



# Construction & Materials Tips

Published Quarterly by the **Construction** and **Bridge Divisions**  
First Quarter, 2004

## *TPDES Program Background*

The Texas Pollutant Discharge Elimination System (TPDES) program implements the federal National Pollutant Discharge Elimination System (NPDES) program in the state of Texas. The EPA Region 6 had administered the Phase I storm water general permit for construction activities disturbing 5 or more acres within the state of Texas until the TPDES permit was issued. On March 5, 2003 the Texas Commission on Environmental Quality (TCEQ) became the permitting authority for these discharges and a Construction General Permit (CGP No. TXR150000) was signed and approved. The CGP permit also covers storm water discharges from Phase II construction activities that disturb at least 1 acre and less than 5 acres.

For all construction projects in Texas that disturb 5 or more acres, the owner must:

1. Obtain a copy of the TCEQ CGP (TPDES Permit No. [TXR150000](#)),
2. Develop and implement a storm water pollution prevention plan (SWP3),
3. Complete and submit a Notice of Intent ([NOI](#)) to the TCEQ (using the TCEQ form) to the address listed on the form prior to the commencement of the construction, and
4. Submit a Notice of Termination ([NOT](#)) once the site has reached final stabilization.

For all construction projects in Texas that will disturb 1 or more acres, but less than 5 acres, including the larger common plan of development the owner must:

1. Obtain a copy of the TCEQ CGP (TPDES Permit No. [TXR150000](#)),
2. Develop and implement a storm water pollution prevention plan (SWP3),
3. Complete and post a site notice, and
4. Before construction begins,
  - a. if the site qualifies, complete and submit a [Low Rainfall Erosivity Waiver Form](#) or
  - b. complete and post a site notice. (Template at the end of TPDES Permit No. [TXR150000](#))

### **TxDOT Signature Authorization and Delegation**

In response to the implementation of the TPDES program and the Construction General Permit (CGP), Mr. Behrens provided guidance (memorandum dated November 14, 2003) on the signature authority

*(Continued from Page 1)*

required for various documents under this program. The signature authority is described in the table below:

Document	Individual or Position Authorized (For Projects They Oversee)	Legal Basis
Notice of Intent	District Engineer or Division Director or their immediate staff (e.g., Director of Operations); or Area Engineer. <sup>1</sup>	30 TAC 305.44, Signatories to Applications Requires principle executive officer having responsibility of overall operations over a geographic unit
Notice of Termination		
Notice of Change		
Low Rainfall Erosivity Waiver Application		
Construction Site Notice		
Inspection report certifications	Above and delegated to Assistant Area Engineer, Maintenance Supervisor, Project Architects or Engineers or Project Inspectors with overall responsibility for the project. <sup>2</sup>	30 TAC 305.128, Signatories to Reports Requires position having responsibility for the overall operation of the facility, activity, or environmental matters
All other reports and information requested by the TCEQ executive director.		
<sup>1</sup> No further delegation is allowed. <sup>2</sup> Delegation is established here. Personnel performing the inspections should be properly trained in the CGP regulations.		

As stated in the November 14, 2003 memorandum, further signature delegation is not allowed. Non-compliance by the contractor does not relieve TxDOT from the responsibility of meeting the CGP and the TPDES requirements. In order to encourage compliance, TxDOT has the same authority to insure specified SWP3 work is completed as any other work on the project. The vast majority of issues should be resolved without referral to the Area or Project Engineer. However, if required corrective actions are not taken, SWP3 issues should be elevated for resolution due to potential liability both for TxDOT and the responsible TxDOT employees associated with the project.

One of the most significant changes resulting from the delegation of the NPDES program from the EPA to TCEQ involves the field inspection reporting requirements and the accompanying certification. Attached to Mr. Behrens' November 14, 2003 memorandum was the revised "Field Inspection and Maintenance Form" (Form 2118). This form documents specific SWP3 project information, project areas inspected, Best Management Practices (BMPs) and corrective actions taken to resolve issues noted during the inspection. BMPs that are functioning properly should not be listed. Potential non-compliance issues, such as repeated failure to correct the same noted deficiency or major discharges from the project, are to be listed on the form.

The form was developed to meet the inspection requirements identified in the CGP. Non-compliance by

*(Continued from Page 2)*

the contractor does not relieve TxDOT from meeting the responsibilities of the CGP and TDPES requirements.

As part of the TDPES program, TxDOT provided the TCEQ with a summary of our Delegation of Signature Authority. A copies of the memorandum the transmittal letter, both dated November 14, 2003, to TCEQ are to be kept with each project's SWP3 file. All completed inspection forms should also be retained in the project SWP3 file. For additional information, contact the Construction Division - Field Engineering Branch.

Reference *Attachment 1* for Contractor PSL responsibilities related to the TPDES.\*\*\*\*

## ***Traffic Structure Anchor Bolt Q and A***

The Bridge Division frequently gets questions like the following concerning the use of anchor bolts for traffic structures (traffic signal poles, roadway illumination poles, high mast illumination poles, and overhead sign support structures).

