



# **Texas Land Application Permits Industrial Wastewater**

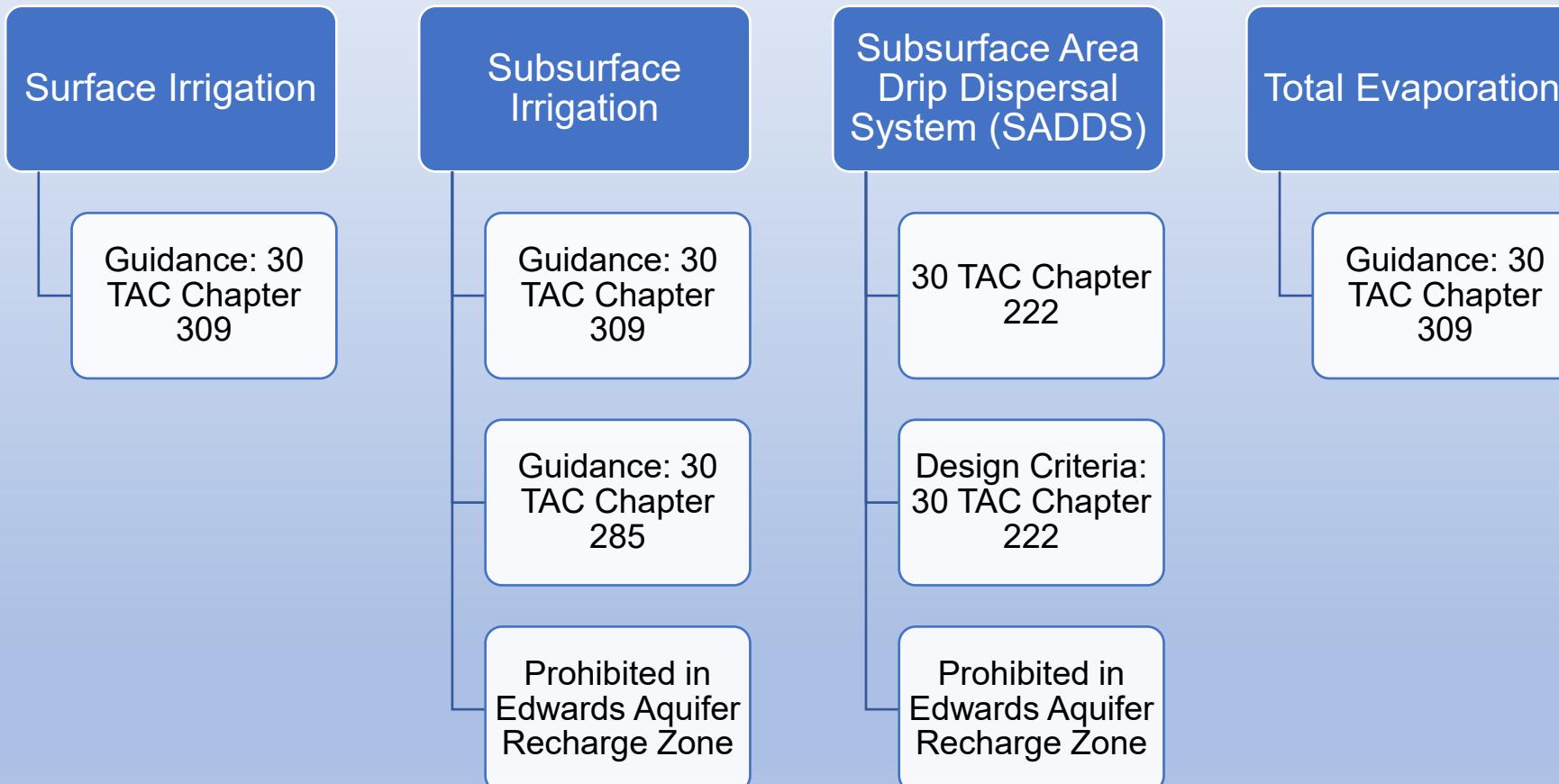
# Texas Land Application Permits (TLAP)

