

# Texas Commission on Environmental Quality

## Water Quality/Stormwater Seminar

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# TCEQ SLUDGE AUTHORIZATION PROCEDURES



# Sludge Program Regulations

- **Types of Authorizations**
- **Application Process**
- **Frequently Asked Questions**
- **Current events**



# Sludge Program Rules

- **Federal Rules**: Established 1993 – Title 40 Code of Federal Regulations (CFR) Part 503 and Part 257
- **State Rule**: Established 1995 – Title 30 Texas Administrative Code (TAC) Chapter 312. Updated in 2005 due to legislation.



# Benefits of Biosolids

- Source of nutrients for plant growth
- Saves money from using chemical fertilizers
- Lowers cost of disposal for utilities
- Lowers amount of material disposed in landfills
- Processing to higher standards to develop a product for distribution and sale





# Types of Authorizations

## Individual Permits

- Beneficial Land Application of Class B Sewage Sludge – State Only
- Operation of a Sludge Disposal Site - TPDES
- Processing of Sewage Sludge Material- TPDES





# Types of Authorizations

## Processing Permits

- Dewatering
- Lime Stabilization
- Composting with Green Waste
- Heat Pelletizing
- Mobile Processing Unit





# Types of Authorizations

## Registrations

- Water Treatment Plant Sludge
- Domestic Septage

## Notification Authorization

- Marketing and Distribution of Class A Sewage Sludge

















# Application Process Highlights

- **Sludge & Soils Laboratory Analysis**
- **Sludge/Septage Application Rate Calculations**
- **Maps**



# Class B and WTP Sludge BLU Requirements – Lab Analysis

**Metal Limits (mg/kg) dry weight basis:**

Arsenic	75	Mercury	57
Cadmium	85	Molybdenum	75
Chromium	3000	Nickel	420
Copper	4300	Selenium	100
Lead	840	Zinc	7500

**Nutrients Concentration (%):**

Total Kjeldahl Nitrogen  
Ammonium Nitrogen  
Nitrate Nitrogen  
Phosphorus  
Potassium



# **Class B and WTP Sludge BLU Requirements – Lab Analysis**

**Toxicity Characteristic Leaching  
Procedure (TCLP)**

**Polychlorinated Biphenyls (PCBs)**



# Class B, WTP Sludge, and Domestic Septage Soil Testing Requirements

## Metals and Nutrients of the Soil:

### Metals Limits (mg/kg) in soil:

Arsenic	20.5	Mercury	8.5
Cadmium	19.5	Molybdenum	monitor
Chromium	1500	Nickel	210
Copper	750	Selenium	50
Lead	150	Zinc	1400

### Nutrients:

Total Kjeldahl Nitrogen

Ammonium Nitrogen

Nitrate Nitrogen

Phosphorus

Potassium

Sodium

Magnesium

Calcium

Electrical Conductivity

pH



# Soil Sampling

- 10-15 random sample cores per 80 acres, collected at two depths (0-6 & 6-24 inch depth)
- 10-15 samples make up one composite sample for each soil depth per 80 acres and per uniform soil type within the 80 acres



# Soil Sampling

- **Uniform soil type – Soils with same characteristics & textures**
- **Soils lab analysis report should reference soil type and depth**
- **Instructions found in Appendix B of the application**



# Calculating Sludge and Domestic Septage Application Rates

- **Beneficial Land Use (BLU) – Growing a crop/vegetation using nutrients from sludge**
- **Class B and Water Treatment Plant Sludge – Sludge Application Rate Calculation is measured in dry tons/acre/year in which site can maintain growth of intended crop**
- **Domestic Septage – Septage application rate is measured in gallons/acre/year**



# Calculating Sludge and Domestic Septage Application Rates

- **Maximum application rates not to exceed the annual calculated rate and must not exceed:**

**12 dry tons/acre/year for Class B  
Sewage Sludge**

**40 dry tons/acre/year for Water  
Treatment Plant Sludge**



# Calculating Sludge and Domestic Septage Application Rates

- **Class B and WTP Sludge – Consider metals and nutrients in the sludge & nutrients in the soils**
- **Domestic Septage – Consider only the nutrients in the soils**



# Class B Sewage Sludge Pathogen Reduction Methods

## Density of Fecal Coliform

- Geometric Mean of 7 samples = <2,000,000 Most Probable Number (MPN) or Colony Forming Units/gram of total solids (dry weight)

## Certain Site Restrictions

- Harvesting Times
- Limited Public Access
- animals only allowed to graze 30 days after land application



