Environmental Sciences Branch Update

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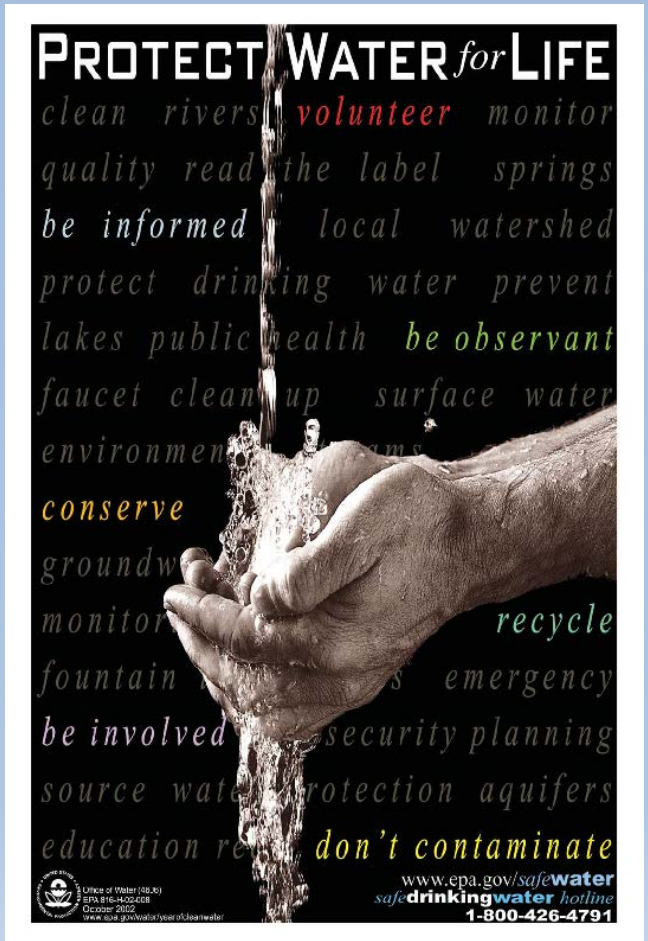

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Environmental Science Branch Update-Inorganics

INORGANICS Group FY15			
Program	**Test**	**#**	
DENTAL	*SINGLE MINERAL	364	Fluorides
FOOD	MISC INORGANIC	406	Gluten, wwater activity, pH, food coloring
MEAT SAFETY	MISC INORGANIC	20	Moisture, fat, salt, protein
MISCELLANEOUS	*ALL MINERALS	5	EPA methods 300.0 and 353.2 andSM, 19th edition, 2320B, 2510B, 4500-HB and 2540C
	*NITRATE	3	
	*NITRATE/NITRITE	1	
	*SINGLE MINERAL	48	various
	MISC INORGANIC	21	various
PRISON UNIFORM	PRISON UNIFORM	78	urine, feces
PT SAMPLE	MISC INORGANIC	28	
SAFE DRINKING WATER	*ALL MINERALS	1595	EPA methods 300.0 and 353.2 andSM, 19th edition, 2320B, 2510B, 4500-HB and 2540C
	*NITRATE	347	
	*NITRATE/NITRITE	4930	
	*SINGLE MINERAL	1806	various
TCEQ	MISC INORGANIC	16	various

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Environmental Science Branch Update-Inorganics

Program	Test	#	
METALS FY15			
FOOD	*SINGLE METALS	10	
	MISC METALS	73	
LEAD AND COPPER	LEAD/COPPER	35	
MISCELLANEOUS	*ALL METALS	7	
	*SINGLE METAL	137	
	MISC METALS	11	
	TRACE METALS	2	
PT SAMPLE	MISC METALS	70	
SAFE DRINKING WATER	*ALL METALS	1522	
	*SINGLE METAL	408	
	*SECONDARIES	361	metals and wet chem
TCEQ	MISC METALS	16	
WATER SUITABILITY	TRACE METALS	33	

