

N

Buffered Field Map
Greg Grice
Field 23
T15N, R20W, S22
Mt. Judea Quad

Buffered Field Map
Field 24
Donald Haddock
T15N, R20W, S23
Mt. Judea Quad

Legend

- Correct Field Boundaries
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer

90 0 90 180 270 360
Feet

24

N

Buffered Field Map
Field 32 & 33
Howard Criner
T15N, R20W, S22
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- Steep Slope Buffer
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- NAIP

120 0 120 240 360 480 Feet
25

N

Buffered Field Map
Rondal Campbell
Field 34
T15N, R20W, S26
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

140 0 140 280 420 560 Feet

N

Buffered Field Map
Fields 35 and 36
C & H Hog Farms, Inc.
T15N, R20W, S25
Mt. Judea Quad

Legend

- Correct Field Boundaries
- Pond
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer
- NAIP

190 0 190 380 570 760 Feet

N

Assessment of Land Application Sites
Appendix F

ASSESSMENT OF LAND APPLICATION SITES
REFERENCE AWMFH 651.0504 (a)-(n) TABLE 5-3

Field Number	Taken from Regulation 5 NMP
Map unit symbol	Soil survey data/ map unit data
Predominant soil	Soil survey data/ map unit data taken from field delineations (Regulation 5 NMP)
Available Water Supply (inches)	Convert cm to inches. Cm/2.54 = inches. Soil survey data from map unit components used. The agricultural waste management handbook requests AWS data, despite the fact that Available water capacity is listed (incorrectly). For the available water supply, when a weighted average of all component values is computed, percent composition is the weighting factor
Bulk Density (g/cc)	Weighted average from upper 6 inches of soil map unit components
CEC (meq/100g)	Direct surface measurement by field from U of A Extension Service soil test results, Regulation 5 NMP. (CEC) are milliequivalents per 100 g (meq/100 g) or centimoles per kg (cmolc/kg)
Depth Bedrock (in) (Depth to Any Restrictive Layer)	Convert Cm to inches. Cm/2.54 = inches. Weighted average of soil survey component depth to bed rock
Water Table Depth (in) (Depth to Water Table)	Soil survey data using minimum/max value for all components in a soil map unit
Flooding (Flooding Frequency Class)	From soil survey map units
Stoniness (% by volume) % Course fragments 3-10 inches by volume	Weighted average of horizons and components from soil survey data
Stoniness (% by volume) % Coarse fragments> 10" by volume	Weighted average of horizons and components from soil survey data
Hydrologic soil group (intake)	Soil survey data from dominant condition
Permeability (inches/hour) (ksat)	The most limiting average value from the component or components was used from soil survey data

pH	Direct surface measurement by field from U of A Extension Service soil test results, Regulation 5 NMP.
Ponding (Ponding Frequency Class)	From soil survey component/map unit data
Salinity(mmhos/cm)(EC) (Electrical Conductivity)	EC/Salinity (mmhos/cm)= (decisiemens/m); From soil survey data
Slope %	From soil survey component/map unit data
SAR (Sodium Adsorption Ratio)	Soil survey data from dominant condition

Field Number	Map Unit Symbol	Predominant Soil	Available Water Supply (inches)	Limitation	Bulk Density (g/cc)	Limitation
1	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
2	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
3	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
4	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
5	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
6	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
6A	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
7	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
7A	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
8	51	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
8A	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
9	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
9A	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
10	51	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
10A	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
11	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
12	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
13	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
13A	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
13B	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
14	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
15	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
15A	2	Arkana-Moko	6.53 cm/2.57 in	Severe	1.40	Slight
15B	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
16	50	Spadra	22.56 cm/8.88 in	Slight	1.45	Slight
17	1	Arkana	8.40 cm/ 3.30 in	Moderate	1.38	Slight
18	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
19	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
20	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
21	13	Enders	18.65 cm/7.34 in	Slight	1.38	Slight
21A	13	Enders	18.65 cm/7.34 in	Slight	1.38	Slight
21B	11	Enders	18.65 cm/7.34 in	Slight	1.38	Slight
22	13	Enders	18.65 cm/7.34 in	Slight	1.38	Slight
23	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
24	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
32	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
33	48	Razort	25.60 cm/10.07 in	Slight	1.48	Slight
34	43	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
35	42	Noark	15.47 cm/6.09 in	Slight	1.45	Slight
36	15	Enders-Leesburg	19.68 cm/7.74 in	Slight	1.39	Slight

Field Number	Map Unit Symbol	CEC (meq/100g)	Limitation	Depth Bedrock (in)	Limitation
1	42	28.25	Slight	>200 cm/>78 in	Slight
2	43	13.42	Moderate	>200 cm/>78 in	Slight
3	48	13.86	Moderate	>200 cm/>78 in	Slight
4	43	15.64	Slight	>200 cm/>78 in	Slight
5	48	16	Slight	>200 cm/>78 in	Slight
6	42	8	Moderate	>200 cm/>78 in	Slight
6A	42	12	Moderate	>200 cm/>78 in	Slight
7	48	10.24	Moderate	>200 cm/>78 in	Slight
7A	48	9	Moderate	>200 cm/>78 in	Slight
8	51	14.57	Moderate	>200 cm/>78 in	Slight
8A	50	12.45	Moderate	>200 cm/>78 in	Slight
9	50	18.75	Slight	>200 cm/>78 in	Slight
9A	50	16.13	Slight	>200 cm/>78 in	Slight
10	51	14.45	Moderate	>200 cm/>78 in	Slight
10A	50	12.91	Moderate	>200 cm/>78 in	Slight
11	43	10.64	Moderate	>200 cm/>78 in	Slight
12	50	12	Moderate	>200 cm/>78 in	Slight
13	43	13.49	Moderate	>200 cm/>78 in	Slight
13A	43	14.41	Moderate	>200 cm/>78 in	Slight
13B	43	13.31	Moderate	>200 cm/>78 in	Slight
14	43	10.14	Moderate	>200 cm/>78 in	Slight
15	43	10.28	Moderate	>200 cm/>78 in	Slight
15A	2	11	Moderate	59 cm/ 23 in	Moderate
15B	43	13.86	Moderate	>200 cm/>78 in	slight
16	50	12.91	Moderate	>200 cm/>78 in	Slight
17	1	17	Slight	77 cm/ 30 in	Moderate
18	42	12	Moderate	>200 cm/>78 in	Slight
19	42	14	Moderate	>200 cm/>78 in	Slight
20	43	12	Moderate	>200 cm/>78 in	Slight
21	13	7	Moderate	137 cm/ 53 in	Slight
21A	13	8	Moderate	137 cm/ 53 in	Slight
21B	11	8	Moderate	137 cm/ 53 in	Slight
22	13	7	Moderate	137 cm/ 53 in	Slight
23	48	8	Moderate	>200 cm/>78 in	Slight
24	48	10	Moderate	>200 cm/>78 in	Slight
32	48	7	Moderate	>200 cm/>78 in	Slight
33	48	14	Moderate	>200 cm/>78 in	Slight
34	43	7	Moderate	>200 cm/>78 in	Slight
35	42	8.43	Moderate	>200 cm/>78 in	Slight
36	15	7.78	Moderate	137 cm/ 53 in	Slight

