Clean Water Act ARARs Project Design Criteria/Performance Standards for Sediment Cleanups

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Where are We in the Cleanup Process?

- Completed Decision Document
  - Remedy selected
    - RAOs, Remediation Action Levels, Cleanup Levels
  - ARARs identified
    - Submitted Biological Assessment for ESA
    - Completed Clean Water Act 404(b)(1) Analysis
- Project Design Documents
  - Basis of design, CQAP, monitoring plans, bids/specs
- Removal/Remedial Action Work Plan

Clean Water Act Section 401

- Section 401
  - Requires that projects must comply with applicable State water quality standards (authorized pursuant to Section 404 of CWA)
  - Violations of standards cannot occur beyond designated mixing zone
- Water Quality Certification
  - Ensures compliance with substantive requirements of Section 401
  - For Superfund, WQC prepared by Region 10 Staff during design
  - May be amended

Clean Water Act 401 Water Quality Certification

- Draws heavily on State water quality standards
- Describes project, schedule, fish timing windows, notification requirements, communication strategy
- Establishes mixing zone for point of compliance measurements
- Requires implementation of Water Quality Monitoring Plan

Clean Water Act 401
Water Quality Monitoring Plan

- Water quality standards
  - DO, turbidity, temp, salinity
  - Possibly TSS, CoCs (project-specific)
- Inside and at compliance boundary
- Pre-construction (baseline), up/down current, ebb/flood, reference/ambient, water depths
- Sampling varies dependent on type of activity (e.g., dredging, capping)
- BMPs, silt plume tracking, effects on fish, prevention of spills

Water Quality Monitoring
Final Data Reporting

- Tabulated data for field measurements
- Field observations
- Highlight exceedances
- Discussion of field results including summary of instances when standards were not met and actions that were taken
- Silt plumes? Fish kills?
- Costs

Project Design Criteria/ Performance Standards

- Water Quality Monitoring
  - Water Quality Certification, WQM Plan
- Best Management Practices (BMPs)
  - Design documents, BO for ESA, WQC
- Project Design Criteria/Standards
  - Design documents, Removal/Remedial Action Work Plan
  - Post-dredge monitoring plan

Best Management Practices

- Developed site-specifically
- Fish exclusion barriers (ESA salmonids)
  - Deployment, inspection, biological monitoring
- Silt curtains, Gunderbooms, sheet pile enclosures
- Sequencing considerations
  - Lifts, passes, top to bottom on slopes
  - Affects residuals – keep bottom 'neat and tidy'

Best Management Practices

- Operational changes
  - Change equipment, bucket cycle time, pausing in water column, target tidal cycles
  - Bucket placement (overlap)
  - Manage barge return flow to minimize releases (filter fabric, side walls)
  - Control sediment loss from bucket to barge, barge offloading to upland
- Other BMPs for preventing spills, dry excavation, stockpiles/dewatering (erosion control, stormwater Pollution Prevention Plan)

Design Criteria/Standards

- Survey methods (side slopes, elevations/vertical control)
- Electronic positioning system (xy control)
- Many, many others….

- Post-dredge monitoring requirements

Post-Dredge Monitoring

- Verify that desired environmental effects (e.g., numerical sediment standard) have been achieved
- Visual - observe bucket for native material
  - Follow-up with clean pass, perform sampling
- Dredge and immediately cap
  - Post-dredge sampling focused on elevations and need-to-know chemistry concentrations under cap

Post-Dredge Monitoring

- Dredge and conduct post-dredge sampling
  - Immediately after dredging, or after area/project is complete?
  - Discrete, composite, surface-weighted averages, geometric mean
  - Within dredged area and in adjacent ‘clean’ areas
  - Results define need for more sampling, or more dredging, capping, ENR, MNR, backfilling
- Be mindful of residuals (versus ‘original’ contamination) and adjust dredging approach and sequencing

Quality of Life Standards

- Hudson River Superfund Site
  - Traffic
  - Noise
  - Construction lighting
  - Air quality
  - Odor
  - Aesthetics (impaired views of river)
  - Navigation (recreation/commercial)

Ancillary Issues

- Understand your site (sediment type, chemical concentrations, etc.) when designing BMPs and performance standards
- Recent bathymetry
- Debris surveys before dredging
- Construction oversight