Project Title: **C-08-19 :   Field Methods for Determining Lead Content in Bridge**
                        Paint Removal Waste

PIN: R021.35.881
Responsible Unit: Engineering / Office of the Environment, Environmental Science
Project Manager: Kochersberger, Carl

Project Goal:
Painted-steel bridges constructed before 1988 were originally coated with lead-based paint
(LBP). When a bridge is repainted, the existing coating must be removed (part of surface
preparation) and disposed of. When LBP is removed, the removal waste is classified as a
hazardous waste, because the concentration of leachable lead by TCLP analysis is 5
milligrams/liter (mg/l) or greater. Because surface preparation does not always involve 100%
removal of the previous coating, there can be enough residual lead on the bridge to cause a non-
LBP coating to be a hazardous waste upon removal for subsequent painting. Based on these
circumstances, and because NYSDOT does not currently have a reliable, efficient, and cost
effective method to determine whether or not a bridge-rehabilitation project will generate
hazardous paint removal waste prior to construction, NYSDOT considers all bridge-paint waste
from painted steel bridges constructed before 1988 to be a hazardous waste, even though much
of it may be non-hazardous. Because we consider the waste to be hazardous, it is more expensive
to dispose of (roughly twice the cost of non-hazardous waste). Additionally, the regulatory
burden (taxes, fees, surcharges, training, recordkeeping, etc.) and liabilities associated with the
generation of hazardous waste are quite onerous. If NYSDOT were able to quickly and
efficiently analyze bridge paint and use a reliable model to determine whether or not the paint
removal waste will be a hazardous waste prior to construction, these regulatory burdens and
liabilities would be greatly diminished.

XRF analysis is commonly used to determine the presence or absence of LBP on US Department
of Housing and Urban Development (HUD) funded projects, and its use is also rowing in the
environmental remediation field for field analyses at metals-contaminated sites. Regulatory
agencies (USEPA, NYSDEC, HUD, etc.) are commonly allowing field XRF analysis in place of
or as a supplement to laboratory analyses.

The goal of this research is to ascertain the reliability of XRF analysis to accurately predict if
bridge paint removal waste will be a hazardous waste and/or if bridge wash water will require
special handling, and to develop a reliable model that NYSDOT personnel can use to determine
whether or not a bridge rehabilitation project will generate hazardous bridge-paint waste and/or
wash water that will require special handling and disposal.

Actions Proposed:
1. Analyze bridge paint using an XRF meter.
2. Analyze bridge wash-water using field portable spectrophotometer.
3. Collect samples of bridge paint waste and submit to lab for TCLP analysis.
4. Compare, correlate, and interpret data.

Anticipated Work Products and Accomplishments:
• Progress reports and results of field and laboratory analyses
• Final report

- a model for using XRF analysis of bridge paint to determine whether or not paint removal waste will be hazardous and/or wash water will require special handling (XRF Model)
- training for NYSDOT Personnel in the use of XRF, XRF Model, and field-portable spectrophotometer,
- XRF meter and Field portable spectrophotometer for NYSDOT personnel to use.

Proposed Budget: $286,007