

# **Consideration for Withdrawal of Fourteen TMDLs for Nickel in the Houston Ship Channel**

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Adopted by TNRCC: August 2000  
Adopted with Revisions: June 2002  
Approved by EPA: May 2003

## Fourteen Total Maximum Daily Loads for Nickel in the Houston Ship Channel System

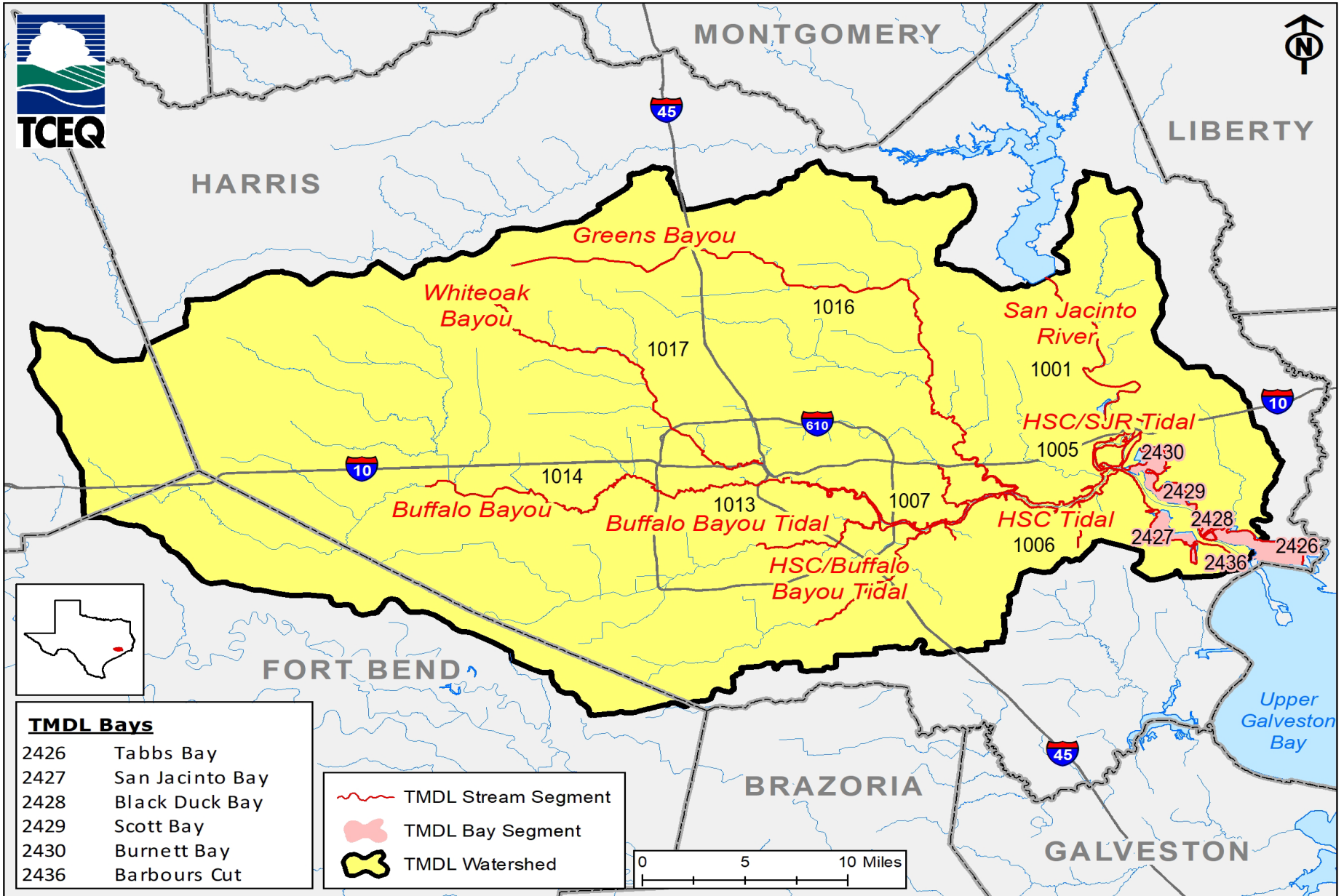
For Segments 1001, 1005, 1006, 1007, 1013, 1014,  
1016, 1017, 2426, 2427, 2428, 2429, 2430, and 2436

Prepared by the:  
Strategic Assessment Division  
Water Permits and Resource Management Division

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recycled paper

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

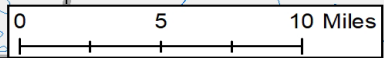
# TMDL Project Area



## TMDL Bays

- |      |                 |
|------|-----------------|
| 2426 | Tabbs Bay       |
| 2427 | San Jacinto Bay |
| 2428 | Black Duck Bay  |
| 2429 | Scott Bay       |
| 2430 | Burnett Bay     |
| 2436 | Barbours Cut    |