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Environmental Science Branch Update-Organics

ORGANICS GROUP	FY15		
Program	Test	#	
MISCELLANEOUS	*HAA	8	Disinfection byproducts
	*THM	52	Disinfection byproducts
OKLAHOMA	548 - ENDOTHALL	2	Herbicide
	549 - DIQUAT	10	Herbicide
PT SAMPLE	MISC ORGANIC	32	
SAFE DRINKING WATER	*DBP	7420	Disinfection byproducts
	*HAA	576	Disinfection byproducts
	*THM	576	Disinfection byproducts
	504 - EDB & DBCP	1359	Fumigants
	504 - EDB & DBCP-FB	1360	Field QC
	515 - HERBICIDES	1385	
	524 - VOC	3901	Volatiles Organic Chemicals
	524 - VOC-FB	3901	Field QC
	525 - SOC5	2366	Synthetic Organic Chemicals/Pesticides
	531 - CARBAMATES	1332	Pesticides
	547 - GLYPHOSATE	10	Herbicide
	548 - ENDOTHALL	11	Herbicide
	549 - DIQUAT	10	Herbicide

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Environmental Science Branch Update-Radiochemistry

RADIOCHEMISTRY GROUP FY15			
Program	Test	#	
MISCELLANEOUS	MISC RADIOCHEM	23	
PT SAMPLE	MISC RADIOCHEM	36	
RAD CONTROL	MISC RADIOCHEM	751	
TCEQ	MISC RADIOCHEM	117	
MISCELLANEOUS	*RAD-GRAB	4	Alpha/Beta, Ra-228, Ra-226,Uranium
	MISC RADIOCHEM	0	
SAFE DRINKING WATER	*RAD-GRAB	2018	Alpha/Beta, Ra-228, Ra-226,Uranium
	BETA	41	Gamm scan, Tritium, Strontium-89, Strontium-90, Potassium

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TNI Update

- New standard under finishing stages. Jerry Parr presentation from TCEQ fair in links of interest.
- Recent TNI News Interim Standard for NELAP Available for Review and Vote through 12-6-2015 – Microbiology
- TNI – Find Certified Labs: http://lams.nelac-institute.org/

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Proposed Method Detection Limit Rule

- 40 CFR APPENDIX B TO PART 136 “The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.”
- Current Rule Application:
  - Prepare standard 1 to 5 times the estimated detection limit.
  - Analyze at least seven (7) samples at the spike level, calculate the MDL MDL= standard deviation*Students t-statistic (3.14 for 7 replicates)
  - Accept the MDL if the calculated value is less than the spiked value.
  - Calculated MDL < Spike Level; Calculated MDL > 1/10 Spike Level

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MDL Problem

- “EPA proposes revisions to the procedure for determination of the MDL primarily to address laboratory blank contamination and to better account for intra-laboratory variability.”
- MDLs that represent multiple instruments: if a laboratory uses MDL values that represent multiple instruments, then the laboratory would be required to calculate the MDL using spiked samples and blank samples from all of these instruments.
- Ongoing MDL quarterly verification: laboratories would be required to check their MDL values once a quarter.

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Proposed MDL

- Estimate the Initial MDL. elect a spiking level, typically 2–10 times the estimated MDL.
- Process a minimum of 7 spiked blank samples and 7 method blank samples through all steps of the method. Both preparation and analysis of these samples must include at least three batches on three separate calendar dates.
- For multiple instruments that will be assigned the same MDL, then a minimum of two spiked samples and two method blank samples prepared and analyzed on different calendar dates is required for each instrument.

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Proposed MDL- Calculate MDL

- Calculate Sample MDL_s = Standard Deviation of sample results* Student's t-statistic
- Calculated Blank MDL_b the same way as Sample MDL if analyte is found in all blanks (or take highest blank value as Blank MDL if not in all samples…..other rules apply)
- Set Initial MDL to be the higher of the Sample MDL or Blank MDL.