Field Number	Map Unit Symbol	Water Table Depth (ft)	Limitation	Flooding	Limitation
1	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
2	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
3	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
4	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
5	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
6	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
6A	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
7	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
7A	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
8	51	>200 cm/78 in/6.5 ft	Slight	None	Slight
8A	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
9	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
9A	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
10	51	>200 cm/78 in/6.5 ft	Slight	None	Slight
10A	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
11	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
12	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
13	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
13A	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
13B	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
14	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
15	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
15A	2	>200 cm/78 in/6.5 ft	Slight	None	Slight
15B	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
16	50	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
17	1	>200 cm/78 in/6.5 ft	Slight	None	Slight
18	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
19	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
20	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
21	13	>200 cm/78 in/6.5 ft	Slight	None	Slight
21A	13	>200 cm/78 in/6.5 ft	Slight	None	Slight
21B	11	>200 cm/78 in/6.5 ft	Slight	None	Slight
22	13	>200 cm/78 in/6.5 ft	Slight	None	Slight
23	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
24	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
32	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
33	48	>200 cm/78 in/6.5 ft	Slight	Occasional	Moderate
34	43	>200 cm/78 in/6.5 ft	Slight	None	Slight
35	42	>200 cm/78 in/6.5 ft	Slight	None	Slight
36	15	>200 cm/78 in/6.5 ft	Slight	None	Slight

Field Number	Map Unit Symbol	Stoniness (% by volume) % Coarse fragments 3-10" by volume	Limitation	Stoniness (% by volume) % Coarse fragments >10"	Limitation
1	42	4%	Slight	2%	Slight
2	43	4%	Slight	2%	Slight
3	48	0	Slight	0	Slight
4	43	4%	Slight	2%	Slight
5	48	0	Slight	0	Slight
6	42	4%	Slight	2%	Slight
6A	42	4%	Slight	2%	Slight
7	48	0	Slight	0	Slight
7A	48	0	Slight	0	Slight
8	51	0	Slight	0	Slight
8A	50	0	Slight	0	Slight
9	50	0	Slight	0	Slight
9A	50	0	Slight	0	Slight
10	51	0	Slight	0	Slight
10A	50	0	Slight	0	Slight
11	43	4%	Slight	2%	Slight
12	50	0	Slight	0	Slight
13	43	4%	Slight	2%	Slight
13A	43	4%	Slight	2%	Slight
13B	43	4%	Slight	2%	Slight
14	43	4%	Slight	2%	Slight
15	43	4%	Slight	2%	Slight
15A	2	9%	Slight	12%	Severe
15B	43	4%	Slight	2%	Slight
16	50	0	Slight	0	Slight
17	1	7%	Slight	1%	Slight
18	42	4%	Slight	2%	Slight
19	42	4%	Slight	2%	Slight
20	43	4%	Slight	2%	Slight
21	13	2%	Slight	1%	Slight
21A	13	2%	Slight	1%	Slight
21B	11	1%	Slight	1%	Slight
22	13	2%	Slight	1%	Slight
23	48	0	Slight	0	Slight
24	48	0	Slight	0	Slight
32	48	0	Slight	0	Slight
33	48	0	Slight	0	Slight
34	43	4%	Slight	2%	Slight
35	42	4%	Slight	2%	Slight
36	15	3%	Slight	1%	Slight

Field Number	Map Unit Symbol	Hydrologic Soil Group (Intake)	Limitation	Permeability (inches/hour)	Limitation
1	42	B	Slight	1.3	Slight
2	43	B	Slight	1.3	Slight
3	48	B	Slight	1.3	Slight
4	43	B	Slight	1.3	Slight
5	48	B	Slight	1.3	Slight
6	42	B	Slight	1.3	Slight
6A	42	B	Slight	1.3	Slight
7	48	B	Slight	1.3	Slight
7A	48	B	Slight	1.3	Slight
8	51	B	Slight	1.3	Slight
8A	50	B	Slight	1.3	Slight
9	50	B	Slight	1.3	Slight
9A	50	B	Slight	1.3	Slight
10	51	B	Slight	1.3	Slight
10A	50	B	Slight	1.3	Slight
11	43	B	Slight	1.3	Slight
12	50	B	Slight	1.3	Slight
13	43	B	Slight	1.3	Slight
13A	43	B	Slight	1.3	Slight
13B	43	B	Slight	1.3	Slight
14	43	B	Slight	1.3	Slight
15	43	B	Slight	1.3	Slight
15A	2	D	Moderate	0.03	Severe
15B	43	B	Slight	1.3	Slight
16	50	B	Slight	1.3	Slight
17	1	D	Moderate	0.03	Severe
18	42	B	Slight	1.3	Slight
19	42	B	Slight	1.3	Slight
20	43	B	Slight	1.3	Slight
21	13	D	Moderate	0.03	Severe
21A	13	D	Moderate	0.03	Severe
21B	11	D	Moderate	0.03	Severe
22	13	D	Moderate	0.03	Severe
23	48	B	Slight	1.3	Slight
24	48	B	Slight	1.3	Slight
32	48	B	Slight	1.3	Slight
33	48	B	Slight	1.3	Slight
34	43	B	Slight	1.3	Slight
35	42	B	Slight	1.3	Slight
36	15	D	Moderate	0.03	Severe