	TMDL Stream Segment
	TMDL Bay Segment
	TMDL Watershed



# Nickel Background

- Nickel Is Ubiquitous
  - Trace exposure is unavoidable: food, water, airborne dust
- Major Uses
  - Stainless Steel, NiCad Batteries, Coatings, Coins
- Nickel Sources
  - Most wastewater discharges include traces of nickel
    - Industrial
    - Municipal
  - TMDL assumes almost all TPDES discharges contain nickel
  - TMDL provides a nickel discharge limit for permitting purposes

# Metals Sampling History

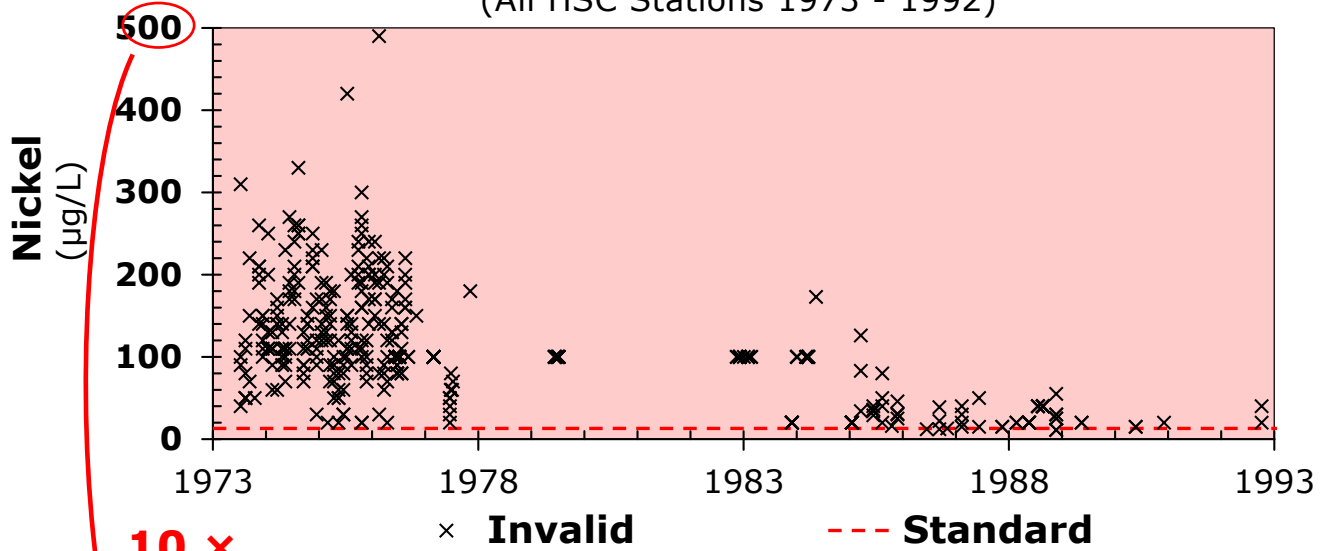
- 1973 – 1993 Monitoring Data
  - Values highly variable, but variable sources could not be identified
  - Caused major concern
- Sample Collection
  - Random contamination occurred during sample collection process
  - Affected water samples collected for metals, including nickel
  - Revised the sampling procedure in 1993
- Post-1993 data reliable
  - Result of the revised sampling procedures
  - Pre-1993 data is not used for regulatory purposes

# TMDL Necessary?

- Data Shortage
  - All pre-1993 data unusable – not enough data to assess
  - Impairment was unknown
  - Needed 7 years to collect adequate amount of data to assess
- TMDL Was Written as a Precaution
  - TMDL noted “Impairment may not have truly existed”
  - I-Plan specified later reevaluation
- Reevaluation
  - The total permitted nickel load is approaching the I-Plan “reopener load limit”
  - The reevaluation has been completed
  - This proposed TMDL Withdrawal is the result