- Discharges adjacent to waters in the state (commonly referred to as land application) are regulated under the TLAP program
- TLAP permits are developed to ensure groundwater protection and to prevent discharges to surface water in the state

# TLAP Permitting Authority

- **Texas Water Code (TWC) § 26.121-** Authorizes the TCEQ to adopt rules and procedures pertaining to permits to control discharges of waste into or adjacent to water in the state
- **TWC § 26.027-** Authorizes the TCEQ to issue permits and amendments to permits for the discharge of waste or pollutants into or adjacent to water in the state

# TYPES OF DISPOSAL SYSTEMS



# INDUSTRIAL WASTEWATER APPLICATION

FORM: 10411-Administrative Report

FORM: 10055-Technical Report

# **TYPES OF APPLICATIONS**

## **New\***

Brand new facility

Expired permits re-apply as new facilities

## **Renewal\***

Continue an existing authorization

## **Amendment\***

Major Amendment- substantially change or relax the permit

Minor Amendment- change permit without relaxing the permit

# APPLICATION FEES

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend./Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	\$350	\$350	\$315	\$150

# NOTICE REQUIREMENTS

- NORI – Notice of Receipt of Application and Intent to Obtain Water Quality Permit
- NAPD – Notice of Application and Preliminary Decision for Land Application Permit for Industrial Wastewater

# TECHNICAL REPORT – Form No. 10055



- Technical Report 1.0
  - Sections 1-13; except
  - Section 9 – Not Required
  - Section 12 – Not Required
- Worksheets 1.0 and 2.0 – Not Required
- Worksheet 3.0
- Worksheet 3.1 – Surface Land Application
- Worksheet 3.2 – Subsurface Irrigation
  - (NON-DRIP)
- Worksheet 3.3 – SUBSURFACE AREA DRIP DISPERSAL SYSTEMS
- Worksheets 4.0 & 4.1 – Not Required
- Worksheet 5.0 – Maybe
- Worksheets 6.0 – 12.0 – Not Required

# Technical Report 1.0 – Section 4

## 4. → OUTFALL/DISPOSAL-METHOD- INFORMATION-(Instructions,- Pages-42-43)¶

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations, and for each point of disposal for TLAP operations.¶

If there are more outfalls/points of disposal at the facility than the spaces provided, copies of pages 6 and/or numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.¶

**For TLAP applications:** Indicate the disposal method and each individual irrigation area **I**, evaporation pond **E**, or subsurface drainage system **S** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for **Outfall** number (e.g. **E1** for evaporation pond 1, **I2** for irrigation area No. 2, etc.).¶

..... Page Break .....

# INDUSTRIAL WORKSHEET 3.0

- Section 1. Type of Disposal System
- Section 2. Land Application Site(s)
- Section 3. Annual Cropping Plan
- Section 4. Well and Map Information
- Section 5. Soil Map and Soil Analysis
- Section 6. Effluent Monitoring Data
- Section 7. Pollutant Analysis

## INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND APPLICATION OF EFFLUENT

This worksheet is required for all applications for a permit to disposal of wastewater by land application (i.e., TLAP).

### Item 1. Type of Disposal System (Instructions, Page 69)

Check the box next to the type of land disposal requested by this application.

Section Break (Continuous)

- |  |  |
|--|--|
| <input type="checkbox"/> Irrigation              | <input type="checkbox"/> Subsurface application                              |
| <input type="checkbox"/> Evaporation             | <input type="checkbox"/> Subsurface soils absorption                         |
| <input type="checkbox"/> Evapotranspiration beds | <input type="checkbox"/> Surface application                                 |
| <input type="checkbox"/> Drip irrigation system  | <input type="checkbox"/> Other, specify: <a href="#">Click to enter text</a> |

### Item 2. Land Application Area (Instructions, Page 69)

#### Land Application Area Information

Effluent Application (gallons/day)	Irrigation Acreage (acres)	Describe land use & indicate type(s) of crop(s)	Public Access? (Y/N)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# ANALYTICAL DATA REQUIREMENTS