Field Number	Map Unit Symbol	pH	Limitation	Ponding	Limitation
1	42	7.1	Slight	None	None
2	43	6.2	Slight	None	None
3	48	6.7	Slight	None	None
4	43	5.6	Moderate	None	None
5	48	6.5	Slight	None	None
6	42	5.9	Moderate	None	None
6A	42	5.8	Moderate	None	None
7	48	5.4	Moderate	None	None
7A	48	5.5	Moderate	None	None
8	51	6.5	Slight	None	None
8A	50	6.2	Slight	None	None
9	50	6.9	Slight	None	None
9A	50	6.6	Slight	None	None
10	51	5.3	Moderate	None	None
10A	50	5.7	Moderate	None	None
11	43	5.4	Moderate	None	None
12	50	5.8	Moderate	None	None
13	43	6.4	Slight	None	None
13A	43	6.3	Slight	None	None
13B	43	6.6	Slight	None	None
14	43	5.8	Moderate	None	None
15	43	5.7	Moderate	None	None
15A	2	5.6	Moderate	None	None
15B	43	5.9	Moderate	None	None
16	50	5.5	Moderate	None	None
17	1	6.5	Slight	None	None
18	42	6.5	Slight	None	None
19	42	6.8	Slight	None	None
20	43	6.5	Slight	None	None
21	13	6.2	Slight	None	None
21A	13	6.3	Slight	None	None
21B	11	6.3	Slight	None	None
22	13	5.6	Moderate	None	None
23	48	5.8	Moderate	None	None
24	48	5.4	Moderate	None	None
32	48	5.9	Moderate	None	None
33	48	6.0	Slight	None	None
34	43	5.9	Moderate	None	None
35	42	5.6	Moderate	None	None
36	15	5.4	Moderate	None	None

Field Number	Map Unit Symbol	EC/Salinity (mmhos/cm)= (decisiemens/m)	Limitation	Slope % (Avg)	Limitation
1	42	0.0	Slight	3-8% (5%)	Slight
2	43	0.0	Slight	8-20% (14%)	Moderate
3	48	0.0	Slight	0-3% (2%)	Slight
4	43	0.0	Slight	8-20% (14%)	Moderate
5	48	0.0	Slight	0-3% (2%)	Slight
6	42	0.0	Slight	3-8% (5%)	Slight
6A	42	0.0	Slight	3-8% (5%)	Slight
7	48	0.0	Slight	0-3% (2%)	Slight
7A	48	0.0	Slight	0-3% (2%)	Slight
8	51	0.0	Slight	2-5% (2.5%)	Slight
8A	50	0.0	Slight	0-3% (2%)	Slight
9	50	0.0	Slight	0-3% (2%)	Slight
9A	50	0.0	Slight	0-3% (2%)	Slight
10	51	0.0	Slight	2-5% (2.5%)	Slight
10A	50	0.0	Slight	0-3% (2%)	Slight
11	43	0.0	Slight	8-20% (14%)	Moderate
12	50	0.0	Slight	0-3% (2%)	Slight
13	43	0.0	Slight	8-20% (14%)	Moderate
13A	43	0.0	Slight	8-20% (14%)	Moderate
13B	43	0.0	Slight	8-20% (14%)	Moderate
14	43	0.0	Slight	8-20% (14%)	Moderate
15	43	0.0	Slight	8-20% (14%)	Moderate
15A	2	0.0	Slight	8-20% (14%)	Moderate
15B	43	0.0	Slight	8-20% (14%)	Moderate
16	50	0.0	Slight	0-3% (2%)	Slight
17	1	0.0	Slight	3-8% (5%)	Slight
18	42	0.0	Slight	3-8% (5%)	Slight
19	42	0.0	Slight	3-8% (5%)	Slight
20	43	0.0	Slight	8-20% (14%)	Moderate
21	13	0.0	Slight	3-20% (12%)	Moderate
21A	13	0.0	Slight	3-20% (12%)	Moderate
21B	11	0.0	Slight	3-8% (5%)	Slight
22	13	0.0	Slight	3-20% (12%)	Moderate
23	48	0.0	Slight	0-3% (2%)	Slight
24	48	0.0	Slight	0-3% (2%)	Slight
32	48	0.0	Slight	0-3% (2%)	Slight
33	48	0.0	Slight	0-3% (2%)	Slight
34	43	0.0	Slight	8-20% (14%)	Moderate
35	42	0.0	Slight	3-8% (5%)	Slight
36	15	0.0	Slight	8-20% (14%)	Moderate

Field Number	Map Unit Symbol	SAR	Limitation
1	42	0.0	Slight
2	43	0.0	Slight
3	48	0.0	Slight
4	43	0.0	Slight
5	48	0.0	Slight
6	42	0.0	Slight
6A	42	0.0	Slight
7	48	0.0	Slight
7A	48	0.0	Slight
8	51	0.0	Slight
8A	50	0.0	Slight
9	50	0.0	Slight
9A	50	0.0	Slight
10	51	0.0	Slight
10A	50	0.0	Slight
11	43	0.0	Slight
12	50	0.0	Slight
13	43	0.0	Slight
13A	43	0.0	Slight
13B	43	0.0	Slight
14	43	0.0	Slight
15	43	0.0	Slight
15A	2	0.0	Slight
15B	43	0.0	Slight
16	50	0.0	Slight
17	1	0.0	Slight
18	42	0.0	Slight
19	42	0.0	Slight
20	43	0.0	Slight
21	13	0.0	Slight
21A	13	0.0	Slight
21B	11	0.0	Slight
22	13	0.0	Slight
23	48	0.0	Slight
24	48	0.0	Slight
32	48	0.0	Slight
33	48	0.0	Slight
34	43	0.0	Slight
35	42	0.0	Slight
36	15	0.0	Slight

Available Water Supply, 0 to 150 cm

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	8.40	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	6.53	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	18.65	—	—
13	Enders stony loam, 3 to 15 percent slopes	18.65	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	19.68	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	15.47	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	15.47	—	—
48	Razort loam, occasionally flooded	25.60	—	—
50	Spadra loam, occasionally flooded	22.56	—	—
51	Spadra loam, 2 to 5 percent slopes	22.56	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Available water supply (AWS) is the total volume of water (in centimeters) that should be available to plants when the soil, inclusive of rock fragments, is at field capacity. It is commonly estimated as the amount of water held between field capacity and the wilting point, with corrections for salinity, rock fragments, and rooting depth. AWS is reported as a single value (in centimeters) of water for the specified depth of the soil. AWS is calculated as the available water capacity times the thickness of each soil horizon to a specified depth.

For each soil layer, available water capacity, used in the computation of AWS, is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For the derivation of AWS, only the representative value for available water capacity is used.

The available water supply for each map unit component is computed as described above and then aggregated to a single value for the map unit by the process described below.

A map unit typically consists of one or more "components." A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated (e.g., available water supply), the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the process is to derive a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for the map units can be generated. Aggregation is needed because map units rather than components are delineated on the soil maps.

The composition of each component in a map unit is recorded as a percentage. A composition of 60 indicates that the component typically makes up approximately 60 percent of the map unit.

For the available water supply, when a weighted average of all component values is computed, percent composition is the weighting factor.