# Sewage Sludge Vector Attraction Reduction Methods

- **38% Volatile Solids Reduction**
- **Specific Oxygen Uptake Rate (SOUR) Test – aerobic process only**
- **pH >12 for 2 hours and remain at pH 11.5 or higher for 22 hours**



# Sewage Sludge Vector Attraction Reduction Methods

- **$\geq 75\%$  solids content (does not contain unstabilized sludge)**
- **$\geq 90\%$  solids content (contains unstabilized solids)**
- **Injection below land surface within 1 hour**
- **Incorporation into soil within 6 hours**



# Water Treatment Plant Sludge & Domestic Septage

- **Water Treatment Plant Sludge** – Pathogen and Vector Attraction Reduction not a concern
- **Domestic Septage** – Meet Pathogen & Vector Attraction Reduction Requirements with Lime Stabilization

Maintain pH of  $> 12$  for at least 30 minutes



# Additional Requirements for Class B Land Application

## Hydrologic Characteristics

- Aquifer Identification
- Periods of Perched or High Water Table
- Distinguish connections between surface and subsurface water

## Nutrient Management Plan

- proof that the risk of water quality impairment caused by nitrogen applied to the site is minimized (312.11(d))
- Certified by a Nutrient Management Specialist



# Additional Requirements for Class B Land Application

Proof of Environmental Impairment and Commercial Liability Insurance

Post a sign that is clearly identifiable by the public of the location of the land application site

Quarterly Reporting due the 15<sup>th</sup> of March, June, September and December

- Amount of sludge delivered and land applied from each sludge source
- Cumulative metal loading
- Proof of Insurance
- Posted on TCEQ website for public viewing



# Class A Marketing and Distribution Authorization

Issued to the generator of the sludge or entity that facilitates the final treatment

More stringent pathogen reduction than Class B

Fecal Coliform  $< 1,000$  MPN/gram total solids or  
density of Salmonella  $< 3$  MPN/4 grams of total  
solids



# Class A Marketing and Distribution Authorization

Also, must meet one of the pathogen reduction alternatives listed in Chapter 312

- Time and Temperature
- Enteric virus and viable helminth ova
- Maintain pH at a specific value for a specific time
- EPA approved process to further reduce pathogens
- EPA approved method for treatment



# Class A and Class B Sewage Sludge Differences

- Class B BLU– Must meet more stringent management practices for land application operations
- Class A Marketing and Distribution– Must meet more stringent metals limits & pathogen reduction
- Both have the same vector attraction reduction options



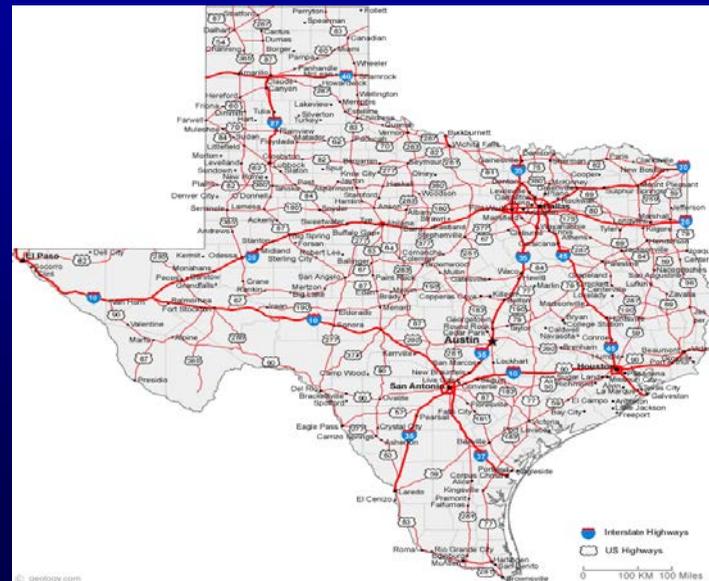
# MAPS

- **General County Highway Map**
- **USGS Topographic Map**
- **Federal Emergency Management Agency (FEMA) Map**
- **USDA, Natural Resource Conservation Service (NRCS) Soils Map**



# General Highway County Map

- Used to indicate location of site
- Location Description – Different than address or directions
- Original Map



# General Highway County Map



# USGS Topographic Map – Buffer Zones

## 30 TAC CHAPTER 312.44, MANAGEMENT PRACTICES

- Waters of the State –not incorporated sludge– 200 ft.
- Waters of the State –incorporated sludge/vegetative cover– 33 ft.
- Public water supply well, intake, spring or WTP plant– 500 ft.
- Solution channels, sinkholes or other means to groundwater– 200 ft.