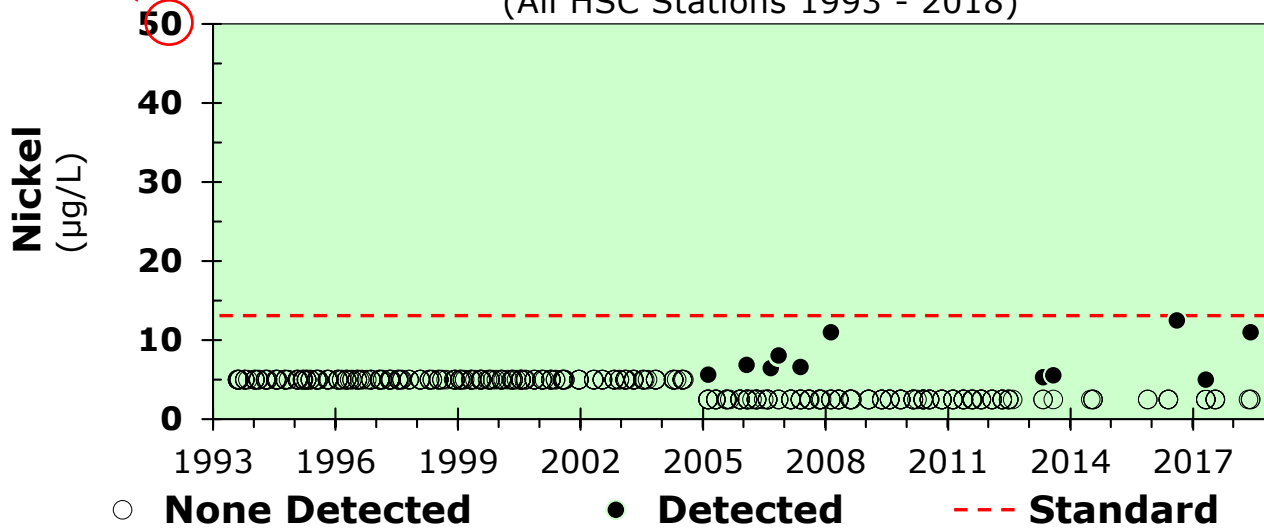
# Invalid HSC Nickel Observations

(All HSC Stations 1973 - 1992)



# Valid HSC Nickel Observations

(All HSC Stations 1993 - 2018)







# Comparisons of Water Body Assessments for Nickel

## Houston Ship Channel Nickel Assessment

1996 - 2018 Texas Integrated Reports

Water Body		Assessment											
Segment <sup>1</sup>	Description	Invalid Data 1996	Insufficient Data		Valid Data								
			1998	2000	2002 <sup>2</sup>	2004 <sup>2</sup>	2006 <sup>3</sup>	2008 <sup>3</sup>	2010 <sup>3</sup>	2012 <sup>3</sup>	2014 <sup>3</sup>	2016 <sup>3</sup>	2018 <sup>3</sup>
1001	San Jacinto River Tidal				FS	FS	FS	FS	FS	FS	FS	FS	FS
1005	Houston Ship Channel/San Jacinto River Tidal	NS <sup>4</sup>						NC			NC		
1006	Houston Ship Channel Tidal	NS <sup>4</sup>			FS	FS	FS	FS	FS	FS	FS	FS	NC
1007	Houston Ship Channel/Buffalo Bayou Tidal				FS	FS	FS	FS	FS	FS	FS	FS	FS
1016	Greens Bayou Above Tidal				NC	NC	NC	NC					
1017	Whiteoak Bayou Above Tidal				FS	FS							
NS = Non-Supporting		FS = Fully Supporting			NC = No Concern <sup>5</sup>				(Blank) = Not Assessed <sup>6</sup>				

<sup>1</sup> Segments 1013, 1014, 2426, 2427, 2428, 2429, 2430, and 2436 were not assessed, but are adjacent to listed waters.

<sup>2</sup> Chronic Metals in Water

<sup>3</sup> Chronic Toxic Substances in water - Nickel

<sup>4</sup> Assessed as Non-Supporting, but data qualified as misleading

<sup>5</sup> Limited Data

<sup>6</sup> Insufficient Data

# Current Controls

- TPDES Wastewater Discharge Permit Screening/Processing
- Most types of TPDES permits screened for Nickel using TEXTOX
  - Industrial (w/processed water)
  - Domestic (1MGD or Greater)
- Permit limits or discharge monitoring prescribed if needed
- If limits for Nickel are put in permits
  - Expressed as total Nickel
  - TMDL written for dissolved Nickel
  - Total Nickel > dissolved, so limits are conservative

# TMDL Status

- TMDLs were developed as a precaution taken in the absence of reliable data
  - Limited evidence the impairments ever existed
- Waterbodies not listed as impaired for nickel
  - The segments have been assessed as meeting the water quality standards since 2002
  - Routinely monitored
- Recommendation: withdrawal of the nickel TMDLs

# EPA Guidance to Withdraw a TMDL

- EPA approves a state established TMDL to replace an earlier EPA established TMDL
- **The State or EPA developed a TMDL for a waterbody that was incorrectly placed on the 303(d) List**
- EPA approved a State's revised water quality criteria or standards leading to a determination that a waterbody is no longer impaired

# Precedent for Withdrawing a TMDL

*Two Total Maximum Daily Loads for Total Dissolved Solids (TDS) and Chlorides in Clear Creek Above Tidal, Segment 1102*

- 2005 TCEQ adopted
- 2006 TCEQ Enforcement shutdown sole discharge
- 2014 TCEQ Withdrew TMDL
- 2014 EPA approved withdrawal

# Next Steps

- The Nickel TMDL withdrawal will be submitted to EPA as part of a routine quarterly Water Quality Management Plan (WQMP) update
- The WQMP update will be published in the Texas Register and the public will have an opportunity to submit formal comments during a 30-day comment period
- The WQMP update will then be submitted to the Executive Director for TCEQ certification then sent to EPA for approval

# For More Information on TMDLs

TCEQ TMDL Program Website:

[www.tceq.texas.gov/waterquality/tmdl/](http://www.tceq.texas.gov/waterquality/tmdl/)