## • Item 6. → Effluent Monitoring Data (Instructions, Page 72)¶

- a. → Completion of Table 14 is required for all renewal and major amendment applications. Complete the table with monitoring data for the previous two years for all parameters regulated in the current permit. An additional table has been provided with blank headers for parameters regulated in the current permit which are not listed in Table 14.¶

## • Table 14 for Outfall No.: [Click to enter text](#) → Samples are (check one): "Composite" → "Grab"¶

Date (mo/yr)¶	Daily Avg Flow (gpd)¶	BOD5 (mg/L)¶	TSS (mg/L)¶	Nitrogen (mg/L)¶	Conductivity (mmhos/cm)¶	Total acres irrigated¶	Hydraulic Application rate (acre-feet/month)¶
¶	¶	¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶	¶	¶

## • Item 7. → Pollutant Analysis (Instructions, Page 72)¶

- a. → Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018). [Click to enter text](#)¶
- b. →  "Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal."¶
- c. → Complete Tables 15 and 16.¶

## • Table 15 for Outfall No.: [Click to enter text](#) → Samples are (check one): "Composite" → "Grab"¶

Pollutant¶	Sample 1 (mg/L)¶	Sample 2 (mg/L)¶	Sample 3 (mg/L)¶	Sample 4 (mg/L)¶
BOD (5-day)¶	¶	¶	¶	¶
CBOD (5-day)¶	¶	¶	¶	¶
Chemical oxygen demand¶	¶	¶	¶	¶

# INDUSTRIAL WORKSHEET 3.1

## • Item 2. → Surface Spray/Irrigation (Instructions, Page 73) ¶

a. → Provide the following information on the irrigation operations: ¶

Area under irrigation (acres): [Click to enter text.](#) ¶

Design application rate (acre-ft/acre/yr): [Click to enter text.](#) ¶

Design application frequency (hours/day): [Click to enter text.](#) ¶

Design application frequency (days/week): [Click to enter text.](#) ¶

Design total nitrogen loading rate (lbs nitrogen/acre/year): [Click to enter text.](#) ¶

Average slope of the application area (percent): [Click to enter text.](#) ¶

Maximum slope of the application area (percent): [Click to enter text.](#) ¶

Irrigation efficiency (percent): [Click to enter text.](#) ¶

Effluent conductivity (mmhos/cm): [Click to enter text.](#) ¶

Soil conductivity (mmhos/cm): [Click to enter text.](#) ¶

Curve number: [Click to enter text.](#) ¶

Describe the application method and equipment: [Click to enter text.](#) ¶

# SOURCES

- 30 Texas Administrative Code (TAC) Section 309.20 – Land Application of Sewage Effluent
- Texas Water Development Board
- <https://www.waterdatafortexas.org/lake-evaporation-rainfall>
- Mean Crop Consumptive Use and Free-Water Evaporation for Texas by John Borrelli; Clifford B. Fedler; and James M. Gregory (Borrelli)
- Bulletin 6019
- Texas A&M AgriLife Extension
- USDA: Urban Hydrology for Small Watersheds – TR-55
- 30 TAC 309.20 – Table 3 – Soil Conductivity

# Salt Tolerance of Various Crop Plants

## 30 TAC 309.20 – Table 3

Texas Natural Resource Conservation Commission  
Chapter 309 - Domestic Wastewater Effluent Limitation and Plant Siting

Page 8

TABLE 3  
Salt Tolerance of Various Crop Plants

Best growth yields of each crop would occur at a salinity level below the salinity range given.

Relatively Nontolerant	Moderately Salt Tolerant	Relatively Salt Tolerant	Highly Salt Tolerant
Electrical Conductivity (millimhos/cm at 25 degrees C)			
2.0 - 4.0	4.0 - 6.0	6.0 - 8.0	8.0 - 12.0
Field Crops			
Field bean Cowpeas Corn (field)	Sorghum (grain) Rye (grain) Castorbean Soybean	Cotton Sugar beet Wheat (grain) Oats (grain) Rice	Barley (grain) Rape

# TLAP GROUNDWATER REVIEW

- Groundwater review performed in Water Quality Assessment Section:
  - Geologists and Agronomists
- Purpose of the groundwater review is to ensure that a TLAP will prevent any discharge of pollutants to groundwater or connected surface water.