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Ongoing MDL (edited down)

- During any quarter in which samples are being analyzed, prepare and analyze a minimum of two spiked blanks on each instrument, in separate batches if available, using the same spiking concentration. If any analytes are repeatedly not detected in the quarterly spike sample analysis, this is an indication that the spiking level is not high enough and should be adjusted upward. Ensure that at least 7 spiked blanks and 7 method blanks are completed for the annual verification….
- Ongoing Annual Verification- At least once per year, re-calculate MDL_s and MDL_b from the collected spiked blank and method blank results…Include data generated within the last 2 years, but only data with the same spiking level.
- The verified MDL is the greater of the MDL_s or MDL_b. If the verified MDL is within a factor of 3 of the existing MDL, and fewer than 3% of the method blank results (for the individual analyte) have numerical results above the existing MDL, then the existing MDL may optionally be left unchanged. Otherwise, adjust the MDL to the new verification MDL.

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Objective of UCMR Program

- Develop a list of contaminants, largely based on Contaminant Candidate List, every five years
- Collect occurrence data for suspected drinking water contaminants that do not have health-based standards set under SDWA
- Occurrence information is used to support future regulatory decision-making
- Supports the Administrator's determination of whether (or not) to regulate a contaminant under the drinking water program

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UCMR3 Inorganics (ug/L)
Results for Texas as of June 2015

Contaminant	MethodID	MRL	# Samples	# Detections	% Detections
strontium	EPA 200.8	0.3	4571	4565	100%
molybdenum	EPA 200.8	1	4578	3125	68%
vanadium	EPA 200.8	0.2	4575	3017	66%
chromium	EPA 200.8	0.2	4564	1432	31%
manganese	EPA 200.8	1	391	294	75%
cobalt	EPA 200.8	1	4578	29	1%
germanium	EPA 200.8	1	391	3	1%
tellurium	EPA 200.8	1	391	1	0%
chromium-6	EPA 218.7	0.03	4465	2465	55%
chlorate	EPA 300.1	20	4385	1605	37%

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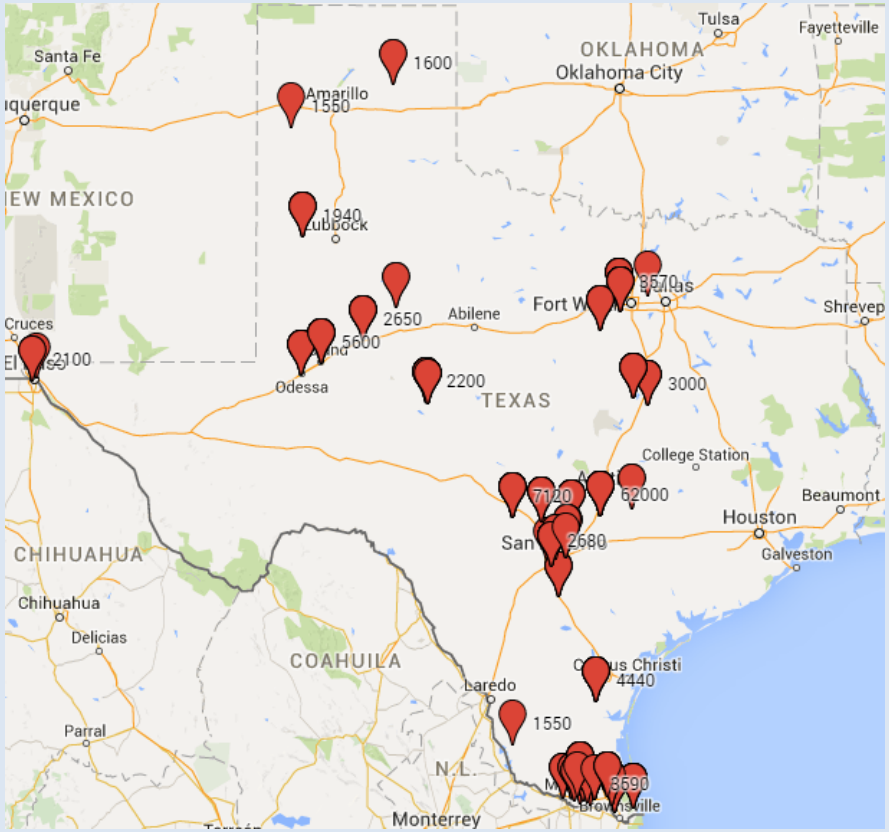
Strontium Samples Higher than Reference Level of 1500 ug/L