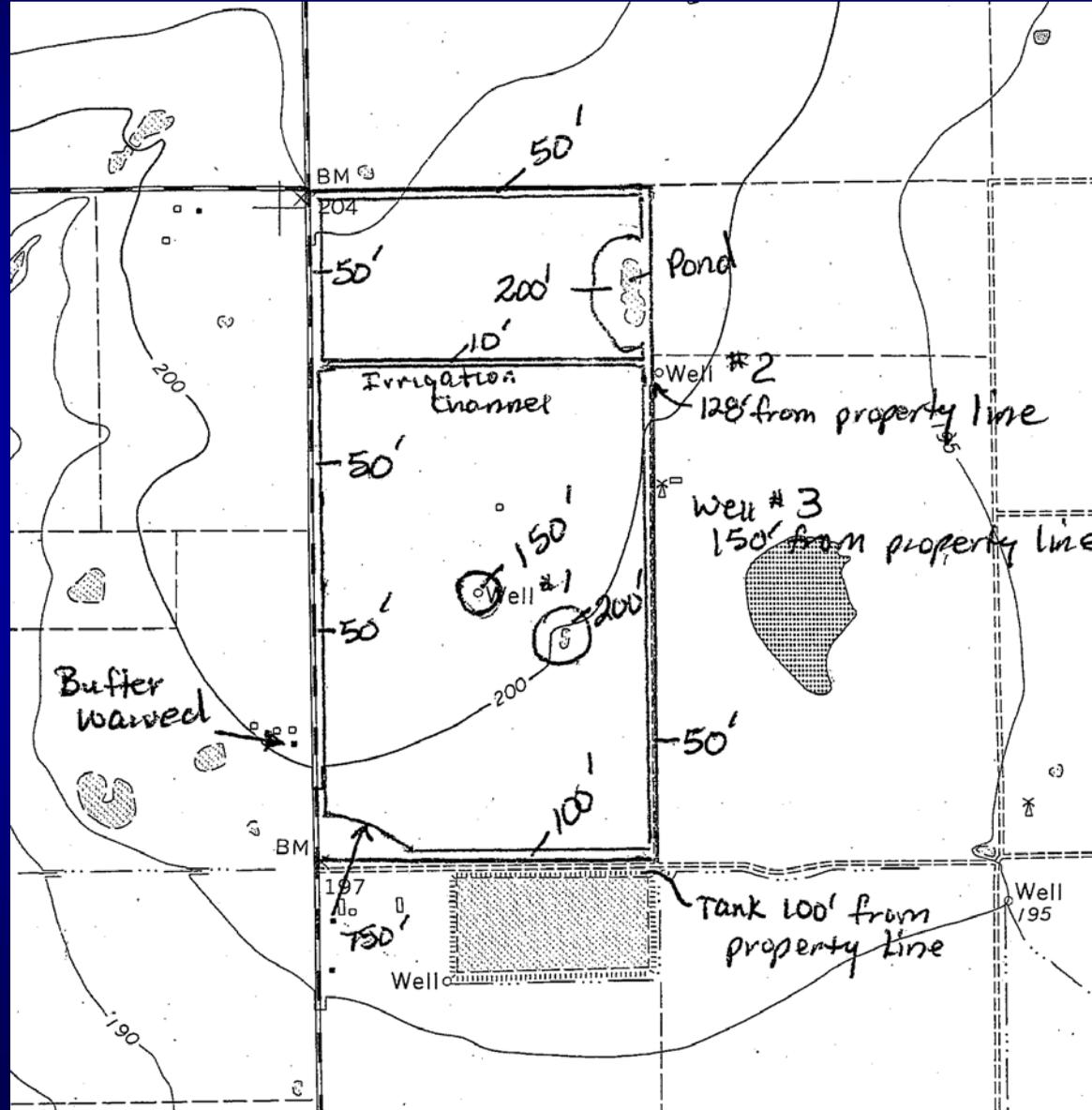
# USGS Topographic Map – Buffer Zones

## 30 TAC CHAPTER 312.44, MANAGEMENT PRACTICES

- Private water supply well- 150 ft.
- Irrigation conveyance canals- 10ft.
- Property boundary- 50 ft.
- School, Institution, business or residence- 750 ft.



