

VPA PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the modification of the VPA permit listed below. The permit authorizes the land application of biosolids and water treatment plant (WTP) residuals on agricultural and silvicultural land in Essex County without a point source discharge to surface waters, in accordance with the Virginia Pollution Abatement (VPA) Permit Regulation 9VAC25-32.

1. Owner Name and Address: Recyc Systems, Inc. P.O. Box 562 Remington, VA 22734	
2. VPA Permit Name: Recyc Systems Inc – Essex County VPA Permit No: VPA00804 Expiration Date: June 30, 2019	
3. SIC Code(s): 0711 - Soil Preparation Services	
4. Facility Contact: Susan Trumbo P.O. Box 562, Remington, VA 22734 (540)547-3300 strumbo@recycsystems.com	
5. Permit Application Information: Staff initiated major modification of the VPA permit after promulgation of the revised VPA Permit Regulation and Permittee initiated major modification of the VPA permit to authorize the land application of biosolids and WTP residuals on additional land application sites.	
Permit Modification Application submitted by:	Recyc Systems, Inc.
Application receipt date:	April 22, 2016
Additional information requested:	April 26, 2016
Additional information received:	April 28, 2016
Application complete date:	May 10, 2016

6. Permit Processing Information:		
DEQ Regional Office:	Central	
Site Inspection performed by:	Anita Tuttle	
Date of site inspections:	May 10, 2016	
Date of public meeting for permit application:	Not Applicable*	
Permit drafted by:	Anita Tuttle	
Date permit drafted:	June 8, 2016	
Draft permit reviewed by:	Neil Zahradka	
Date draft permit reviewed:	June 14, 2016, September 22, 2016	
Dates of draft permit public comment period*	From:	October 27, 2016
	To:	November 28, 2016

* A public meeting was not required for this permit action because the modification to add land included less than 50% of the acreage authorized by the initial permit.

7. Permit Characterization:		
Permit Action	Facility	Permit Type
<input type="checkbox"/> Issuance	<input checked="" type="checkbox"/> Existing facility	<input checked="" type="checkbox"/> Biosolids land application
<input type="checkbox"/> Reissuance	<input type="checkbox"/> Proposed facility	<input type="checkbox"/> Biosolids Composting
<input type="checkbox"/> Revocation and reissuance	<input type="checkbox"/> Treatment Works	<input type="checkbox"/> Biosolids distribution and marketing
<input checked="" type="checkbox"/> Owner modification	<input type="checkbox"/> Biosolids Routine Storage	<input type="checkbox"/> Land application/storage of animal waste
<input type="checkbox"/> Staff initiated modification	<input type="checkbox"/> N/A	<input type="checkbox"/> Land treatment of wastewater
<input type="checkbox"/> Interim authorization	Type of Facility	<input type="checkbox"/> Industrial
<input type="checkbox"/> Enforcement action	<input type="checkbox"/> Municipal	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Revised VPA Permit Regulations	<input type="checkbox"/> Industrial	<input type="checkbox"/> Land application of industrial sludge
	Ownership	<input checked="" type="checkbox"/> Land application of water plant residuals
	<input type="checkbox"/> Public	<input type="checkbox"/> Land application of septage*
	<input checked="" type="checkbox"/> Private	<input type="checkbox"/> Water reclamation and reuse
	<input type="checkbox"/> Federal	
	<input type="checkbox"/> State	

* Pump and haul of wastewater other than sewage. Pump and haul of sewage is regulated by the Virginia Department of Health in accordance with the Sewage Handling and Disposal Regulations (12VAC5-610).

8. Annual permit maintenance fee: \$100.00

9. Licensed Operator Requirements: Certified Land Appliers required onsite during land application activities

10. Reliability Class: N/A

11. Pollution Management Activity Description:

Land application of biosolids and WTP residuals to agricultural and silvicultural sites within Essex County, as identified in the permit application. Application rates shall be in accordance with site specific nutrient management plans.

Essex County				
Permit Action	Date	# of Sites*	# of Fields	TOTAL GROSS ACRES:
Initial Issuance	7/27/2009	6	55	1502.9
Modification ⁽¹⁾	TBD	5	32	619.5
TOTAL		11	87	2122.4

* # of Sites includes the total number of sites associated with each permit action, and may include sites included in previous permit issuances.

⁽¹⁾Modification to conform with changes to the VPA Permit Regulation that became effective on September 1, 2013 and to add the following sites and fields:

Site Book Name	Field ID	DEQ Control ID	Gross Acres	Site Book Name
Charlotte H Frischkorn	EXCHF 4	51057-00318-0000	7.8	Charlotte H Frischkorn
John R Haile	EXJRH 13	51057-00320-0000	33.2	John R Haile
John R Haile	EXJRH 1	51057-00319-0000	17.5	John R Haile
John R Haile	EXJRH 2	51057-00319-0000	23	John R Haile
John R Haile	EXJRH 3	51057-00319-0000	35.2	John R Haile
John R Haile	EXJRH 4	51057-00319-0000	8.2	John R Haile
John R Haile	EXJRH 5	51057-00319-0000	26.4	John R Haile
John R Haile	EXJRH 6	51057-00319-0000	22	John R Haile
William T Davis	EXWTD 1	51057-00317-0000	34.1	William T Davis
William T Davis	EXWTD 2	51057-00317-0000	11.1	William T Davis
William T Davis	EXWTD 3	51057-00317-0000	15.2	William T Davis
William T Davis	EXWTD 4	51057-00317-0000	15.5	William T Davis
William T Davis	EXWTD 5	51057-00317-0000	16	William T Davis
Charlotte H Frischkorn	EXCHF 1	51057-00318-0000	12.7	Charlotte H Frischkorn
Charlotte H Frischkorn	EXCHF 2	51057-00318-0000	15.1	Charlotte H Frischkorn
Charlotte H Frischkorn	EXCHF 3	51057-00318-0000	12.9	Charlotte H Frischkorn
John R Haile	EXJRH 7	51057-00319-0000	33.4	John R Haile
John R Haile	EXJRH 8	51057-00319-0000	15.8	John R Haile
John R Haile	EXJRH 9	51057-00319-0000	12.4	John R Haile
John R Haile	EXJRH 10	51057-00319-0000	24	John R Haile
John R Haile	EXJRH 11	51057-00319-0000	8.1	John R Haile