Rating Options

Units of Measure: centimeters

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Higher

Bulk Density, One-Third Bar

Map unit symbol	Map unit name	Rating (grams per cubic centimeter)	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	1.38	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	1.40	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	1.38	—	—
13	Enders stony loam, 3 to 15 percent slopes	1.38	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	1.39	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	1.45	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	1.45	—	—
48	Razort loam, occasionally flooded	1.48	—	—
50	Spadra loam, occasionally flooded	1.45	—	—
51	Spadra loam, 2 to 5 percent slopes	1.45	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Bulk density, one-third bar, is the ovendry weight of the soil material less than 2 millimeters in size per unit volume of soil at water tension of 1/3 bar, expressed in grams per cubic centimeter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: grams per cubic centimeter

Aggregation Method: Weighted Average

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 6

Units of Measure: Inches

Depth to Any Soil Restrictive Layer

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	77	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	59	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	137	—	—
13	Enders stony loam, 3 to 15 percent slopes	137	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	137	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	>200	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	>200	—	—
48	Razort loam, occasionally flooded	>200	—	—
50	Spadra loam, occasionally flooded	>200	—	—
51	Spadra loam, 2 to 5 percent slopes	>200	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Weighted Average

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	>200	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	>200	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	>200	—	—
13	Enders stony loam, 3 to 15 percent slopes	>200	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	>200	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	>200	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	>200	—	—
48	Razort loam, occasionally flooded	>200	—	—
50	Spadra loam, occasionally flooded	>200	—	—
51	Spadra loam, 2 to 5 percent slopes	>200	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Minimum or Maximum

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Flooding Frequency Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	None	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	None	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	None	—	—
13	Enders stony loam, 3 to 15 percent slopes	None	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	None	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	None	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	None	—	—
48	Razort loam, occasionally flooded	Occasional	—	—
50	Spadra loam, occasionally flooded	Occasional	—	—
51	Spadra loam, 2 to 5 percent slopes	None	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

TEXTURE MODIFIER AND HORIZON FRAGMENTS COMPARED TO PASSING SIEVE AND FRACTIONS >3 INCH.

[Volumes for lo-rv-hi that are calculated from seive data may not appear in the correct sequence. This is due to varying amounts of the >3 inch fraction. Seive data is expressed on the basis of the amount <3 inch, while the >3 inch is the whole soil basis.]

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Horizon Fragments Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi	size	% Passing Sieve and % >3 inches lo-rv-hi	size
101001------	Arkana----------	A	0-18	Very gravelly*	2 4 5	5 7 14	0- 0- 0	2-5	25-38-50	#10
					5 40 75	20 29 43	35-41-42	5-75	25-38-50	#4
					75 162 250	10 12 23	0-12-27	75-250	0-20-40	3-10in
					250 625 1000	0 3 6	0- 3- 6	250-1000	0- 5-10	>10in
----------	----------	Bt	18-84	None*, Gravelly	2 4 5	0 7 28	0- 7- 7	2-5	50-77-100	#10
					5 40 75	0 6 23	0- 7-27	5-75	60-89-100	#4
					75 162 250	0 1 6	0- 1- 6	75-250	0- 1-10	3-10in
							0- 0- 0	250-1000	0- 0- 0	>10in
----------	----------	R	84-89	None*			0- 0- 0	2-5		
							0- 0- 0	5-75		
							0- 0- 0	75-250		
							0- 1- 0	250-1000		
101042------	Noark----------	A	0-10	Very gravelly*	2 4 5	0 7 14	0- 2- 4	2-5	25-38-50	#10
					5 40 75	0 32 40	35-44-53	5-75	30-40-50	#4
					75 162 250	0 3 6	0- 3- 6	75-250	0- 5-10	3-10in
					250 625 1000	0 2 3	0- 2- 3	250-1000	0- 3- 5	>10in
----------	----------	E	10-36	Very gravelly*, Gravelly	2 4 5	0 14 28	0- 2- 4	2-5	25-50-75	#10
					5 40 75	0 26 40	15-32-53	5-75	30-53-75	#4
					75 162 250	0 3 6	0- 3- 6	75-250	0- 5-10	3-10in
					250 625 1000	0 2 3	0- 2- 3	250-1000	0- 3- 5	>10in
----------	----------	Bt1	36-109	Very gravelly*, Very gravelly	2 4 5	0 7 14	0- 2- 4	2-5	25-38-50	#10
					5 40 75	0 32 40	35-44-53	5-75	30-40-50	#4
					75 162 250	0 3 6	0- 3- 6	75-250	0- 5-10	3-10in
					250 625 1000	0 2 3	0- 2- 3	250-1000	0- 3- 5	>10in
----------	----------	Bt2	109-183	Very gravelly*, Extremely gravelly	2 4 5	0 12 23	0- 0- 0	2-5	10-30-50	#10
					5 40 75	0 37 51	35-53-73	5-75	10-30-50	#4
					75 162 250	0 5 9	0- 5- 9	75-250	0- 8-15	3-10in

					250 625 1000	0 2 3	0- 2- 3 250-1000	0- 3- 5	>10in
101043------	----------	A	0-10	Very gravelly*	2 4 5 5 40 75 75 162 250 250 625 1000	0 7 14 0 32 40 0 3 6 0 2 3	0- 2- 4 2-5 35-44-53 5-75 0- 3- 6 75-250 0- 2- 3 250-1000	25-38-50 #10 30-40-50 #4 0- 5-10 3-10in 0- 3- 5 >10in	

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Horizon Fragments Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi size	% Passing Sieve and % >3 inches lo-rv-hi size
----------	----------	E	10-36	Very gravelly*, Gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 14 28 0 26 40 0 3 6 0 2 3	0- 2- 4 2-5 15-32-53 5-75 0- 3- 6 75-250 0- 2- 3 250-1000	25-50-75 #10 30-53-75 #4 0- 5-10 3-10in 0- 3- 5 >10in
----------	----------	Bt1	36-109	Very gravelly*, Very gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 7 14 0 32 40 0 3 6 0 2 3	0- 2- 4 2-5 35-44-53 5-75 0- 3- 6 75-250 0- 2- 3 250-1000	25-38-50 #10 30-40-50 #4 0- 5-10 3-10in 0- 3- 5 >10in
----------	----------	Bt2	109-183	Very gravelly*, Extremely gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 12 23 0 37 51 0 5 9 0 2 3	0- 0- 0 2-5 35-53-73 5-75 0- 5- 9 75-250 0- 2- 3 250-1000	10-30-50 #10 10-30-50 #4 0- 8-15 3-10in 0- 3- 5 >10in
101048------	Razort----------	A	0-30	None*	2 4 5 5 40 75	0 7 14 0 6 11	0- 1- 3 2-5 0- 6-12 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	75-88-100 #10 80-90-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
----------	----------	Bt	30-140	None*, Gravelly	2 4 5 5 40 75	0 6 23	0- 0- 0 2-5 0-12-27 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	60-80-100 #10 60-80-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
----------	----------	2C	140-165	Gravelly*, None	2 4 5 5 40 75	0 18 43 0 16 40	0- 2- 4 2-5 0-23-58 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	25-63-100 #10 30-65-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in