1. *What are likely anchor bolt installation problems?*

The most common problem is vertical misalignment of anchor bolts during placement of concrete. Even a small misalignment of an anchor bolt can severely weaken the bolt. The problem is compounded by unacceptable application of external force in order to realign the anchor bolts after concrete has hardened. To avoid this problem, use templates (small metal rings that hold bolts in place relative to one another), and ensure that the entire assembly is rigidly fixed before and during the concrete pour. Another problem is improper lateral, radial, and/or longitudinal orientation of the anchor bolt assembly in the foundation. Ensure proper placement and orientation of the anchor bolt assembly before and after concrete pours.

2. *What can be done to correct vertical alignment problems?*

The double-nut anchor system and the oversized holes in the base plate allow for some misalignment by allowing the structure to stand perfectly straight without bending the bolts. Never try to straighten misaligned bolts by bending them. Misalignment becomes unacceptable when the base plate of the structure is bearing on the edge of the bolt during installation. Tightening anchor bolts in this condition can cause the plate to shear the bolt. In this case the only solution is to remove the misaligned anchor bolt assembly and replace it with properly aligned anchors.

3. *How do you prevent corrosion of anchor bolts?*

Anchor bolts properly embedded in the drilled shaft will be protected from corrosion by the

*(Continued from Page 3)*

surrounding concrete. For the exposed portion of the anchor bolt, galvanizing treatment is the most common method of preventing corrosion. Embedded anchor bolts should have the exposed end plus a minimum of six inches galvanized. Anchor bolts extended through a concrete attachment must be galvanized or coated along their entire length. Additionally, current practice is to terminate the top threaded section 1/2 to 1/4 inch above the top of the concrete. This is to prevent water from pooling in the concrete around the threads of the bolt. For more information about Galvanizing, refer to TX DOT *Standard Specification for Construction of Highways, Streets and Bridges*, Item 445 “Galvanizing.”

4. *What can be done if anchor bolts are already corroded?*

Remove as much of the rust as possible taking care to limit damage of the anchor bolts. Inspect for loss of the engaged threaded sections. If the loss is determined to be excessive, replace the bolts. To replace anchor bolts embedded in a drilled shaft foundation, remove the top portion of the concrete shaft to a minimum depth of six inches below the embedded ends of anchor bolts. Align the new anchor bolts and template assembly in position, and replace concrete in accordance with the appropriate specifications.

5. *Why does TxDOT no longer install grout between the base plate and foundation after placement of the structure?*

Recent investigations have shown that the grout often traps moisture, which accelerates corrosion of the anchor bolts. Such grouting is, therefore, not recommended.

6. *What is the best way to tighten anchor bolts?*

Traffic structures, such as traffic signal poles, roadway illumination poles, high mast illumination poles, and overhead sign support structures use a double-nut tightening system. Current recommendations for tightening this type of nut is to turn the top nut until it is tight and then retighten the bottom nuts using a slug wrench and a sledge. The TxDOT 2004 *Standard Specifications for Construction of Highways, Streets and Bridges* will specify the turn-of-the-nut method in Item 449, “Anchor Bolts.” The turn-of-the-nut method involves first making the top and bottom nuts snug tight, and then tightening an additional fraction of a turn as specified for different types of bolts. More information about this procedure will be available in the TxDOT 2004 *Standard Specifications for Construction of Highways, Streets and Bridges*, Item 449, “Anchor Bolts.”

7. *Where can I find more information?*

Anchor Bolts are specified under Item 449, “Anchor Bolts,” in the TxDOT *Standard Specifications for Construction of Highways, Streets and Bridges*. If you need additional information, contact the Field Operations Section in the Bridge Division\*\*\*\*

## Contractors' PSL Responsibilities for TPDES

- This document is provided for informational purposes and not to be used for bidding or contract purposes.
- Reference Saenz memorandum dated May 12, 2003 and July 23, 2003 in regard to excluded maintenance projects.

### On ROW

Contractor is required to post NOI or CSN at each project location with a PSL.

**Table 1. Forms required to be submitted to TxDOT by size of area disturbed.**

Forms/Documents	Area Disturbed*		
	(X = Not required; ✓ = Required)		
	< 1Ac.	≥ 1 Ac. to < 5 Ac.	≥ 5 Ac.
<b>NOI</b>	X	X	✓
<b>CSN</b>	X	✓	X
<b>NOT</b>	X	X	✓
<b>Sketch or drawing with Contractor PSL area delineated for responsibility.</b>	X	✓	✓
*Note: Area disturbed is the total for all project locations and contractor PSLs within 1 mile of any project limits.			

Contractor responsibility details:

- Provide a sketch or drawing to TxDOT with the contractor PSL area delineated. The sketch or drawing will specify contractor responsibility to TxDOT indicated by (✓).
- Provide a copy of the NOI for any project that discharges to a separate storm sewer system operated by any local government.

### Off ROW

The Contractor is responsible for Off ROW TPDES requirements. The Engineer will need to know the total acreage and acreage disturbed within 1 mile of any project limits when an SWP3 is required.

### Acronyms

CSN – Construction Site Notice      NOI – Notice of Intent      NOT – Notice of Termination  
 PSL – Project specific location      TPDES – Texas Pollution Discharge Elimination System  
 MS-4 – Municipal Separate Storm Sewer System