Site Book Name	Field ID	DEQ Control ID	Gross Acres	Site Book Name
John R Haile	EXJRH 12	51057-00319-0000	17	John R Haile
John R Haile	EXJRH 14	51057-00321-0000	24.6	John R Haile
John R Haile	EXJRH 15	51057-00321-0000	23.2	John R Haile
John R Haile	EXJRH 16	51057-00319-0000	12.6	John R Haile
Lewis U Pearce	EXLUP 1	51057-00322-0000	27.7	Lewis U Pearce
Roy Pollard	EXRGP 1	51057-00253-0000	17	Roy Pollard
Roy Pollard	EXRGP 2	51057-00253-0000	15.4	Roy Pollard
Roy Pollard	EXRGP 3	51057-00253-0000	23.8	Roy Pollard
Roy Pollard	EXRGP 4	51057-00254-0000	14.3	Roy Pollard
Roy Pollard	EXRGP 5	51057-00254-0000	20	Roy Pollard
Roy Pollard	RXRGP 6	51057-00323-0000	24.3	Roy Pollard
Total Fields	32	Total Acres	619.5	Total Fields

12. Location Description:

Site maps specifying location were provided with the permit application. See Appendix A of this fact sheet for Land Application and Field and Site Listings permitted through the initial permit issuance. Also, See Appendix A of this fact sheet for Land Application Fields Map depicting fields in this modification.

13. Compliance Schedules:

EVENT:	DUE BY:
Odor Control Plan	modification/effective date + 90 days
BSMP	modification/effective date + 90 days

14. Changes to the Permit:

This permit is being modified to include amendments to the VPA Permit Regulation that became effective on September 1, 2013. New and amended regulatory requirements are being included in the permit as well as other regulatory requirements that were not previously identified in the permit.

Authorization for the land application of alum based water treatment plant (WTP) residuals has also been added to the permit to eliminate the need for minor modification when a WTP is added to the source list.

The permit has also been rearranged and reformatted into groups of special conditions that are related functionally or chronologically. New monitoring tables include biosolids standards (metals, pathogen and vector attraction reduction); residuals characteristics and loading rates (solids, nutrients); soils; and monitoring frequency. Footnotes from Part I.A. of the previous permit regarding reporting have been moved to the body of Part I.B.

Specific changes to the permit are identified below; referenced permit sections are from the new permit:

A. The following special conditions have been added to the permit due to regulatory amendments:

- 1) *Part I.B.1.a.(2)(e)- soils monitoring data for pH, available phosphorus and extractable potassium.*
- 2) *Part I.D.1.d. and I.D.4. odor control plan requirements.*
- 3) *Part I.D.5 maintaining a list of approved sources*
- 4) *Part I.E.4. Notification of sign posting to DEQ with 24 hours after signs have been posted.*
- 5) *Part I.E.5. Notification to DEQ within 24 hours prior to land application activity at a site.*
- 6) *Part I.G.1. – 11. staging of biosolids up to 7 days at the land application site.*

- 7) *Part I.H.1. – 3. On-site storage of biosolids on a constructed surface, up to 45 days for use on the site.*
- 8) *Part I.I.4 requires the use of lime stabilized biosolids or the addition of lime if the soil pH is < 5.5;*
- 9) *Part I.I.5 requires the addition of potash if the soil potassium is less than 38 ppm;*
- 10) *Part I.J.1. only biosolids or WTP residuals from approved sources shall be land applied;*
- 11) *Part I.J.3. maintenance of pollution and general liability coverage in the amount of \$2million.*
- 12) *Part I.J.6. landowner consent must be on a specific form or within 60 days of permit issuance the landowner shall be notified to complete and submit the new form.*
- 13) *Part I.J.8. certified land applicator requirements were expanded in the regulatory amendments including maintenance of a field log. And a certification statement has been added.*

B. The following special conditions have been in the regulation since January 1, 2008 and are now being added to the permit to provide clarity:

- 1) *Part I.B.1.b - submission of a copy of the notice and necessary information (NANI) received from the generators of biosolids land applied;*
- 2) *Part I.E.6 - Permittee to provide a NANI to the site operator, form provided;*
- 3) *Part I.F. transport requirements.*
- 4) *Part I.I.2. – restrictions for depth to bedrock or other restrictive layers;*
- 5) *Part I.I.3 - restrictions on depth to groundwater;*
- 6) *Part I.I.15. Silvicultural land application language has been added.*
- 7) *Part I.J.4 prohibits the alteration of biosolids after delivery to the permitted land application site.*

C. The following special conditions have been deleted from the permit due to removal from the regulation:

- 1) *Part I.C.3. of the old permit, change of ownership was removed and addressed in the new landowner agreement form;*
- 2) *Part I.C.14 of the old permit addressing frequent application was removed because it is addressed by the NM;*
- 3) *Part I.C.16.c. of old permit addressing frozen ground was removed; it is in DCR's NMP regulations; and*
- 4) *Part I.D. of the old permit Biosolids Storage Special Conditions have been removed from the permit, now addressed by staging and on-site storage.*

D. Special conditions that have been modified from the previous permit due to the regulatory amendments:

- 1) *Part I.E.3 signs will be posted 5 business days prior to and be maintained for 5 business days after land application, not removed for 30 days after land application, instead of 48 hours;*
- 2) *Part I.I.8. the grass will be at approximately 6" when biosolids are land applied; no longer allows clipping after land application or different heights for hay or pasture.*
- 3) *Part I.I.11. slope restrictions allow use of certain slopes greater than 15% with DEQ's pre-approval. Restrictions based on slope and time of year were removed because they are addressed in the NMP required for each site;*
- 4) *Part I.I.13. the setbacks from certain features to the land application area have changed, and some new features have been added that require setbacks. In order for a citizen to obtain an extended setback from occupied dwelling or property line, a doctor's now is now required.*

E. Special conditions that have been modified from the previous permit:

- 1) *Part I.A.1- Included monitoring of WTP Residuals for Total Aluminum.*
- 2) *Part I.B.1 requires a certification statement specific to electronic submissions, presented in Part I.B.1.d.*
- 3) *Part I.B.3 The annual report requires pathogen reduction and VAR data for out of state WWTPs only; in state WWTP data will come in with their VPDES annual report.*

4) *Part I.C Record Keeping itemizes all records that must be maintained.*

15. Public Notice Information per 9VAC 25-32-140.B:

All pertinent information is on file, and may be inspected by contacting Anita Tuttle at:
DEQ-Valley Regional Office
4411 Early Drive
PO Box 3000
Harrisonburg, VA 22801
Telephone No. (804) 840-0681
anita.tuttle@deq.virginia.gov

Persons may comment in writing, including email, to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and should contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings should state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action.