Top 5: PWSName	Contaminant	#	Min	Max	
Goforth SUD	strontium	24	503	62000	
City of Kyle	strontium	20	507	39800	
CLWSC - Triple Peak Plant	strontium	40	367	21800	
City of Boerne	strontium	32	340	10800	
City of Kerrville	strontium	28	268	7120	



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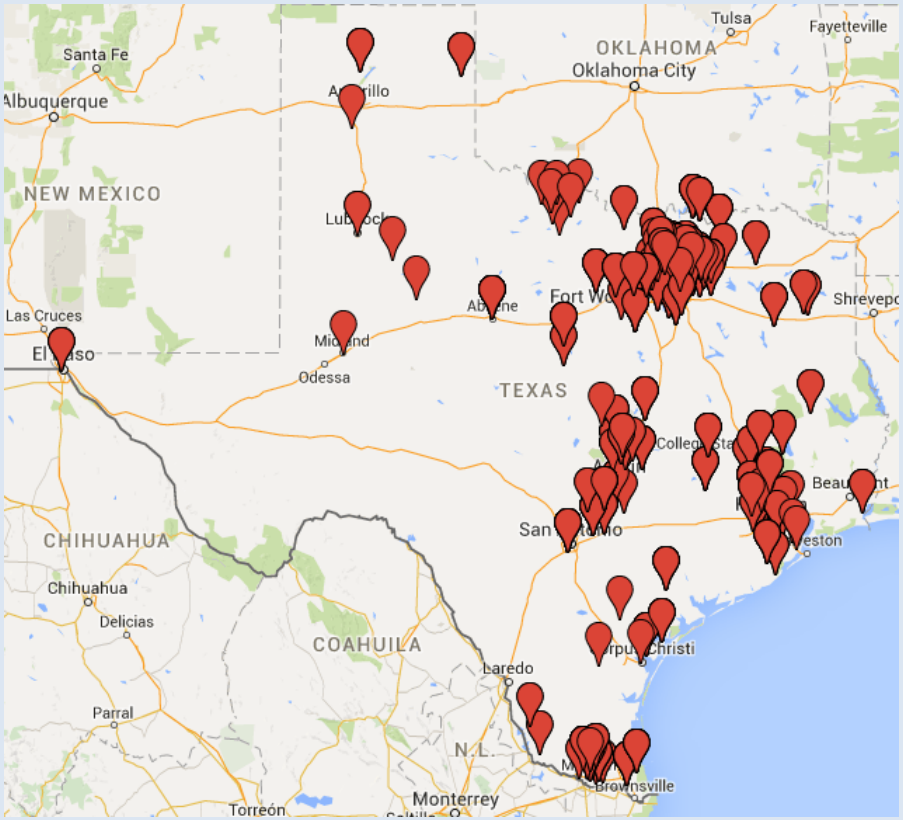
Chlorate Hits > Reference Level (210 ug/L)

Top 5: PWSName	Contaminant	#	Min	Max
Harris County WCID #36	chlorate	6	45.7	13600
Southern Utilities	chlorate	11	137	4080
City of Bonham	chlorate	8	1241.681	3242.493
Westside Rural WSC	chlorate	10	210	3000
Oak Shores Water System	chlorate	3	1670	2900



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Texas – Top 10 Chromium/Chromium +6

California to set chromium limit for drinking water supplies

The California Department of Public Health has submitted a final regulation setting a limit of 10 parts per billion in public drinking water supplies.