# Groundwater Review

Staff review site conditions as presented in permit application and from other public sources to make recommendations to permit writer for site-specific special provisions to include in the TLAP.

- Geologists review information on groundwater, site geology, water wells and other recharge features, and wastewater pond liners.
- Agronomists review information on soils and crops, hydraulic and nutrient wastewater application rates, and effluent and soil chemistry.

# WATER BALANCE CALCULATION TABLE

Figure: 30 TAC §309.20(b)(3)(B)

TABLE 1  
WATER BALANCE EXAMPLE  
(All Units are Inches of Water per Acre of Irrigated Area)

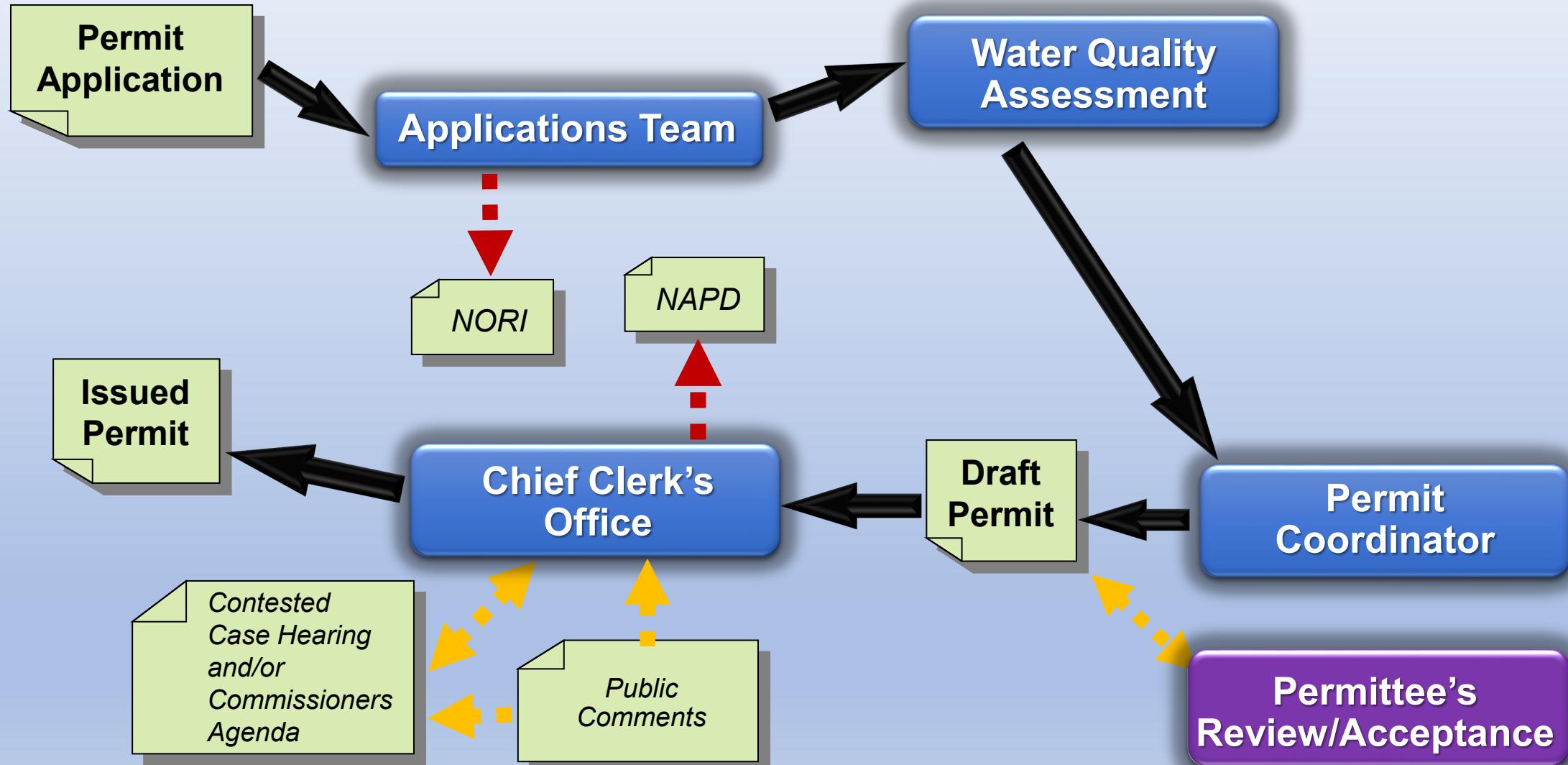
Month	a Avg. Precip.	b Average Runoff	Ri Average Infiltrated Rainfall	c	d	Total Water Needs (5)+(6)	Effluent Needed in Root Zone (7)-(4)	e Evaporation from Reservoir