Following the comment period, the DEQ will make a determination regarding the proposed permit action. This determination will become effective, unless the Board grants a public hearing. Due notice of any public hearing will be given.

The public notice will be published in the *Rappahannock Times* on October 27, 2016 and November 3, 2016. The public comment period will run from October 27, 2016 to November 28, 2016.

16. Public and Agency Comment Summary: NA at this time.

17. Basis for Limits and Monitoring Requirements.

A. Basis for Limitations and Monitoring Requirements in Part I.A.

Part I.A.1.a. Metals Limitations

Monitoring Type: Biosolids and Water Treatment Plant (WTP) Residuals (Biosolids/WTP Residuals) Monitoring
Monitoring Location: Final biosolids and/or WTP residuals product after all treatment, prior to land application

PARAMETER ⁽¹⁾	BASIS FOR LIMITS	PC / CPLR LIMITATIONS	CEILING LIMITATIONS	MONITORING REQUIREMENTS	
		Monthly Average ⁽²⁾	Maximum ⁽²⁾	Frequency	Sample Type
Arsenic (mg/kg)	1,2,3,4,5,7	41	75	(5)	Composite
Cadmium (mg/kg)	1,2,3,4,5,7	39	85	(5)	Composite
Copper (mg/kg)	1,2,3,4,5,7	1,500	4,300	(5)	Composite
Lead (mg/kg)	1,2,3,4,5,7	300	840	(5)	Composite
Mercury (mg/kg)	1,2,3,4,5,7	17	57	(5)	Composite
Molybdenum (mg/kg)	1,2,3,4,5,7	NA ⁽³⁾	75	(5)	Composite
Nickel (mg/kg)	1,2,3,4,5,7	420	420	(5)	Composite
Selenium (mg/kg)	1,2,3,4,5,7	100	100	(5)	Composite
Zinc (mg/kg)	1,2,3,4,5,7	2,800	7,500	(5)	Composite
Aluminum (mg/kg) ⁽⁴⁾	6	NL	NA	1/Year	Composite

NL = No Limitation, monitor and report
 NA = Not Applicable
 mg/kg = milligrams/kilogram

- (1) All parameters are subject to pollutant concentrations (PC), cumulative pollutant loading rates (CPLR), and ceiling limitations. PC biosolids contain the parameters identified above at concentrations below the monthly average specified in Part I.A.1. CPLR biosolids contain the parameters identified above at concentrations above the monthly average and each sample must be below the ceiling limitations specified in Part I.A.1. If the concentration of any of these parameters in biosolids from any source exceeds the monthly average concentration, then the biosolids from the source are subject to CPLR rules (Part I.A.1.b., Part I.C.3., and Part I.I.16.). [Basis 1 & 7]
- (2) All limits and criteria are expressed on a dry weight basis. [Basis 1]
- (3) The monthly average concentration for molybdenum is currently under study by USEPA. Research suggests that a monthly average Molybdenum concentration below 40 mg/kg may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 4]
- (4) Aluminum monitoring is required for WTP residuals only. All WTP residuals generated at a WTP that uses any aluminum based coagulant are subject to aluminum monitoring and the tracking of the aluminum loading at each field on which WTP residuals are applied. [Basis 6]
- (5) Monitoring frequency shall be as specified in Part I.A.3. [Basis 5]

Basis for Limitations

1. 9VAC25-32-356.
2. 9VAC25-32-356, Table 1
3. 9VAC25-32-356, Table 2
4. 9VAC25-32-356, Table 4
5. 9VAC25-32-358.A.1, Table 1
6. Guidance Memorandum (GM) No. 95-002
7. 9VAC25-32-313.C. & F.

Part I.A.1.b. Site Specific Metals Loading Limitations

Monitoring Type: Biosolids/WTP Residuals Monitoring (only applicable to biosolids subject to Cumulative Pollutant Loading Rates (CPLRs))

Monitoring Location: Calculated for each land application field where biosolids subject to CPLRs or WTP residuals are land applied

PARAMETER	BASIS FOR LIMITS	LIMITATIONS		MONITORING REQUIREMENTS	
		Maximum CPLR ⁽¹⁾		Frequency	Sample Type
		(kg/ha) ⁽²⁾⁽³⁾	(lb/A) ⁽²⁾⁽³⁾		
Arsenic	1	41	36	Each Application	Calculated
Cadmium	1	39	35	Each Application	Calculated
Copper	1	1,500	1,340	Each Application	Calculated
Lead	1	300	270	Each Application	Calculated
Mercury	1	17	16	Each Application	Calculated
Molybdenum	1	NL ⁽⁴⁾	NL ⁽⁴⁾	Each Application	Calculated
Nickel	1	420	375	Each Application	Calculated
Selenium	1	100	89	Each Application	Calculated
Zinc	1	2,800	2,500	Each Application	Calculated
Aluminum ⁽⁵⁾	2	4,570	4,113	Each Application	Calculated

NL = No Limitation, monitor and report.
 kg/ha = kilogram/hectare
 lb/A = pounds/Acre

- (1) The CPLR is the maximum cumulative application of trace elements that can be applied to soils used for crop production. The maximum cumulative application rate is limited for all ranges of cation exchange capacity due to soil background pH in Virginia of less than 6.5 s.u. and lack of regulatory controls of soil pH adjustment after biosolids application ceases. [Basis 4 & 5]
- (2) All limits and criteria are expressed on a dry weight basis in kg/ha and lb/A. [Basis 6]
- (3) No person shall apply bulk biosolids subject to the CPLRs identified above to agricultural land, forest, a public contact site, or a reclamation site if any of the CPLRs identified above has been reached. [Basis 5]
- (4) The maximum cumulative application is currently under study by USEPA. Research suggests that for Molybdenum a cumulative pollutant loading rate below 40 kg/ha may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 1]
- (5) All sites that receive WTP residuals containing aluminum are subject to the tracking of aluminum loading, regardless of concentration of aluminum in the residuals. [Basis 3]

Basis for Limitations

1. 9VAC25-32-356, Table 3
2. EPA Process Design Manual - Land Treatment of Municipal Wastewater (EPA 625/1-81-013)
3. GM No. 95-002
4. 9VAC25-32-313.C. & F.
5. 9VAC25-32-356.B.
6. 9VAC25-32-356.A.