101050------	Spadra----------	Ap	0-18	None*	2 4 5 5 40 75	0 7 14 0 5 9	0- 3- 6 2-5 0- 4- 9 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	75-88-100 #10 85-93-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
----------	----------	Bt	18-102	None*, None	2 4 5 5 40 75	0 9 17 0 3 6	0- 6-13 2-5 0- 3- 6 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	70-85-100 #10 90-95-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi size	% Passing Sieve and % >3 inches lo-rv-hi size
----------	----------	C	102-183	None*, Gravelly	2 4 5 5 40 75	0 8 28 0 6 23	0- 8- 7 2-5 0- 6-28 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	50-77-100 #10 60-90-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
101051------	----------	Ap	0-18	None*	2 4 5 5 40 75	0 7 14 0 5 9	0- 3-•6 2-5 0- 4- 9 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	75-88-100 #10 85-93-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
----------	----------	Bt	18-102	None*, None	2 4 5 5 40 75	0 9 17 0 3 6	0- 6-13 2-5 0- 3- 6 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	70-85-100 #10 90-95-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
----------	----------	C	102-183	None*, Gravelly	2 4 5 5 40 75	0 8 28 0 6 23	0- 8- 7 2-5 0- 6-28 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	50-77-100 #10 60-90-100 #4 0- 0- 0 3-10in 0- 0- 0 >10in
MLRA 117 - Enders stony loam, 3 to 15 percent	Enders----------	A	0-8	Stony*	2 4 5 5 40 75 75 162 250 250 625 1000	0 5 9 1 4 9 3 12 9 9 13 9	0- 6-10 2-5 1- 4-11 5-75 3-10-15 75-250 9-11-13 250-1000	57-79-98 #10 78-91-98 #4 5-17-25 3-10in 15-19-21 >10in

slopes-----								
----------	----------	E	8-20	Gravelly*, Stony	2 4 5 5 40 75 75 162 250 250 625 1000	0 5 9 1 5 9 3 5 9 9 5 9	0- 1- 2 2-5 2- 6- 8 5-75 3- 6- 9 75-250 9-15-23 250-1000	75-85-95 #10 80-88-95 #4 5-10-15 3-10in 15-25-35 >10in
----------	----------	Bt1	20-102	None*, Gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 7 28 0 2 3	0- 8-30 2-5 0- 1- 3 5-75 0- 2- 3 75-250 0- 2- 3 250-1000	50-83-100 #10 95-98-100 #4 0- 3- 5 3-10in 0- 3- 5 >10in
----------	----------	Bt2	102-137	None*, Channery	2 4 5 5 40 75 75 162 250	0 7 43 0 4 26 0 3 6	6- 8-23 2-5 0- 4-35 5-75 0- 3- 6 75-250 0- 0- 0 250-1000	25-80-90 #10 55-93-100 #4 0- 5-10 3-10in 0- 0- 0 >10in

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Horizon Fragments Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi size	% Passing Sieve and % >3 inches lo-rv-hi size
----------	----------	Cr	137-147	None*			0- 0- 0 2-5 0- 0- 0 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	
MLRA 117 - Enders gravelly loam, 3 to 8 percent slopes-----	----------	A	0-8	Gravelly*	2 4 5 5 40 75 75 162 250 250 625 1000	0 7 14 0 20 28 0 3 6 0 2 3	0- 7-14 2-5 11-19-27 5-75 0- 2- 4 75-250 0- 1- 2 250-1000	41-60-82 #10 61-71-82 #4 0- 4- 7 3-10in 0- 2- 3 >10in
----------	----------	E	8-20	Gravelly*, Stony	2 4 5 5 40 75 75 162 250 250 625 1000	0 5 9 1 5 9 3 5 9 9 5 9	1- 5- 9 2-5 2- 5- 9 5-75 0- 0- 0 75-250 8-13-17 250-1000	67-81-95 #10 84-91-97 #4 0- 0- 0 3-10in 14-21-27 >10in
----------	----------	Bt1	20-102	None*, Gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 6 6 0 2 3	0- 0- 0 2-5 0- 0- 0 5-75 0- 2- 3 75-250 0- 2- 3 250-1000	100-100-100 #10 100-100-100 #4 0- 3- 5 3-10in 0- 3- 5 >10in

----------	----------	Bt2	102-137	None*, Channery	2 4 5 5 40 75 75 162 250	0 7 43 0 4 26 0 3 6	0- 0- 0 2-5 0- 0- 0 5-75 0- 3- 5 75-250 0- 0- 0 250-1000	100-100-100 #10 100-100-100 #4 0- 5- 9 3-10in 0- 0- 0 >10in
----------	----------	Cr	137-147	None*			0- 0- 0 2-5 0- 0- 0 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	
MLRA 117 - Enders-Leesburg complex, 8 to 20 percent slopes-----	----------	A	0-8	Stony*	2 4 5 5 40 75 75 162 250 250 625 1000	0 5 9 1 4 9 3 12 9 9 13 9	0- 6-10 2-5 1- 4-11 5-75 3-10-15 75-250 9-11-13 250-1000	57-79-98 #10 78-91-98 #4 5-17-25 3-10in 15-19-21 >10in
----------	----------	E	8-20	Gravelly*, Stony	2 4 5 5 40 75 75 162 250 250 625 1000	0 5 9 1 5 9 3 5 9 9 5 9	0- 1- 2 2-5 2- 6- 8 5-75 3- 6- 9 75-250 9-15-23 250-1000	75-85-95 #10 80-88-95 #4 5-10-15 3-10in 15-25-35 >10in