# USGS Topographic Buffer Zone Map



# FEMA Flood Insurance Rate Map

- Location of the site – Property boundaries
- Zones
- Map Key





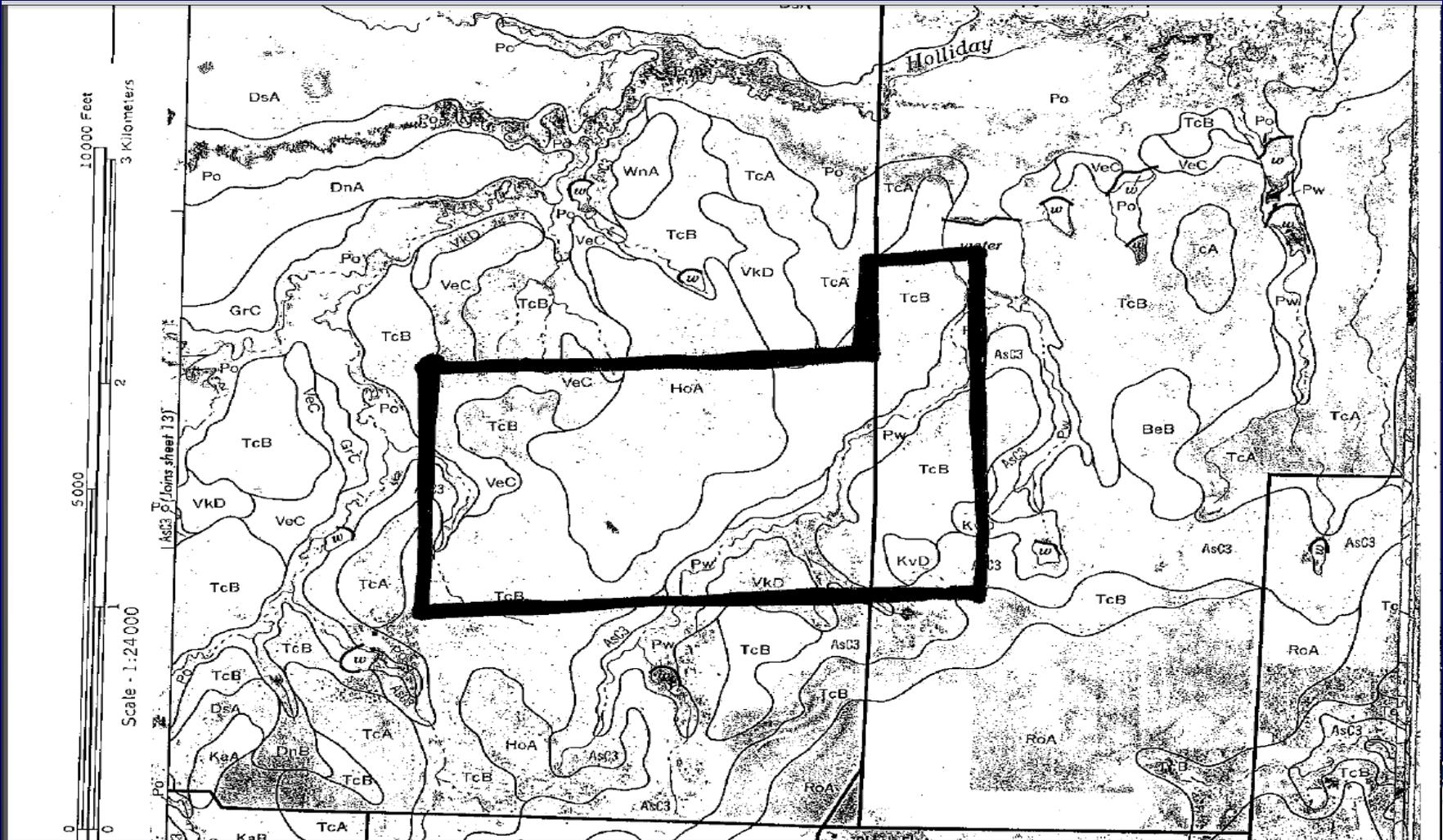
# USDA NRCS Soils Map



- Soil Symbols
- Boundaries of Site
- Locations where soil samples collected (marked by "Xs" or dots)



# USDA NRCS Soils Map



# Notice Requirements for Class B BLU Permits

- 2 Published Public Notices
- Notice to landowners
  - within  $\frac{1}{4}$  mile of the boundary of land application site
- Opportunity for Public Meeting and Contested Case Hearing



# Class B Permit Application Fees

<u>Fee</u>	<u>Anticipated quantity of sludge land applied in one year</u>
\$1,000	2,000 dry tons or less
\$2,000	>2,000 dry tons but <5,000 dry tons
\$3,000	>5,000 dry tons but <10,000 dry tons
\$4,000	>10,000 dry tons but <20,000 dry tons
\$5,000	>20,000 dry tons