Part I.A.1.c. Pathogen Reduction Requirements**Monitoring Type:** Biosolids Monitoring**Monitoring Location:** Final biosolids product after all treatment, prior to land application

BASIS FOR LIMITS	PATHOGEN REDUCTION ALTERNATIVE	PROCESS TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP) OPTION	CLASS B PATHOGEN REDUCTION TREATMENT STANDARDS	MONITORING REQUIREMENTS
1,2,3,4,5	1	NA	Fecal coliform monitoring: <2,000,000 MPN/gm or <2,000,000 CFU/gm, geometric mean of seven samples. (9VAC25-32-675.B.2.)	(1),(3)
1,2,3,4,5	2	1	PSRP: Aerobic Digestion: Sludge mean cell residence time from 40 days at 20°C to 60 days at 15°C. (9VAC25-32-675.D.1.)	(2)
1,2,3,4,5	2	2	PSRP: Air dry in a drying bed for three months. Ambient average daily temperature must be above 0°C for two of the three months. (9VAC25-32-675.D.2.)	(2)
1,2,3,4,5	2	3	PSRP: Anaerobic digestion for a mean cell residence time between 15 days at 35°C - 55°C up to 60 days at 20°C. (9VAC25-32-675.D.3.)	(2)
1,2,3,4,5	2	4	PSRP: Composting at 40°C or above for five or more days, maintaining > 55°C for four consecutive hours during the five days. (9VAC25-32-675.D.4.)	(2)
1,2,3,4,5	2	5	PSRP: Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 s.u. after two hours of contact. (9VAC25-32-675.D.5.)	(2)
1,2,3,4,5	3	PROCESS AS APPROVED	Process equivalent to PSRP: PROCESS AS APPROVED (9VAC25-32-675.B.4.)	(2)

NA = Not Applicable

(1) Between sampling events, operating records must demonstrate that the Wastewater Treatment Plant (WWTP) is operating at a performance level known to meet pathogen reduction standards. [Basis 1 & 5]

(2) Process monitoring must be sufficient to demonstrate compliance with PSRP treatment requirements. [Basis 1-3 & 5]

(3) Monitoring frequency shall be as specified in Part I.A.3. [Basis 4]

Basis for Limitations

- 9VAC25-32-357.A. – B.
- 9VAC25-32-675.B.
- 9VAC25-32-675.D.
- 9VAC25-32-358.A.1, Table 1
- Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

Part I.A.1.d. Vector Attraction Reduction (VAR) Requirements**Monitoring Type:** Biosolids Monitoring**Monitoring Location:** Final biosolids product after all treatment, prior to land application

BASIS FOR LIMITS	VAR OPTION	VECTOR ATTRACTION REDUCTION TREATMENT STANDARD	MONITORING REQUIREMENTS
1,2,3,4	1	38% Reduction of volatile solids by digestion. (9VAC25-32-685.B.1.)	(1)(3)
1,2,3,4	2	When 38% reduction is not achieved by anaerobic digestion, 40 day bench study at temperatures between 30°C and 37°C to demonstrate further reduction of volatile solids <17%. (9VAC25-32-685.B.2.)	(1)(3)
1,2,3,4	3	When 38% reduction is not achieved by aerobic digestion, 30 day bench study at 20°C to demonstrate further reduction of volatile solids <15%. (9VAC25-32-685.B.3.)	(1)(3)
1,2,3,4	4	Specific Oxygen Uptake Rate of ≤ 1.5 mg O ₂ /hour/gram total solids at 20°C (aerobically processes sludge). (9VAC25-32-685.B.4.)	(1)(3)
1,2,3,4	5	14 day aerobic process, temperatures above 40°C with an average temperature of >45°C. (9VAC25-32-685.B.5.)	(2)
1,2,3,4	6	Sufficient alkaline material is added to the sewage sludge to raise the pH of the sewage sludge to 12 s.u. after two hours of contact and maintain a pH of 11.5 s.u. or higher for an additional 22 hours. (9VAC25-32-685.B.6.)	(2)
1,2,3,4	7	Where biosolids do not contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 75%. (9VAC25-32-685.B.7.)	(1)(3)
1,2,3,4	8	Where biosolids contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 90%. (9VAC25-32-685.B.8.)	(1)(3)
1,2,3,4	9	Sewage sludge shall be injected below the surface of the land. (9VAC25-32-685.B.9.)	NA
1,2,3,4	10	Sewage sludge land applied shall be incorporated into the soil within six hours after application. (9VAC25-32-685.B.10.)	NA

NA = Not applicable

- (1) Between sampling events, operating records must demonstrate that the WWTP is operating at a performance level known to meet the VAR standards. [Basis 1-4]
- (2) Process monitoring must be sufficient to demonstrate compliance with VAR treatment requirements. [Basis 1-4]
- (3) Monitoring frequency shall be as specified in Part I.A.3. [Basis 3]

Basis for Limitations

- 9VAC25-32-357.A. & D.
- 9VAC25-32-685.
- 9VAC25-32-358.A.1, Table 1
- Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

Part I.A.1.e. Biosolids Characteristics**Monitoring Type:** Biosolids/WTP Residuals Monitoring**Monitoring Location:** Final Biosolids and/or WTP Residuals product after all treatment, prior to land application

PARAMETERS	LIMITATIONS		MONITORING	
	Monthly Average	Minimum and Maximum	Frequency	Sample Type
Percent Solids (%)	NL	NA	(2)	Composite
Volatile Solids (%)	NL	NA	(2)	Composite
Total Kjeldahl Nitrogen (mg/kg) ⁽¹⁾	NL	NA	(2)	Composite
Ammonium Nitrogen (mg/kg) ⁽¹⁾	NL	NA	(2)	Composite
Nitrate Nitrogen (mg/kg) ⁽¹⁾	NL	NA	(2)	Composite
Total Phosphorus (mg/kg) ⁽¹⁾	NL	NA	(2)	Composite
Total Potassium (mg/kg) ⁽¹⁾	NL	NA	(2)	Composite
pH (s.u.)	NA	NL	(2)	Composite
Alkalinity as CaCO ₃ (mg/kg) (If lime by weight is less than 10%)	NL	NA	(2)	Composite
CCE as CaCO ₃ (%) (If lime by weight is 10% or more)	NL	NA	(2)	Composite

NL = No Limit, monitor and report.