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Horizon Fragments Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi size	% Passing Sieve and % >3 inches lo-rv-hi size
----------	----------	Bt1	20-102	None*, Gravelly	2 4 5 5 40 75 75 162 250 250 625 1000	0 7 28 0 2 3	0- 8-30 2-5 0- 1- 3 5-75 0- 2- 3 75-250 0- 2- 3 250-1000	50-83-100 #10 95-98-100 #4 0- 3- 5 3-10in 0- 3- 5 >10in
----------	----------	Bt2	102-137	None*, Channery	2 4 5 5 40 75 75 162 250	0 7 43 0 4 26 0 3 6	6- 8-23 2-5 0- 4-35 5-75 0- 3- 6 75-250 0- 0- 0 250-1000	25-80-90 #10 55-93-100 #4 0- 5-10 3-10in 0- 0- 0 >10in
----------	----------	Cr	137-147	None*			0- 0- 0 2-5 0- 0- 0 5-75 0- 0- 0 75-250	

							0- 0- 0 250-1000	
101002------	Arkana--------------	A	0-18	Very gravelly*	2 4 5 5 40 75 75 162 250 250 625 1000	5 7 14 20 29 43 10 12 23 0 3 6	0- 0- 0 2-5 35-41-42 5-75 0-12-27 75-250 0- 3- 6 250-1000	25-38-50 #10 25-38-50 #4 0-20-40 3-10in 0- 5-10 >10in
------------	--------------------	Bt	18-84	None*, Gravelly	2 4 5 5 40 75 75 162 250	0 7 28 0 6 23 0 1 6	0- 7- 7 2-5 0- 7-27 5-75 0- 1- 6 75-250 0- 0- 0 250-1000	50-77-100 #10 60-89-100 #4 0- 1-10 3-10in 0- 0- 0 >10in
------------	--------------------	R	84-89	None*			0- 0- 0 2-5 0- 0- 0 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	
------------	Moko----------------	A1	0-10	Very stony*	2 4 5 5 40 75 75 162 250 250 625 1000	0 6 11 0 7 13 0 13 23 0 26 34	2- 2- 1 2-5 5- 8- 7 5-75 3-14-27 75-250 19-31-45 250-1000	60-73-85 #10 65-78-90 #4 5-23-40 3-10in 30-45-60 >10in
------------	--------------------	A2	10-33	Very stony*, Extremely stony	2 4 5 5 40 75 75 162 250 250 625 1000	0 6 11 0 7 13 0 13 23 0 31 45	2- 1- 0 2-5 5- 6- 1 5-75 3-14-27 75-250 19-40-69 250-1000	60-73-85 #10 65-78-90 #4 5-23-40 3-10in 30-55-80 >10in

DMU DESCRIPTION	COMPNAME	Horizon Name	Depth (cm)	Modifer(s) * is RV	Horizon Fragments Size (mm) lo- rv- hi	Volume lo- rv- hi	Calc from sieve; volume and size lo-rv-hi size	% Passing Sieve and % >3 inches lo-rv-hi size
------------	--------------------	R	33-38	None*			0- 0- 0 2-5 0- 0- 0 5-75 0- 0- 0 75-250 0- 0- 0 250-1000	
MLRA 117 - Enders-Lees burg complex, 8	Leesburg------------	A	0-25	Stony*	2 4 5 5 40 75 75 162 250 250 625 1000	0 3 6 1 4 6 6 10 6 9 13 6	2- 2- 2 2-5 2- 4- 6 5-75 6-11-15 75-250 9-14-19 250-1000	80-85-90 #10 85-90-95 #4 10-18-25 3-10in 15-23-30 >10in

to 20 percent slopes-----								
----------	----------	Bt1	25-84	Gravelly*, Gravelly	2 4 5 5 40 75 75 162 250	0 6 11 5 10 14	3- 3- 3 2-5 6-10-14 5-75 0- 6-12 75-250 0- 0- 0 250-1000	70-78-85 #10 75-83-90 #4 0-10-20 3-10in 0- 0- 0 >10in
----------	----------	Bt2	84-183	Cobbly*, Gravelly	2 4 5 5 40 75 75 162 250	0 6 11 0 10 14 0 5 9	3- 3- 3 2-5 6-10-14 5-75 0- 5- 9 75-250 0- 0- 0 250-1000	70-78-85 #10 75-83-90 #4 0- 8-15 3-10in 0- 0- 0 >10in

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	D	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	D	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	D	—	—
13	Enders stony loam, 3 to 15 percent slopes	D	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	D	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	B	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	B	—	—
48	Razort loam, occasionally flooded	B	—	—
50	Spadra loam, occasionally flooded	B	—	—
51	Spadra loam, 2 to 5 percent slopes	B	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

SEVEN BASIC PHYSICAL PROPERTIES OF SOILS

This report is sorted by map unit name. The * preceeding a texture designates the 'RV' texture. A # designates a stratified layer.

Compname	Depth	Texture	Sand	Silt	Clay	Ksat	Bulk density	OM	Frags
	cm		Pct	Pct	Pct	um/s	one third bar	Pct	Pct
100 Arkana------	0-18	*GRV-SIL	15- 26- 30	39- 53- 66	15- 21- 27	4.00-9.00 -14.00	1.25-1.38-1.50	2.0-3.0-4.0	51
----------	18-84	*C GR-C	1- 8- 10	2- 19- 37	60- 73- 85	0.01-0.21 -0.42	1.20-1.33-1.45	0.5-0.8-1.0	14
----------	84-89	*UWB	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
50 Arkana-------	0-18	*GRV-SIL	15- 26- 30	39- 53- 66	15- 21- 27	4.00-9.00 -14.00	1.25-1.38-1.50	2.0-3.0-4.0	51
----------	18-84	*C GR-C	1- 8- 10	2- 19- 37	60- 73- 85	0.01-0.21 -0.42	1.20-1.33-1.45	0.5-0.8-1.0	14
----------	84-89	*UWB	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
35 Moko---------	0-10	*STV-SIL	?- 25-?	?- 53-?	18- 23- 27	4.00-9.00 -14.00	1.25-1.43-1.60	2.0-3.0-4.0	52
----------	10-33	*STV-SIC L STX-SIL, STV-L, STV-SIL	?- 18-?	?- 54-?	18- 28- 35	4.00-9.00 -14.00	1.25-1.43-1.60	0.5-0.8-1.0	57
----------	33-38	*UWB	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
100 Noark-------	0-10	*GRV-SIL	?- 29-?	?- 53-?	10- 18- 25	4.00-9.00 -14.00	1.35-1.45-1.55	1.0-2.0-3.0	44
----------	10-36	*GRV-SIL GR-SIL	?- 29-?	?- 53-?	10- 18- 25	4.00-9.00 -14.00	1.35-1.45-1.55	0.1-0.6-1.0	45
----------	36-109	*GRV-SIC GRV-C	?- 3-?	?- 42-?	40- 55- 70	4.00-9.00 -14.00	1.25-1.33-1.40	0.1-0.6-1.0	44
----------	109-183	*GRV-C GRX-C, GRV-SIC	?- 12-?	?- 28-?	45- 60- 75	4.00-9.00 -14.00	1.25-1.33-1.40	0.0-0.3-0.5	56
----------	0-10	*GRV-SIL	?- 29-?	?- 53-?	10- 18- 25	4.00-9.00 -14.00	1.35-1.45-1.55	1.0-2.0-3.0	44
----------	10-36	*GRV-SIL GR-SIL	?- 29-?	?- 53-?	10- 18- 25	4.00-9.00 -14.00	1.35-1.45-1.55	0.1-0.6-1.0	45
----------	36-109	*GRV-SIC GRV-C	?- 3-?	?- 42-?	40- 55- 70	4.00-9.00 -14.00	1.25-1.33-1.40	0.1-0.6-1.0	44
----------	109-183	*GRV-C GRX-C, GRV-SIC	?- 12-?	?- 28-?	45- 60- 75	4.00-9.00 -14.00	1.25-1.33-1.40	0.0-0.3-0.5	56
95 Razort-------	0-30	*L	?- 43-?	?- 40-?	10- 18- 25	4.00-9.00 -14.00	1.35-1.48-1.60	1.0-2.0-3.0	13
----------	30-140	*L SIL, CL, GR-L	?- 38-?	?- 36-?	18- 27- 35	4.00-9.00 -14.00	1.35-1.48-1.60	0.5-1.3-2.0	12
----------	140-165	*GR-SL GR-SIL, GRV-SIL,	?- 67-?	?- 15-?	10- 18- 25	14.00-28.00-42.00	1.35-1.43-1.50	0.5-0.8-1.0	34

