Turbidity Monitoring During Construction

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Turbidity Monitoring

Excess turbidity is a sign that erosion and sediment control is not working, and that improvements are needed.
Turbidity Monitoring

Specification related to turbidity:

Standard Specification 00290.30 (a)(1)

"Do not cause turbidity to waters of the State and US outside of regulated levels."

This is expanded in Special Provisions 00290.30(a):

- (7) Water Quality, and
- (8) Visual Turbidity Monitoring (or “Meter Turbidity Monitoring” or simply “Turbidity Monitoring”)

Turbidity Monitoring

Monitoring is required for

In-water work
(CWA 404 Permit: Section 401 Clean Water Certification)

Stormwater discharges
(NPDES 1200-CA)
Nationwide 404 Permit 401 Certs: Special Note

- US Army Corps of Engineer permits and associated 401 Water Quality Certifications are issued every 5 years.
- The current (2017) Nationwide 404 Permit’s 401 Certification has different turbidity monitoring requirements than previous versions of the Nationwide Permit:
  - Meter monitoring is required, except when specifically approved otherwise
  - 100-foot upstream and downstream measurement locations (doesn’t vary with stream width)
  - 2-hour monitoring intervals

In-Water Work Monitoring

Any work below the Ordinary High Water Level whether it is submerged or not
Turbidity Monitoring Methods

Visual monitoring allowed:
Stormwater: NPDES 1200-CA

Turbidity meter required:
In-water Work: All 401 certifications (Individual and 2017 Nationwide) “unless another monitoring method is proposed and authorized by DEQ.”

Safety First!
Move the monitoring site or revert to visual monitoring if conditions are sketchy.
Considerations

Non-Project Turbidity Sources

- Place the monitoring point between the non-project source and the Project activity or discharge point.
- Record on the monitoring form, and take a photograph.
Monitoring Protocol

**Metered Monitoring Location**
- Well-mixed stream: Away from the shore line
- Visible plume: In the plume
- Mid-depth of the stream

Turbidity Monitoring

**Stormwater Discharge (1200-CA Criteria)**

- **Visual**: A noticeable increase in turbidity
- **Metered**: 10% increase above background
  (For all practical purposes, up to a 5 NTU increase is permitted)
What is a visible plume/noticeable increase?

Any difference you can see between upstream and downstream, or across the stream at the compliance point.

Turbidity Monitoring for Stormwater:

Monitor daily during rain storms and within 24 hours of a 0.5-inch storm (1200-CA Schedule A 5a and Schedule B 7(d))

With exceedance of the criteria:

- Inspect the site to identify turbidity sources
- Immediately upgrade/repair erosion and sediment controls
- Repeat monitoring, inspection and upgrade until exceedances stop
- Record each inspection and remedial steps
Response to Metered Monitoring
Individual and 2017 Nationwide 401
General Conditions 15 (b)

2-hour Monitoring Interval

<table>
<thead>
<tr>
<th>Turbidity Level</th>
<th>Restrictions to Duration of Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 4.99 NTU above background</td>
<td>No restrictions. Continue to monitor every 2 hours.</td>
</tr>
<tr>
<td>5 to 29.99 NTU above background</td>
<td>Work continues for 4 hours. If turbidity doesn’t abate, stop. Modify BMPs. Resume work when NTU is 0-4.99 above background.</td>
</tr>
<tr>
<td>30 to 49.99 NTU above background</td>
<td>Work continues for 2 hours. If turbidity doesn’t abate, stop. Modify BMPs. Resume work when NTU is 0-4.99 above background.</td>
</tr>
<tr>
<td>50 NTU or more above background</td>
<td>Stop work immediately and notify inspector/DEQ</td>
</tr>
</tbody>
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Recording Turbidity for In-Water Work

- Location, date, time (tidal stage)
- Calibration documentation (date, reading of calibration samples)
- Background NTU
- Compliance NTU
- Difference between background and compliance readings
- Discussion of exceedances
- Actions to reduce turbidity/upgrade BMPs, effectiveness of the actions
**Turbidity Monitoring of Stormwater Discharge**

Form 734-2361 (6/15)

1. **Identify the erosion control measures from ERCP:**
   - Errosion Control Measures
   - Functional Erosion
   - Location of Deposit
   - Corrective Action
   - Erosion Information

2. **Add or attach any additional information:**
   - *Additional information on attachment*

3. **Weekly rainfall amounts:**
   - Rainfall Data
   - Erosion Data

4. **Erosion Control Measures:**
   - Minimum Monitoring Requirements
   - Erosion Control Measures
   - Rainfall Data

Deduction: Original to Agency Project Manager

**Use 100 feet for 401 WQC**

**Record calibration and actions here**

**Enter turbidity monitoring data here**
Turbidity Criteria Exceptions

Anticipated Exceedances

- Negotiated ahead of time and included in the permit
- Still requires monitoring
- Extra conditions, including timing and duration restrictions may be imposed

Exceedances due to factors outside ODOT’s control (extreme weather, etc.)

- Must be reported
- E&SC must be immediately restored
- Violation, but not a problem if E&SC in place according to plan