NA = Not Applicable

mg/kg = milligrams per kilogram

CCE = Calcium Carbonate Equivalent

⁽¹⁾ Expressed on a dry weight basis. [Basis 1]⁽²⁾ Monitoring frequency shall be as specified in Part I.A.3. [Basis 2]**Basis for Limitations**

1. 9VAC25-32-356.A.

2. 9VAC25-32-358.A.1, Table 1

Part I.A.1.f. Nutrient Loading Rates**Monitoring Type:** Biosolids/WTP Residuals Monitoring**Monitoring Location:** Nutrient loading rates shall be calculated for each source of Biosolids and/or WTP Residuals land applied and each application of Biosolids and/or WTP Residuals to an application

PARAMETERS	LIMITATIONS				MONITORING	
	Concentration (lb/Dry Ton)	Field Application Rate	12 Month Field Loading	NMP Application Rate	Frequency	Sample Type
Biosolids/Residuals (Dry Tons/A)	NA	(1)	(1)	(1)	Each application	Calculated
Plant Available Nitrogen (PAN) (lb/A)	NL	(1)	(1)	(1)	Each application	Calculated
Phosphate (P ₂ O ₅) (lb/A)	NL	(1)	(1)	(1)	Each application	Calculated
K ₂ O (lb/A)	NL	(2)	(2)	(3)	(2),(3)	Calculated
CaCO ₃ (lb/A)	NL	(1),(4)	(4)	(5)	(4),(5)	Calculated

NA = Not Applicable

NL = No Limitation, monitor and report

lb/A = pounds per acre

- (1) The field application rate and 12 month field loading shall not exceed the application rate specified in the nutrient management plan (NMP) for the application method used.
- (2) Report the amount of K₂O provided by the biosolids/residuals and supplemental K₂O applied for each application where the soil test K is < 38 ppm Mehlich I.
- (3) Report the K₂O application rate recommended in the NMP for each application where the soil test K is < 38 ppm Mehlich I.
- (4) Report the amount of CaCO₃ provided by the biosolids/residuals and supplemental CaCO₃ applied for each application where the soil test pH is < 5.5 s.u.
- (5) Report the CaCO₃ application rate recommended in the NMP for each application where the soil test pH is < 5.5 s.u.

Basis for Limitations

- 9VAC25-32-560.B.3.a.
- 9VAC25-32-100.B.3.a.
- 9VAC25-32-410.

Part 1.A.2 Soil**Monitoring Type:** Soils Monitoring**Monitoring Location:** All land application sites prior to land application

PARAMETER ^{(1),(2)}	BASIS FOR LIMITS	LIMITATIONS ^{(3),(4)}	MONITORING REQUIREMENTS	
			Frequency ⁽⁵⁾	Sample
Soil pH (s.u.)	1,2,3	NL	Prior to Biosolids Application ***	Composite
Available Phosphorus (Mehlich I - P)* (ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Potassium (Mehlich I - K)**(ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Calcium (mg/100g)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Magnesium (mg/100g)	1,2	NL	Prior to Biosolids Application	Composite
Zinc (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite
Manganese (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite

NL = No Limit, monitor and report

ppm = parts per million

mg/100g = milligrams per 100grams

* Available Phosphorus shall be analyzed using Mehlich I or Mehlich III analytical procedure. If sample is analyzed using Mehlich III, results shall be converted to Mehlich I for reporting purposes.

** Extractable Potassium shall be analyzed using Mehlich I analytical procedure or equivalent. If sample is analyzed using an equivalent procedure, results shall be converted to Mehlich I for reporting purposes.

*** For biosolids with cadmium concentration greater than or equal to 21 mg/kg the soil pH sample must be less than one year old.

(1) Soil pH, available phosphorus, and extractable potassium monitoring results shall be included in the monthly report as required in Part I.B.1.a.

(2) Soil samples shall be collected and analyzed in accordance with regulations promulgated under § 10.1-104.2 of the Code of Virginia and as outlined in the Biosolids Management Plan (BSMP).

(3) All parameters except for pH shall be monitored on a dry weight basis.

(4) Results of the soil monitoring specified above shall be used to develop the NMP in accordance with Part I.D.2.

(5) No sample analysis used to determine application rates shall be more than three years old at the time of the biosolids land application.

Basis for Limitations

1. 9VAC25-32-460.A. – C, Table 1
2. 9VAC25-32-560.B.2.e.
3. 9VAC25-32-560.B.2.c.

Part 1.A.3 Frequency of Monitoring**Monitoring Type:** Biosolids**Monitoring Location:** Generator Facility

- a. Frequency of sampling biosolids from each generator is based on the amount of biosolids produced by that generator that is land applied. [Basis 1]

AMOUNT OF BIOSOLIDS ⁽¹⁾ (dry tons per 365-day period)	FREQUENCY*
Greater than zero but less than 320	Once per year
Equal to or greater than 320 but less than 1,653	Once per quarter (four times per year)
Equal to or greater than 1,653 but less than 16,535	Once per 60 days (six times per year)
Equal to or greater than 16,535	Per month (12 times per year)
Note: Either the amount of bulk biosolids applied to the land or the amount of sewage sludge received by a person who prepares biosolids that is sold or given away in a bag or other container for application to the land (dry weight basis).	

- b. WTP residuals shall be monitored once per year. [Basis 2]

Basis for Limitations

- 9VAC25-32-358.A. – B, Table 1. (converted from metric tons to US tons)
- GM No. 95-002

B. Basis for Special Conditions

Tabulated below are the special condition sections of the permit, with the Basis for each of the permit special conditions.