# Notice Requirements and Fees for Disposal and Processing Permits

- 2 Public Notices (Published)
- Notice to Landowners
  - within ½ mile of the boundary of disposal site
  - adjacent landowners of processing site
- Opportunity for Public Meeting and Contested Case Hearing
- Application Fee:
  - New = \$150
  - Renewal = \$115



# Notice Requirements and Fees for Domestic Septage, Water Treatment Plant BLU Registrations, and Class A Authorizations

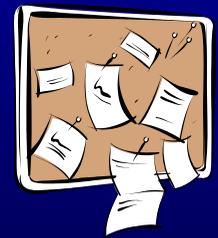
- **Domestic Septage BLU**

**New / Major Amendment** - One public notice is mailed to adjacent landowners and application is placed at County Judge's office for viewing

**Renewal / Minor Amendment**- No notice requirement

- **Water Treatment Plant BLU and Class A Marketing and Distribution**

No public notice requirements



- **No application fee for all of the above**



# Frequently Asked Questions

- Can I obtain a registration to land apply grit or grease trap waste?
- What about port-a-john waste?
- How long will it take to receive a signed permit or registration?



# A Few More Frequently Asked Questions

- What do I do if I wish to add a source of sludge to my land application site?
- When should I submit my annual report?
- What should be included with my annual report?





# Annual Reports

- **Due September 30<sup>th</sup>** - Reporting timeframe from September 1<sup>st</sup> of previous year through August 31<sup>st</sup> of current year
- Summary Sheet is Appendix C of permit/registration
- Amount of sludge/septage land applied
- Acreage used for land application
- Type of vegetation and frequency of harvesting
- Annual soils analysis





# Annual Billing

\$100 minimum fee plus:

- \$1.25 / dry ton for sludge disposal activity
- \$0.75 / dry ton for Class B BLU
- \$0.20 / dry ton for Water Treatment Plant BLU
- \$100 flat fee for all Domestic Septage BLU
- Sludge Processing and Class A Marketing / Distribution do not have an annual fee





# Current Statistics

- **84 Class B Beneficial Land Use Permits**
- **9 Sludge Processing Permits**
- **7 Disposal Permits**
- **145 WTP Sludge Registrations**
- **50 Domestic Septage Registrations**
- **32 Class A Marketing/  
Distribution Authorizations**



# Summary of Sludge Rulemaking

## Bulk Sewage Sludge Rule Petition and Stakeholder Meetings

- Rule Petition – Filed by the Citizens of Ellis County to prohibit land application of bulk sewage sludge in or within 3 miles of a city limit in counties with a population of 140,000 or more that is located adjacent to a county with a population between 2 and 4 million.



# Summary of Sludge Rulemaking

## Bulk Sewage Sludge Rule Petition and Stakeholder Meetings

- Commission Agenda - On June 18, 2013, the Commission instructed the executive director to examine the issues raised in the petition and to initiate the rulemaking process by obtaining stakeholder input.



# Rulemaking Process

Four Stakeholder meetings were held in August in Springtown, Midlothian, Brookshire and Austin, Texas.

- » Pro-Petition based on Odor concerns
- » Anti-Petition based on Economic Benefits

Site evaluations were conducted by staff at processing and land application sites throughout the state



# Rulemaking Process

Proposed recommendations for the rule at the November 20, 2013 Commission Agenda.

- recommended initiating a state-wide rulemaking to address nuisance odors and other conditions rather than the three mile prohibition requested in the petition.
- recommendation to move forward with the rulemaking process was based upon stakeholder comments requesting relief from odors, vectors, unauthorized discharges from land application sites, tracking of material on roadways; and staff observations during site visits.



# What the Rulemaking Will Do

- Proposed rule making will address nuisance odors and unauthorized discharges of bulk sewage sludge by establishing “core requirements” applicable to all classes of sewage sludge
- Establish a new classification structure with corresponding requirements based on treatment processes
- Clarify the executive director’s authority to include additional requirements as needed to address nuisance odors and unauthorized discharges



# Current Status of the Rule

- The commission held a public hearing on May 6, 2014, in Austin and the comment period closed on May 12, 2014.
- Staff responded to comments from various stakeholders and prepared the final draft of the rule for adoption
- The adopted rules, including the rule preamble and response to comments, were posted for public viewing on August 22, 2014



# Current Status of the Rule

- Rules were presented for adoption at the September 10, 2014 Commission Agenda
- The Texas Register adoption publication date will be September 26, 2014
- The effective date of the rule will be October 2, 2014



# TCEQ Sludge Program Contacts

TCEQ Water Quality Division

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[http://www.tceq.texas.gov/nav/permits/sewage\\_sludge.html](http://www.tceq.texas.gov/nav/permits/sewage_sludge.html)