April 15, 2014 | By Bettina Boxall

LA Times

PWSName	Contaminant	#Samples	Min. Result	Max. Result
City of Alvin	chromium	10	0.2	12.2
Fort Elliot CISD - Briscoe	chromium	4	0.982	11
City of Alice	chromium	4	0.208	10.6
El Paso Water Utilities Public Service B	chromium	56	0.22	9.6
City of Kingsville	chromium	12	3.18	8.83
City of Dayton	chromium	8	4.41	7.09
Fort Bliss Main Post Area	chromium	4	2.6	6.7
San Antonio Water System	chromium	38	0.2	6.3
City of Houston	chromium	63	0.24	6
East Montana Water System	chromium	7	0.31	5.7

PWSName	Contaminant	#Samples	Min. Result	Max. Result
City of Kingsville	chromium-6	14	0.044	9.71
El Paso Water Utilities Public Service B	chromium-6	60	0.05	8.4
Fort Bliss Main Post Area	chromium-6	4	2.68	7.81
City of Dayton	chromium-6	8	4.31	7.08
East Montana Water System	chromium-6	8	0.16	5.6
City of Houston	chromium-6	1	4.4	4.4
City of Pampa	chromium-6	14	1.9	3.8
Lower Valley Water District	chromium-6	10	0.156	3.67
Mary Francis Subdivision	chromium-6	4	2.51	3.61
Harris County MUD #26	chromium-6	12	1.76	3.52
City of Wharton	chromium-6	6	0.135	3.48

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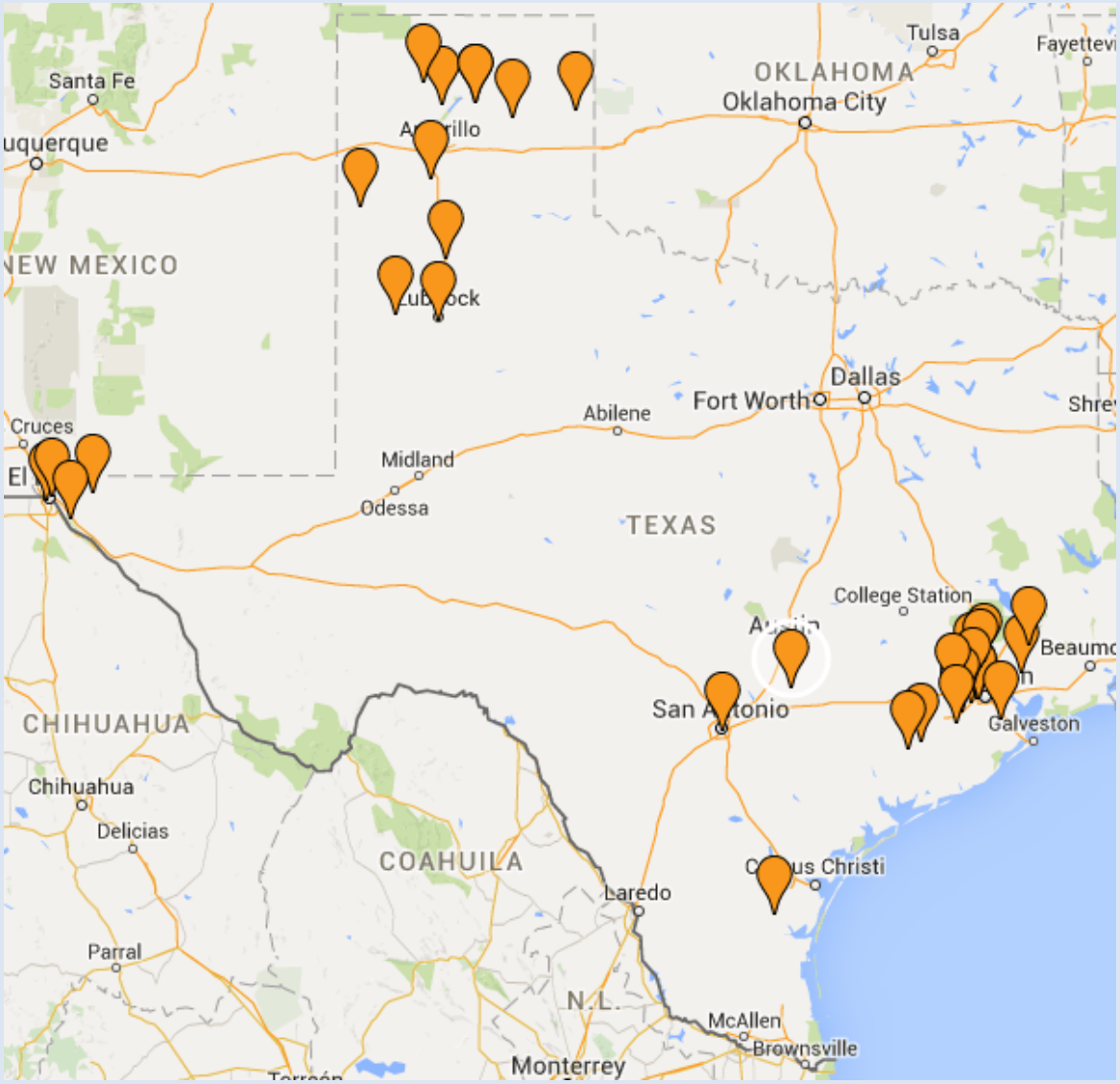
Chromium +6 Results >1 ug/L