Special Condition	Description and Basis for Special Condition
Part I.B.1.	Monthly Reporting: 9VAC25-32-360.A. and Fee Regulation 9VAC25-20-147.B. requires submittal of a report by the 15 th of the month following the month in which land application occurred. 9VAC25-32-100.B.2. provides for DEQ to establish the reporting frequency based on the pollutant management activity.
Part I.B.1.a.	Biosolids/WTP Residuals Monitoring Data: 9VAC25-32-80.I. states that monitoring results shall be reported at the intervals specified in the applicable VPA permit in a format acceptable to the board. 9VAC25-32-100.B.1. – 2. provides for the VPA permit to require monitoring at a frequency sufficient to yield data representative of the activity and report at a frequency based on the pollutant management activity.
Part I.B.1.b.	Generator NANI: 9VAC25-32-313.G. requires the generator of biosolids who provides biosolids to a land applier, to give notice and necessary information to the land applier.
Part I.B.1.c.	Monthly Activity Report: 9VAC25-32-360.A. and Fee Regulation 9VAC25-20-147.B. requires submittal of a report by the 15 th of the month following the month in which land application occurred. Specific information to be provided is identified in 9VAC25-20-147.A. – B.
Part I.B.1.d.	Electronic Submittal Attestation Statement: § 59.1-479 – 498, the Uniform Electronic Transactions Act provides for submission of paperwork electronically and the use of electronic signatures. No laws or regulations require hard copy submittal of original signatures in the VPA program.
Part I.B.2.	Land Application Fee: § 62.1-44.19.3.P. requires that a fee be charged to the generator of biosolids to be land applied in Virginia. The fees of \$7.50/dry ton of Class B biosolids and \$3.75/dry ton of EQ cake biosolids land applied in the Commonwealth of Virginia is established by the Fee Regulation 9VAC25-20-146. and 9VAC25-20-40.A.3. 9VAC25-20-40.A.3. and 9VAC25-20-146. also establish a fee of \$5.00/dry ton industrial residuals (this includes WTP residuals) land applied in a county that has adopted an ordinance for the testing and monitoring of industrial residuals accordance with § 62.1-44.16 D of the Code of Virginia. Exemptions to the fee are provided in 9VAC25-20-50.C. 9VAC25-20-60.D. establishes the due date.
Part I.B.3.	Annual Report: 9VAC25-32-360.B. requires the submittal of an annual report postmarked by February 19 th for the previous year. 9VAC25-32-100.B.3. provides for the VPA permit to require monitoring the volume of biosolids and other measurements as appropriate. 9VAC25-32-360.C. requires reports be maintained verifying that sludge treatment for pathogen and vector attraction reduction be maintained by the generator and owner (of the permit). 9VAC25-32-80.G. requires the permittee to submit information requested by the board, within a reasonable time, to determine compliance with the permit.
Part I.C.1.	Records Retention: 9VAC25-32-80.H.2. specifies that all records of biosolids activities, monitoring and reporting shall be maintained for at least five years.

Part I.C.2.	Class B/PC Biosolids Record Keeping: 9VAC25-32-359. provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.C.3.	Class B/CPLR Biosolids Record Keeping: 9VAC25-32-359. provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.D.1.	Biosolids Management Plan (BSMP): 9VAC25-32-410. requires the permit holder to maintain and implement a BSMP consisting of permit application, NMPs and O&M manual and states that the BSMP is an enforceable part of the permit.
Part I.D.2.	Nutrient Management Plan (NMP) Requirement: § 62.1-44.19.3.C.8. requires that a NMP be developed by a person certified in accordance with § 10.1-104.2 for each biosolids land application site, prior to application of biosolids at the site. The statute also establishes conditions where the NMP must be approved by the Department of Conservation and Recreation prior to submittal at the time of permit application. 9VAC25-32-410.C.2. states that if conditions at the site change so that it meets one or more special conditions, the NMP will be approved prior to application at the site. 9VAC25-32-410.C.2, with which all biosolids operations must comply, requires that the NMP be submitted to the farmer/operator of the site, the Department of Conservation and Recreation, and the local government, unless requested in writing to not receive the NMP. 9VAC25-32-410.C.5, Table 1 requires the NMP to be approved by DCR prior to application based on soil phosphorus levels (Mehlich I).
Part I.D.3.	Operation and Maintenance (O&M) Manual Requirement: 9VAC25-32-410.D. and 9VAC25-790-260 – 300. identify minimum requirements to be included in an O&M Manual. Additional requirements are included in the BSMP 9VAC25-32-60.F.3.
Part I.D.4.	Odor Control Plan (OCP) Requirement: 9VAC25-32.60.F.1. requires Generator’s OCP and minimum content. 9VAC25-32-60.F.5.c. requires Land Applier’s OCP and minimum content.
Part I.D.5.	Permittee Source List - Biosolids/WTP Residuals: 9VAC25-32-305.D. states <i>no person shall land apply, market, or distribute biosolids in Virginia unless the biosolids source has been approved by the board.</i> 9VAC25-32-60.F.1. requires that a list of sources that the permittee proposes to land apply in the permit application, which is part of the BSMP. Water Control Law and the VPA Permit Regulation do not require a permit modification to add a new source; therefore a source that is approved may be added to the Permittee Source List with administrative authorization. A source not previously or currently approved, must obtain approval before it can be land applied under a VPA permit.
Part I.E.1.	100 Day Notification: 9VAC25-32-515.A.1. requires written notification to the chief executive officer (CEO) or designee for the locality 100 days prior to the initial land application at a specific site and clarifies that the notice may be satisfied by DEQ’s notice of the permit application, if necessary site information was provided in that notification.
Part I.E.2.	14 Day Notification: § 62.1-44.19.3.L. and 9VAC25-32-515.A.2. requires written notification to the department and the CEO or designee for the locality at least 14 days prior to land application at a specific site.
Part I.E.3.	Sign Posting: 9VAC25-32-515.B.1. requires a sign be posted at a land application site at least five business days prior to delivery of biosolids at the site and maintained on site until five business days after application is complete; the sign will not be removed until 30 days after land application is complete. 9VAC25-32-515.B.1.a. – b. addresses placement of the signs. 9VAC25-32-515.B.3. – 4. specifies construction, content, and maintenance of the sign.