surface	f Effluent to be applied to Land (8) / K	g Consumption from Reservoir (9)+(10)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jan.	2.11	0.40	1.71	0.80	0.00	0.80	0.00	0.02	0.00	0.02
Feb.	2.43	0.57	1.86	1.20	0.00	1.20	0.00	0.01	0.00	0.01
Mar.	2.02	0.36	1.66	2.80	0.20	3.00	1.34	0.09	1.58	1.67
April	3.19	1.03	2.16	3.40	0.22	3.63	1.46	0.05	1.72	1.77
May	4.19	1.74	2.45	6.10	0.64	6.74	4.29	0.10	5.05	5.15
June	3.30	1.10	2.20	6.50	0.76	7.26	5.06	0.20	5.95	6.15
July	2.20	0.45	1.75	6.70	0.87	7.57	5.82	0.34	6.85	7.19
Aug.	2.12	0.41	1.71	4.60	0.51	5.11	3.40	0.34	4.00	4.34
Sept.	3.58	1.30	2.28	5.10	0.50	5.60	3.32	0.19	3.91	4.10
Oct.	3.09	0.96	2.13	4.10	0.35	4.45	2.32	0.14	2.73	2.87
Nov.	2.23	0.46	1.77	2.10	0.06	2.16	0.39	0.07	0.46	0.53
Dec.	2.34	0.52	1.82	1.00	0.00	1.00	0.00	0.03	0.00	0.03
	32.80	9.30	23.50	44.40	4.11	48.51	27.40	1.58	32.25	33.83