UCMR3 Organics Results (ug/L) for Texas as of June 2015

Contaminant	MethodID	MRL	# Samples	# Detections	%Detections
1,4-dioxane	EPA 522	0.07	2200	44	2%
Halon 1011	EPA 524.3	0.06	2327	233	10%
chloromethane	EPA 524.3	0.2	2327	22	1%
bromomethane	EPA 524.3	0.2	2327	17	1%
HCFC-22	EPA 524.3	0.08	2327	7	0%
n-propylbenzene	EPA 524.3	0.03	204	1	0%
1,1-dichloroethane	EPA 524.3	0.03	2327	1	0%
1,3-butadiene	EPA 524.3	0.1	2327	0	0%
1,2,3-trichloropropane	EPA 524.3	0.03	2327	0	0%
sec-butylbenzene	EPA 524.3	0.04	204	0	0%
PFOS	EPA 537	0.04	2323	2	0%
PFHpA	EPA 537	0.01	2323	2	0%
PFHxS	EPA 537	0.03	2323	2	0%
PFOA	EPA 537	0.02	2323	1	0%
PFNA	EPA 537	0.02	2323	0	0%
PFBS	EPA 537	0.09	2323	0	0%
4-androstene-3,17-dione	EPA 539	0.0003	599	10	2%
testosterone	EPA 539	0.0001	599	3	1%
17-alpha-ethynylestradiol	EPA 539	0.0009	599	1	0%
equilin	EPA 539	0.004	599	0	0%
estrone	EPA 539	0.002	599	0	0%
estriol	EPA 539	0.0008	599	0	0%
17-beta-estradiol	EPA 539	0.0004	599	0	0%