Part I.E.4.	Notification of Sign Posting: 9VAC25-32-515.B.2. requires written notification to DEQ and the CEO or designee for the locality within 24 hours of posting, identifying where the signs have been posted, and identifies information required in the notice.
Part I.E.5.	24 Hour Notification: 9VAC25-32-515.A.3. requires written notice to DEQ and the CEO or designee for the locality no more than 24 hours prior to commencing activity at a site, including delivery. Include the source of material and only sites where land application activities or staging will commence within 24 hours.
Part I.E.6.	Site Operator Notification and Information: 9VAC25-32-313.I. states “ <i>The person who applies bulk biosolids to the land shall provide the owner or lease holder of the land on which the bulk biosolids is applied notice and necessary information to comply with the requirements in this article.</i> ”
Part I.F.1. – 6.	Transport requirements: 9VAC25-32-540.A. – E. identifies requirements for transport routes, vehicles, prevention of drag-out and track-out, clean-up of such drag-out and track-out and clean-up and reporting of spills.
Part I.G.1. – 11.	Staging: 9VAC25-32-545.A. – B. defines staging and provides procedural requirements for staging up to seven days and daily inspections by certified land applier; procedural and notification requirements to be implemented if biosolids cannot be applied by the end of the 7 th day; and prohibits overnight staging in areas of Karst topography identified by U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) as frequently flooded, and sites with on-site storage.
Part I.H.1. – 3.	On-site storage Requirements: 9VAC25-32-550.D.1., 3. - 10. describes on-site storage and provides procedural requirements for staging up to 45 days, routine inspections by certified land applier; procedural and notification requirements; 9VAC25-32-550.D. specifies on-site storage shall take place on a constructed surface at a location preapproved by DEQ and that biosolids stored on the site shall be land applied only at sites under control of the owner/operator of the site where the on-site storage is located; 9VAC25-32-550.C., D.2. & 6. specifies permeability requirements for the pad and requires existing storage facilities to come into compliance with the amended regulation by 9/1/2014.
Part I.I.1.	Infrequent Application: 9VAC25-32-560.B.3.c. establishes infrequent application based on total crop needs for nitrogen.
Part I.I.2.	Depth to Bedrock or Restrictive Layers: 9VAC25-32-560.B.2.a. states depth to bedrock or restrictive layers shall be a minimum of 18 inches.
Part I.I.3.	Depth to Groundwater: 9VAC25-32-560.B.2.b. prohibits land application when seasonal high water table is within 18” of ground surface and requires use of USDA-NRCS soil survey maps and soil borings to verify groundwater depth.
Part I.I.4.	pH Management: 9VAC25-32-560.B.2.c. requires the biosolids soil mixture have a pH of 6.0 s.u. or higher where cadmium in the biosolids is ≥ 21 mg/kg. 9VAC25-32-560.B.2.d. requires the addition of lime or use of lime amended biosolids if soil pH is < 5.5 s.u.
Part I.I.5.	Soil Potassium < 38 ppm: 9VAC25-32-560.B.2.e. requires addition of potash prior to or concurrently with the biosolids if the soil potassium (Mehlich I) is < 38 ppm.

Part I.I.6.	Equipment Calibration: 9VAC25-32-560.B.3.d.(1) requires routine measurement of the field application rate of application equipment.
Part I.I.7.	Liquid Biosolids/WTP Residuals: 9VAC25-32-560.B.3.d.(1) limits application of liquid biosolids to 14,000 gallons per acre, per application, with drying time between applications.
Part I.I.8.	Grass Height: 9VAC25-32-560.B.3.d.(1) requires hay and pasture to be grazed or clipped to approximately six inches prior to biosolids application.
Part I.I.9.	Uniform Application: 9VAC25-32-560.B.3.d.(1) requires a uniform application of biosolids on a field. If application is not uniform additional operational methods are required followed by clipping.
Part I.I.10.	Odor Control by Incorporation: 9VAC25-32-560.B.3.d.(2) allows DEQ or the local monitor to require incorporation, when practical or compatible with a soil conservation plan, to mitigate malodor.
Part I.I.11.	Slope Restrictions: 9VAC25-32-560.B.3.d.(3) prohibits application on slopes >15%, but allows the restriction to be waived by DEQ for the establishment and maintenance of perennial vegetation or based on BMPs.
Part I.I.12.	Snow Covered Ground: 9VAC25-32-560.B.3.d.(5) allows land application of biosolids on snow cover that is one inch or less in depth and the snow and biosolids are incorporated within 24 hours. If the snow melts with application, incorporation is not required.
Part I.I.13.	Setbacks: 9VAC25-32-560.B.3.e.(1) – (4) establishes setback distances and procedures for extending or waiving residential and property line setbacks.
Part I.I.14.	Site Access Restrictions: 9VAC25-32-675.B.5. establishes access restrictions for sites where Class B biosolids have been land applied.
Part I.I.15.	Forestland (Silviculture): 9VAC25-32-560.C. establishes requirements for land application on silvicultural sites.
Part I.I.16.	CPLR Biosolids: 9VAC25-32-313.F. establishes criteria for determining the need to track the metals loadings on individual sites where metals subject to the cumulative pollutant loading rates have been applied.
Part I.J.1.	Biosolids/WTP Residuals Sources: 9VAC25-32-305.D. states that no person shall land apply, market or distribute biosolids in Virginia unless the biosolids source has been approved by the board.
Part I.J.2.	Land Application Sites: 9VAC25-32-305.C. states that no person shall land apply Class B biosolids on any land in Virginia unless that land has been identified in an application to issue, reissue or modify a permit and approved by the board.
Part I.J.3.	Pollution Liability and General Liability Requirement: 9VAC25-32-780. establishes liability requirements. 9VAC25-32-790. – 850. provides specific requirements for each type of liability demonstration.
Part I.J.4.	Alteration of Biosolids Composition: 9VAC25-32-560.A.2. prohibits the alteration of the biosolids composition at the land application site.