		L							
95 Spadra-------	0-18	*L	?- 43-?	?- 40-?	10- 18- 25	4.00-9.00 -14.00	1.30-1.45-1.60	1.0-2.0-3.0	12
----------	18-102	*SCL L, CL	?- 60-?	?- 18-?	10- 23- 35	4.00-9.00 -14.00	1.30-1.45-1.60	0.5-0.8-1.0	12
----------	102-183	*FSL SL, GR-FSL	?- 69-?	?- 16-?	5- 15- 25	4.00-9.00 -14.00	1.30-1.45-1.60	0.1-0.6-1.0	14
----------	0-18	*L	?- 43-?	?- 40-?	10- 18- 25	4.00-9.00 -14.00	1.30-1.45-1.60	1.0-2.0-3.0	12
----------	18-102	*SCL L, CL	?- 60-?	?- 18-?	10- 23- 35	4.00-9.00 -14.00	1.30-1.45-1.60	0.5-0.8-1.0	12
----------	102-183	*FSL SL, GR-FSL	?- 69-?	?- 16-?	5- 15- 25	4.00-9.00 -14.00	1.30-1.45-1.60	0.1-0.6-1.0	14
80 Enders-------	0-8	*GR-L	26- 43- 52	28- 40- 45	10- 18- 20	4.00-9.00 -14.00	1.25-1.38-1.50	2.0-3.0-4.0	32
----------	8-20	*GR-SIL STV-L, ST-SL, ST-SIL	20- 29- 40	36- 53- 70	10- 18- 25	4.00-9.00 -14.00	1.25-1.38-1.50	0.5-0.8-1.7	31
----------	20-102	*C SIC, GR-SICL	5- 23- 30	10- 29- 54	35- 48- 60	0.01-0.21 -0.42	1.15-1.30-1.45	0.1-0.6-0.8	12
----------	102-137	*C SIC, CN-SIC, CNV-C	5- 22- 30	10- 28- 50	40- 50- 60	0.01-0.21 -0.42	1.20-1.33-1.45	0.0-0.3-0.6	14
----------	137-147	*BR	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
85 Enders-------	0-8	*ST-L	26- 45- 52	28- 40- 45	10- 15- 20	4.00-9.00 -14.00	1.25-1.38-1.50	2.0-3.0-4.0	34
----------	8-20	*GR-SIL STV-L, ST-SL, ST-SIL	20- 29- 40	36- 53- 70	10- 18- 25	4.00-9.00 -14.00	1.25-1.38-1.50	0.5-0.8-1.7	31
----------	20-102	*C SIC, GR-SICL	5- 23- 30	10- 29- 54	35- 48- 60	0.01-0.21 -0.42	1.15-1.30-1.45	0.1-0.6-0.8	13
----------	102-137	*C SIC, CN-SIC, CNV-C	5- 22- 30	10- 28- 50	40- 50- 60	0.01-0.21 -0.42	1.20-1.33-1.45	0.0-0.3-0.6	14
----------	137-147	*BR	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
60 Enders-------	0-8	*ST-L	26- 45- 52	28- 40- 45	10- 15- 20	4.00-9.00 -14.00	1.25-1.38-1.50	2.0-3.0-4.0	34
----------	8-20	*GR-SIL STV-L, ST-SL, ST-SIL	20- 29- 40	36- 53- 70	10- 18- 25	4.00-9.00 -14.00	1.25-1.38-1.50	0.5-0.8-1.7	31
----------	20-102	*C SIC, GR-SICL	5- 23- 30	10- 29- 54	35- 48- 60	0.01-0.21 -0.42	1.15-1.30-1.45	0.1-0.6-0.8	13

SEVEN BASIC PHYSICAL PROPERTIES OF SOILS--Continued

This report is sorted by map unit name. The * preceeding a texture designates the 'RV' texture. A # designates

Physical soil properties_final - Copy
a stratified layer.

Compname	Depth	Texture	Sand	Silt	Clay	Ksat	Bulk density	OM	Frags
	cm		Pct	Pct	Pct	um/s	one third bar	Pct	Pct
----------	102-137	*C SIC, CN-SIC, CNV-C	5- 22- 30	10- 28- 50	40- 50- 60	0.01-0.21 -0.42	1.20-1.33-1.45	0.0-0.3-0.6	14
----------	137-147	*BR	?-?-?	?-?-?	--	0.42-1.00 -1.40	?-?-?	---	0
30 Leesburg-----	0-25	*ST-L	?- 46-?	?- 42-?	7- 13- 18	14.00-28.00-42.00	1.30-1.40-1.50	1.0-2.0-3.0	30
----------	25-84	*GR-CL GR-SICL, GR-SCL	?- 34-?	?- 37-?	20- 30- 40	4.00-9.00 -14.00	1.35-1.48-1.60	0.1-0.6-1.0	22
----------	84-183	*CB-CL GR-CL, GR-SICL, GR-C	?- 31-?	?- 31-?	27- 39- 50	4.00-9.00 -14.00	1.25-1.43-1.60	0.0-0.3-0.5	21

Ponding Frequency Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	None	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	None	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	None	—	—
13	Enders stony loam, 3 to 15 percent slopes	None	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	None	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	None	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	None	—	—
48	Razort loam, occasionally flooded	None	—	—
50	Spadra loam, occasionally flooded	None	—	—
51	Spadra loam, 2 to 5 percent slopes	None	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Ponding is standing water in a closed depression. The water is removed only by deep percolation, transpiration, or evaporation or by a combination of these processes. Ponding frequency classes are based on the number of times that ponding occurs over a given period. Frequency is expressed as none, rare, occasional, and frequent.