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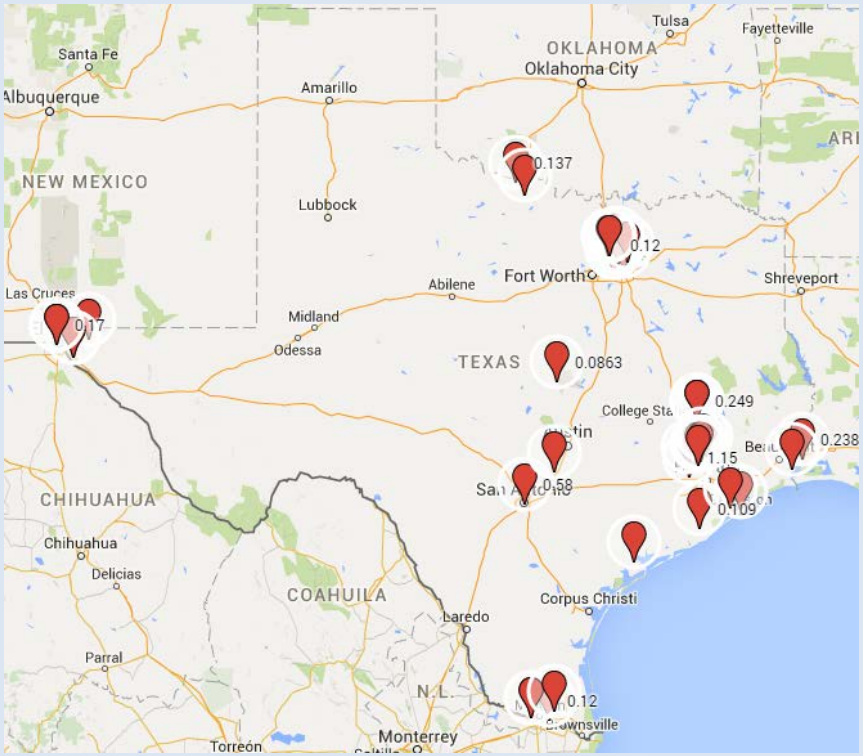
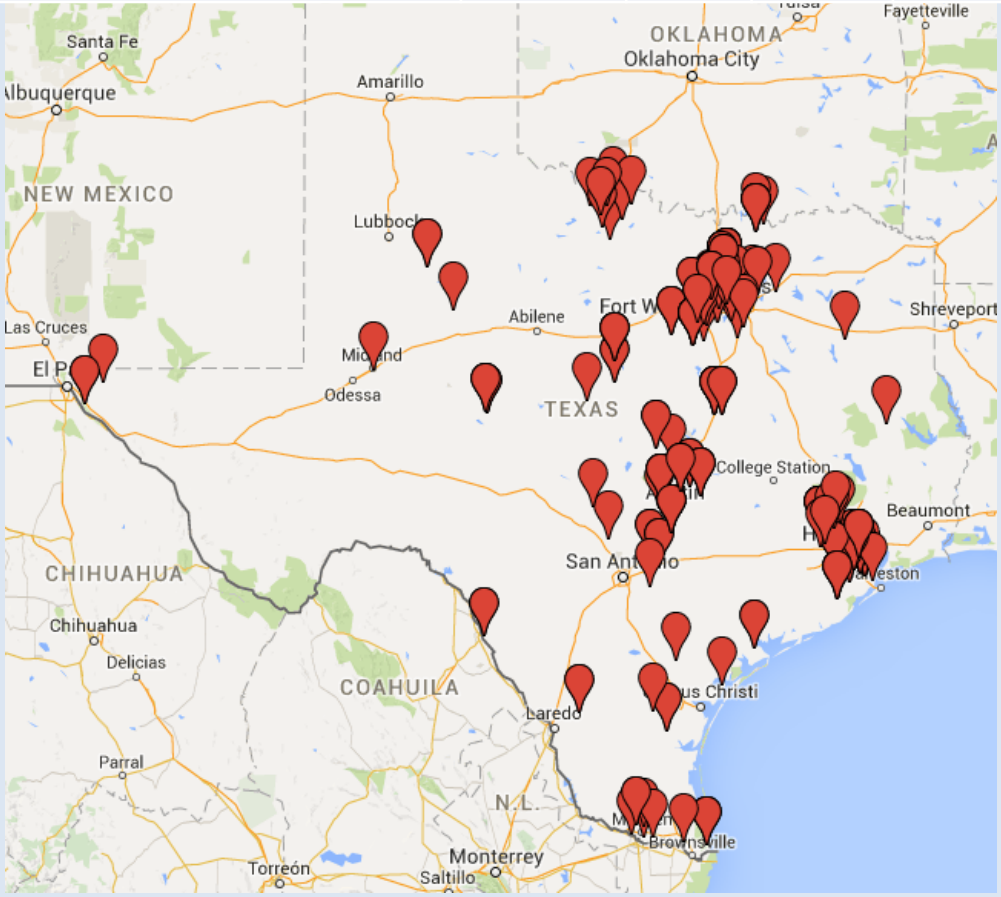
Dioxane Hits (Reference dose .25-35 ug/L)