# STORAGE VOLUME CALCULATION TABLE

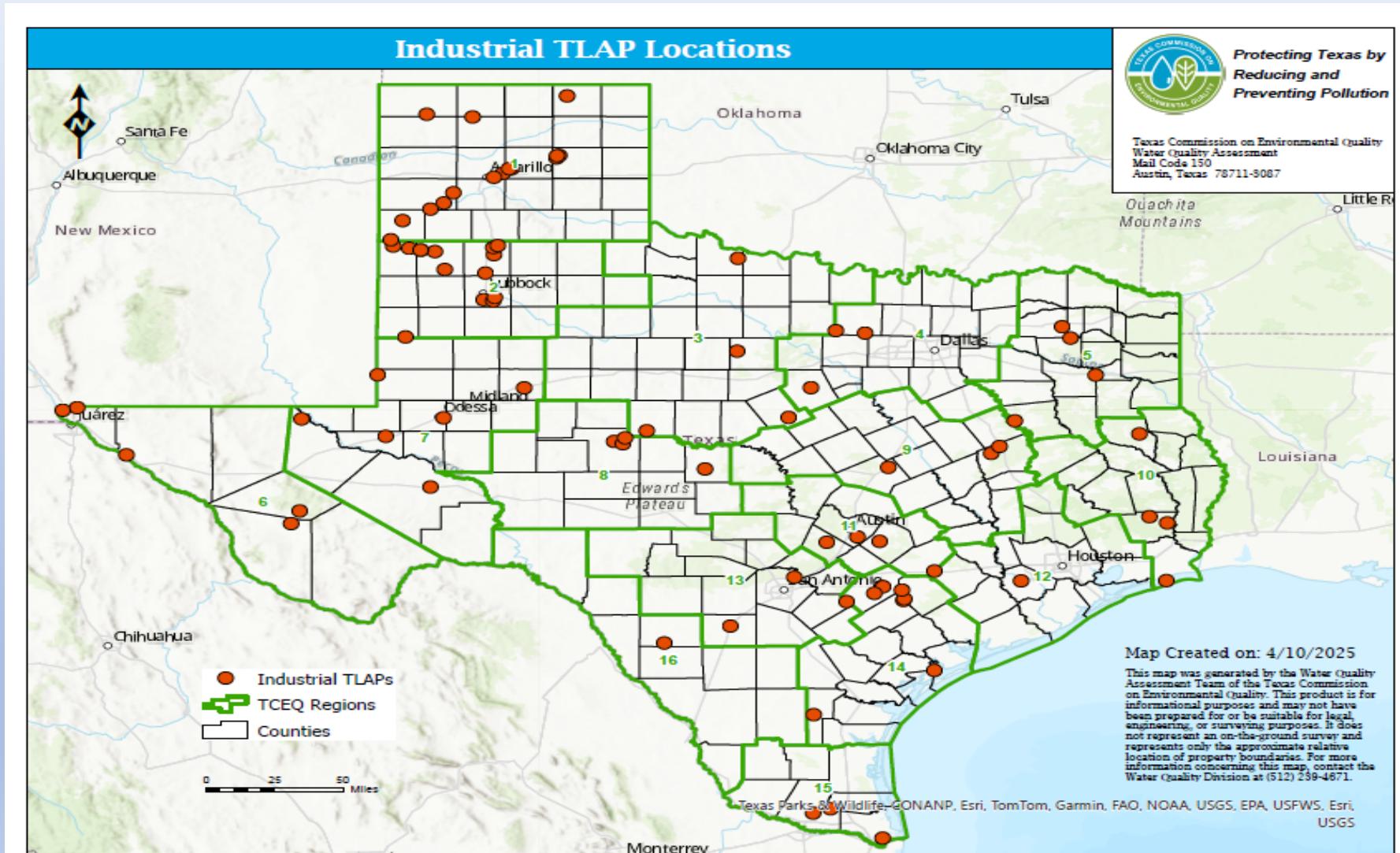
TABLE 2  
EXAMPLE CALCULATION OF STORAGE VOLUME REQUIREMENTS  
(All Units are Inches of Water per Acre of Irrigated Area)

Month	a Effluent Received for Application or Storage	b Rainfall Highest Year in Past 25 Year	c			d	e	f
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Jan.	2.70	3.28	1.09	2.19	4.89	0.00	2.69	8.49
Feb.	2.70	3.80	1.45	2.35	5.05	0.01	2.69	11.18
Mar.	2.70	3.18	1.02	1.26	4.86	0.04	1.67	12.85
April	2.70	4.98	2.35	2.63	5.33	0.02	1.51	14.36
May	2.70	6.57	3.67	2.90	5.60	0.04	-1.86	12.50
June	2.70	5.13	2.47	2.66	5.36	0.09	-2.80	9.70
July	2.70	3.44	1.20	2.24	4.94	0.16	-3.73	5.97
Aug.	2.70	3.33	1.12	2.21	4.91	0.16	-0.87	5.10
Sept.	2.70	5.59	2.84	2.75	5.45	0.08	-0.74	4.36
Oct.	2.70	4.82	2.22	2.60	5.30	0.07	0.45	0.45
Nov.	2.70	3.49	1.23	2.26	4.96	0.03	2.67	3.12
Dec.	2.70	3.64	1.34	2.30	5.00	0.02	2.68	5.80
	32.40	51.25	22.00	29.25	61.65	0.73		

# Wastewater Permitting Process Flow



# ACTIVE IND TLAP PERMITS IN TEXAS



# Thank you

Mónica Vallin-Báez

(512) 239-5784

[monica.baez@tceq.texas.gov](mailto:monica.baez@tceq.texas.gov)