Part I.J.5.	Site Specific Application Rates: 9VAC25-32-560 states site specific application rates shall not exceed the rates established in the nutrient management plan nor result in exceedance of the cumulative trace element loading rates specified in 9VAC25-32-356, Table 3.
Part I.J.6.	Land Owner Consent Requirement: 9VAC25-32-60.D.4. requires the submission of landowner consent forms with the permit application. 9VAC25-32-530.B.2. requires the written agreement between the permittee and the landowner, specifies required information and use of the most current form approved by the board. 9VAC25-32-530.A. requires the permittee to maintain the agreement.
Part I.J.7.	Threatened and Endangered Species Protection: 9VAC25-32-313.B. states no one shall apply bulk biosolids to the land if it is likely to adversely affect a threatened or endangered species listed in 9VAC25-260-320. or § 4 of the Endangered Species Act (16 USC § 1533) or if the land application is likely to adversely affect its designated critical habitat.
Part I.J.8.	Certified Land Applicator Requirement: § 62.1-44.19.3.1.B. states that Class B biosolids shall not be land applied unless a certified land applicator is onsite at all times during the application. 9VAC25-32-690. requires the land applier to maintain a field log and identifies minimum requirements and sign monthly reports, attesting that they were onsite at all times reported.
Part I.J.9.	Reopener: 9VAC25-32-220. allows a permit to be opened when a change is made in the promulgated standards or regulations on which the VPA permit was based.
Part I.J.10.	Storm Water Discharge Exception: 9VAC25-32-30.A. states that all pollutant management activities covered under a VPA permit shall maintain no point source discharge of pollutants to surface waters except in the case of a storm event greater than the 25-year, 24-hour storm.
Part I.J.11.	Materials Handling/Storage: 9VAC25-32-30.B. states that except in compliance with the VPA or another permit issued by the board that it is unlawful to discharge into, or adjacent to, state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances.
Part II.	CONDITIONS APPLICABLE TO ALL VPA PERMITS: VPA Permit Regulation 9VAC25-32-80. requires all VPA permits to contain or specifically cite the conditions listed.

APPENDIX A
Site Location Map and Site Listings

Land Application Field Map – Recyc Systems Inc – Essex County
Sites Added in 2016 Modification of VPA00804



Recyc Systems Inc – Essex County

Original Permit Issuance – July 27, 2009

Site Book Name	Field ID	DEQ Control Number	Gross Acres
Ben B. Ellis	EXBBE 1	51057-00001-0000	12.2
Ben B. Ellis	EXBBE 2	51057-00002-0000	21.8
Ben B. Ellis	EXBBE 3	51057-00003-0000	44.4
Ben B. Ellis	EXBBE 4	51057-00004-0000	24.7
Ben B. Ellis	EXBBE 5	51057-00005-0000	32.4
Ben B. Ellis	EXBBE 6	51057-00006-0000	14.5
Ben B. Ellis	EXBBE 7	51057-00007-0000	27.2
Ben B. Ellis	EXBBE 8	51057-00008-0000	26.5
Ben B. Ellis	EXBBE 9	51057-00009-0000	29.4
Ben B. Ellis	EXBBE 10	51057-00010-0000	6.8
Ben B. Ellis	EXBBE 11	51057-00011-0000	46.5
Ben B. Ellis	EXBBE 12	51057-00012-0000	24.4
Ben B. Ellis	EXBBE 14	51057-00014-0000	23.7
Ben B. Ellis	EXBBE 15	51057-00015-0000	38.3
Ben B. Ellis	EXBBE 16	51057-00016-0000	15.6
Ben B. Ellis	EXBBE 17	51057-00017-0000	62.6
Ben B. Ellis	EXBBE 18	51057-00018-0000	5.6
Ben B. Ellis	EXBBE 19	51057-00019-0000	11.3
Gary A. Higgason	EXGAH 1	51057-00020-0000	10
Gary A. Higgason	EXGAH 2	51057-00021-0000	20.9
Gary A. Higgason	EXGAH 3	51057-00022-0000	18.6
Gary A. Higgason	EXGAH 4	51057-00023-0000	7
Gary A. Higgason	EXGAH 5	51057-00024-0000	11.5
S. Spotswood Taliaferro, Jr.	EXSST 1	51057-00026-0000	25
S. Spotswood Taliaferro, Jr.	EXSST 2	51057-00027-0000	16.6
S. Spotswood Taliaferro, Jr.	EXSST 3	51057-00028-0000	19.8
S. Spotswood Taliaferro, Jr.	EXSST 4	51057-00029-0000	58.5
S. Spotswood Taliaferro, Jr.	EXSST 5	51057-00030-0000	6.7
S. Spotswood Taliaferro, Jr.	EXSST 6	51057-00031-0000	5.2
S. Spotswood Taliaferro, Jr.	EXSST 7	51057-00032-0000	39
S. Spotswood Taliaferro, Jr.	EXSST 8	51057-00033-0000	54

S. Spotswood Taliaferro, Jr.	EXSST 9	51057-00034-0000	5.1
S. Spotswood Taliaferro, Jr.	EXSST 10	51057-00035-0000	13.8
S. Spotswood Taliaferro, Jr.	EXSST 11	51057-00036-0000	4.5
S. Spotswood Taliaferro, Jr.	EXSST 12	51057-00037-0000	22.5
S. Spotswood Taliaferro, Jr.	EXSST 13	51057-00038-0000	16.4
S. Spotswood Taliaferro, Jr.	EXSST 14	51057-00039-0000	73.8
S. Spotswood Taliaferro, Jr.	EXSST 15	51057-00040-0000	22.6
Ben B. Ellis	EXBBE 13	51057-00013-0000	42
Robert E. Gibson	EXREG 24	51057-00025-0000	21.6
Warner S. Davis	EXWSD 10	51057-00086-0000	28.8
Warner S. Davis	EXWSD 9	51057-00085-0000	21
Clarence W. Tignor	EXCWT 16	51057-00078-0000	5.6
Clarence W. Tignor	EXCWT 15	51057-00077-0000	63.5
Warner S. Davis	EXWSD 2	51057-00081-0000	70.4
Clarence W. Tignor	EXCWT 17	51057-00079-0000	19.2
Warner S. Davis	EXWSD 3	51057-00082-0000	41.5
Clarence W. Tignor	EXCWT 14	51057-00077-0000	46.4
Warner S. Davis	EXWSD 12	51057-00087-0000	19.4
Warner S. Davis	EXWSD 1	51057-00080-0000	66.3
Warner S. Davis	EXWSD 4	51057-00082-0000	26.6
Warner S. Davis	EXWSD 13	51057-00087-0000	21.3
Warner S. Davis	EXWSD 6	51057-00084-0000	29.4
Warner S. Davis	EXWSD 11	51057-00088-0000	17.6
Warner S. Davis	EXWSD 5	51057-00083-0000	42.9
TOTAL FIELDS	55	TOTAL ACRES	1502.9