Top 5: PWSName	Contaminant	#	Min	Max
Remington MUD #1	1,4-dioxane	1	1.15	1.15
San Antonio Water System	1,4-dioxane	1	0.58	0.58
City of Huntsville	1,4-dioxane	6	0.101	0.249
City of Orange	1,4-dioxane	1	0.238	0.238
CNP Utility District	1,4-dioxane	1	0.22	0.22
El Paso Water Utilities Public Service B	1,4-dioxane	4	0.075	0.17



Halon 1011 (Bromochloromethane Hits)

Top 5: PWSName	Contaminant	#	Min	Max
Galveston County WCID #1	Halon 1011	8	0.148	5.17
City of Denison	Halon 1011	1	3	3
Goforth SUD	Halon 1011	6	0.0704	0.997
City of Pharr	Halon 1011	1	0.826	0.826
City of Kingsville	Halon 1011	2	0.449	0.677
City of New Braunfels Utilities	Halon 1011	2	0.57	0.627



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SW-846 Methods Update V

- Major Method Updates
  - 6010D Inductively Coupled Plasma-Atomic Emission Spectrometry
  - 6020B Inductively Coupled Plasma-Mass Spectrometry
  - 8270D Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

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New Methods in SW-846

- 3511* Organic Compounds in Water by Microextraction
- 3572* Extraction of Wipe Samples for Chemical Agents
- 4025* Screening for Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans (PCDD/Fs) by Immunoassay
- 4430* Screening for Polychlorinated Dibenzo-p-Dioxins and Furans (PCDD/Fs) by Aryl Hydrocarbon Receptor PCR Assay
- 4435* Method for Toxic Equivalent (TEQS) Determination for Dioxin-Like Chemical Activity with the CALUX Bioassay
- 8276* Toxaphene and Toxaphene Congeners by Gas Chromatography/Negative Ion Chemical Ionization Mass Spectrometry (GC-NICI/MS)
- 9015* Metal Cyanide Complexes by Anion Exchange Chromatography and UV Detection

Links of Interest

- SW-846 Methods Update V http://www.gpo.gov/fdsys/pkg/FR-2015-08-13/pdf/2015-20030.pdf
- TNI – Find Certified Labs: http://lams.nelac-institute.org/
- **Clean Water Act Methods Update Rule for the Analysis of Effluent** 2015 (Proposed MDL) http://www.gpo.gov/fdsys/pkg/FR-2015-02-19/pdf/2015-02841.pdf
- **The 2015 TNI Standard and Other News of Interest ,Jerry Parr,** http://fztest.sessionupload.com/eftc/2015/Lab%20Practices%20and%20Date%20Reporting/TCEQ%20Presentation%202015%20Jerry%20Parr.pptx
- UCMR3 Update, http://www2.epa.gov/sites/production/files/2015-10/documents/ucmr3_data_summary_june_2015_508.pdf
- Interim Standard for NELAP Available for Review and Vote through 12-6-2015 - Microbiology

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