"None" means that ponding is not probable. The chance of ponding is nearly 0 percent in any year.

"Rare" means that ponding is unlikely but possible under unusual weather conditions. The chance of ponding is nearly 0 percent to 5 percent in any year.

"Occasional" means that ponding occurs, on the average, once or less in 2 years. The chance of ponding is 5 to 50 percent in any year.

"Frequent" means that ponding occurs, on the average, more than once in 2 years. The chance of ponding is more than 50 percent in any year.

Rating Options

Aggregation Method: Minimum or Maximum

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

Electrical Conductivity (EC)

Map unit symbol	Map unit name	Rating (decisiemens per meter)	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	0.0	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	0.0	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	0.0	—	—
13	Enders stony loam, 3 to 15 percent slopes	0.0	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	0.0	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	0.0	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	0.0	—	—
48	Razort loam, occasionally flooded	0.0	—	—
50	Spadra loam, occasionally flooded	0.0	—	—
51	Spadra loam, 2 to 5 percent slopes	0.0	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Electrical conductivity (EC) is the electrolytic conductivity of an extract from saturated soil paste, expressed as decisiemens per meter at 25 degrees C. Electrical conductivity is a measure of the concentration of water-soluble salts in soils. It is used to indicate saline soils. High concentrations of neutral salts, such as sodium chloride and sodium sulfate, may interfere with the absorption of water by plants because the osmotic pressure in the soil solution is nearly as high as or higher than that in the plant cells.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: decisiemens per meter

Aggregation Method: Weighted Average

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 6

Units of Measure: Inches

Sodium Adsorption Ratio (SAR)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Arkana very cherty silt loam, 3 to 8 percent slopes	0.0	—	—
2	Arkana-Moko complex, 8 to 20 percent slopes	0.0	—	—
11	Enders gravelly loam, 3 to 8 percent slopes	0.0	—	—
13	Enders stony loam, 3 to 15 percent slopes	0.0	—	—
15	Enders-Leesburg complex, 8 to 20 percent slopes	0.0	—	—
42	Noark very cherty silt loam, 3 to 8 percent slopes	0.0	—	—
43	Noark very cherty silt loam, 8 to 20 percent slopes	0.0	—	—
48	Razort loam, occasionally flooded	0.0	—	—
50	Spadra loam, occasionally flooded	0.0	—	—
51	Spadra loam, 2 to 5 percent slopes	0.0	—	—
Totals for Area of Interest			**526,959.1**	**100.0%**

Description

Sodium adsorption ratio is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity (Ksat) and aeration, and a general degradation of soil structure.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Aggregation Method: Weighted Average

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: Yes

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 6

Units of Measure: Centimeters

IN THE CIRCUIT COURT OF NEWTON COUNTY, ARKANSAS
CIVIL DIVISION

C & H HOG FARMS, INC. APPELLANT

VS. CASE NO. 51CV-18-58

ARKANSAS POLLUTION CONTROL
& ECOLOGY COMMISSION APPELLEE

BUFFALO RIVER WATERSHED ALLIANCE, INC.,
ARKANSAS CANOE CLUB, GORDON WATKINS AND
MARTI OLESEN INTERVENORS

INTERIM ORDER AND STAY PENDING APPEAL

This case came on for hearing on October 17, 2018. After reading the pleadings in the case, hearing the arguments of counsel, and considering the testimony presented the court finds and holds:

The Intervenors should be, and hereby are, allowed to intervene in this lawsuit as permissive intervenors.

On January 10, 2018 the Arkansas Department of Environmental Quality (ADEQ) issued its decision denying the application of C&H Hog Farms, Inc. (C&H) pursuant to Regulation No. 5 for a liquid animal waste management system permit concentrated animal feeding operation in Mt. Judea, Arkansas ("Permitting Decision"). On January 11, 2018 C&H filed a Motion for Stay of Permitting Decision with the Arkansas Pollution Control and Ecology Commission ("Commission"), which was granted on January 17, 2018. On January 18, 2018 C&H appealed the Permitting Decision to the Commission. On August 24, 2018 the Commission remanded the Permitting Decision to ADEQ and closed the docket of the appeal. On September 6, 2018 C&H filed a Notice of Appeal of the Commission's decision, which included a request to further stay the Director's Permitting Decision and to stay the Commission's decision.

The court finds that pursuant to Ark. Code Ann. § 8-4-223, this court obtained jurisdiction over C&H's application for a Regulation No. 5 permit for a liquid animal waste management system permit in Mt. Judea, Arkansas, the subject matter of this appeal, on September 6, 2018, when C&H filed its notice of appeal (the "Permit Matter"). Minute Order No. 18-20 issued by the Commission, including the remand and instructions stated therein, should be, and hereby is, stayed. To avoid substantial prejudice, the stay allowing C&H to continue to operate its facility is continued until further order of this court.

IT IS SO ORDERED.

John Putman

Circuit Judge

Date: October 17, 2018

What's New at ADEQ?

ADEQ is now accepting applications for the 2019 Environmental Awards

ADEQ's annual environmental awards recognize businesses and organizations in Arkansas for their efforts to protect and enhance the state's environment through three prestigious awards: the Arkansas Environmental Stewardship (ENVY) Award, the Arkansas Environmental Technology (TECHe) Award, and the E^2 Energy Award. Businesses, nonprofits, and government entities are encouraged to apply. Application forms and more information about the awards are available at **https://www.adeq.state.ar.us/poa/enterprise-services/awards/**.

Comment Period Extended to October 24

The comment period for ADEQ's draft decision to deny a Regulation 5 permit for C&H Hog Farm in Newton County is currently open and has been extended to receive comments through 4:30 p.m. on Wednesday, October 24. To submit a public comment on the **C&H Hog Farm permit draft decision**, go to **http://water.adeq.commentinput.com/?id=m45xxd**.