



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7

11201 Renner Boulevard

**MEMORANDUM**

**SUBJECT:** Screening Level Ecological Risk Assessment for the  
Electro-Coatings, Inc. Site  
Cedar Rapids, Iowa  
EPA ID #IAD005279039

**FROM:** Catherine Wooster-Brown, Ecological Risk Assessor  
Environmental Data & Assessment Branch  
Environmental Sciences & Technology Division

**TO:** Amer Safadi, Remedial Project Manager  
Federal Facilities & Post Construction Section  
Superfund Division

As requested, we have completed the Screening Level Ecological Risk Assessment (SLERA) for the Electro-Coatings, Inc. Superfund Site, located in Cedar Rapids, Iowa. If you have any questions regarding this SLERA, please do not hesitate to contact Catherine Wooster-Brown at x7425.

**Commented [BM1]:** Don't need this statement because it duplicates the prior sentence.

**Background**

The Electro-Coatings plant in Cedar Rapids, Linn County, Iowa, began its operation in 1947. The plant has been involved in chromium, copper and cadmium plating. The plant covers an area of approximately one acre and is located along the north shoreline of a small lake named Cedar Lake. In March of 1976, a yellow tinge was noted in the cooling water being discharged to Cedar lake from the Hawkeye Rubber Manufacturing Company which is located immediately west of the ECI plant. This water was found to contain high levels of chromium which was tracked to a leaking concrete tank containing chromic acid at the ECI plant. Hexavalent chromium is the predominant groundwater contaminant associated with the ECI facility. The chromic acid used by ECI for plating contains hexavalent chromium. Concentrations of hexavalent chromium as high as 25 mg/L have been found in groundwater at the site (EPA, 2000).

In 2015, EPA Region 7 ecological risk assessors reviewed the third Five-Year Review for the Electro-Coatings Superfund Site. During that review, it was determined that a Screening Level Ecological Risk Assessment for this site had never been performed. The Agency's Five-Year Review Guidance (USEPA, 2001) states that if ecological risks have not been adequately addressed at a site, and there is



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not a plan to address them through a future action, then you may need to address them at the time of the five-year review by conducting a SLERA. Therefore, in April 2016, Region 7 ecological risk assessors

developed a Quality Assurance Project Plan and the goal of the QAPP was to collect eleven current filtered surface water samples in Cedar Lake in the area of the former spill (Figure 1, Figure 2). One of the eleven samples were collected at a background location (Figure 1, Figure 2). Eleven filtered surface water samples (ten in the former spill area and one background) were collected by EPA Region 7 Monitoring and Environmental Sampling Branch staff on July 20, 2016. All samples were field filtered and analyzed for hexavalent chromium at the ENST Science and Technology Center. Total dissolved oxygen (DO), temperature as °C, pH, and hardness as CaCO<sub>3</sub> were also measured at the test site and the background site. All results were below ambient water quality criteria. Therefore, at this time, Cr (VI) in surface water in Cedar Lake does not present a significant risk to ecological receptors. Please see the results below in Table 1 of the data generated from the surface water samples and compared to current AWQC for Cr (VI). The SLERA results will be included in the Electro-Coatings Third FYR Amendment.

Table 1. Cedar Lake Cr (VI) surface water concentrations compared to freshwater Ambient Water Quality Criteria, DO, temperature as °C, pH, and hardness as CaCO<sub>3</sub>.

Sample Site #	Cr (VI) µg/L	AWQC Cr (VI) FW-Acute µg/L	AWQC Cr (VI) FW-Chronic µg/L	Hazard Quotient (HQ) <sup>1</sup> Acute	Hazard Quotient (HQ) <sup>1</sup> Chronic	DO mg/L	°C	pH	CaCO <sub>3</sub> <sup>2</sup> mg/L
1-BKG	10.0 U	16	11	<1	<1	15.8	27	9.2	139
2	10.0 U	16	11	<1	<1	13.9	27	9.2	142
3	10.0 U	16	11	<1	<1	14.0	28	9.3	
4	10.0 U	16	11	<1	<1	14.0	28	9.3	
5	10.0 U	16	11	<1	<1	14.5	28	9.3	
6	10.0 U	16	11	<1	<1	13.8	28	9.3	
7	10.0 U	16	11	<1	<1	13.3	28	9.3	
7-FD	10.0 U	16	11	<1	<1	13.4	28	9.3	
9	10.0 U	16	11	<1	<1	13.7	28	9.3	
10	10.0 U	16	11	<1	<1	11.0	24	8.6	
11	10.0 U	16	11	<1	<1	11.5	23	8.3	

<sup>1</sup> The Hazard Quotient (HQ) can be expressed as the ratio of a potential exposure level to the No Observed Adverse Effect Level (NOAEL); in this case, the AWQC is used. An HQ less than one indicates that the contaminant alone is unlikely to cause adverse ecological effects.

<sup>2</sup> Hardness as CaCO<sub>3</sub> is fairly consistent within the same area of the waterbody. Therefore, hardness was collected only at Background Site 1 and Test Site 2. Hardness, pH and temperature is necessary when calculating the toxicity of some metals in surface water, including Cr (VI).

## **Results/Recommendations**

Chromium (VI) in surface water in Cedar Lake is below both acute and chronic AWQC. Therefore, at this time, we are confident that the risk to ecological receptors from Cr (VI) in Cedar Lake surface water is **negligible**.

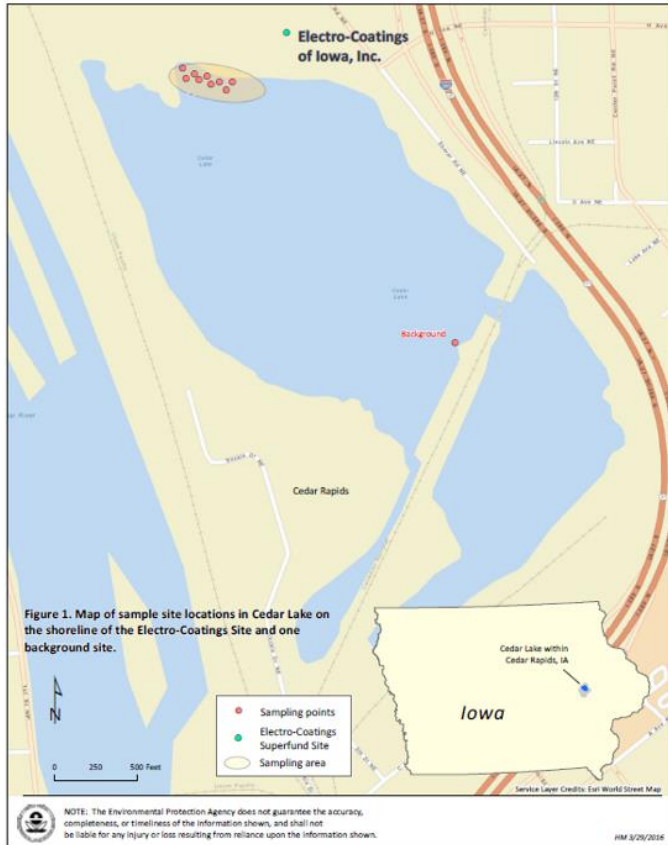
**References**

EPA, 2000. Interim Remedial Action Report for the Electro-Coatings Site. Prepared by EPA Region 7.

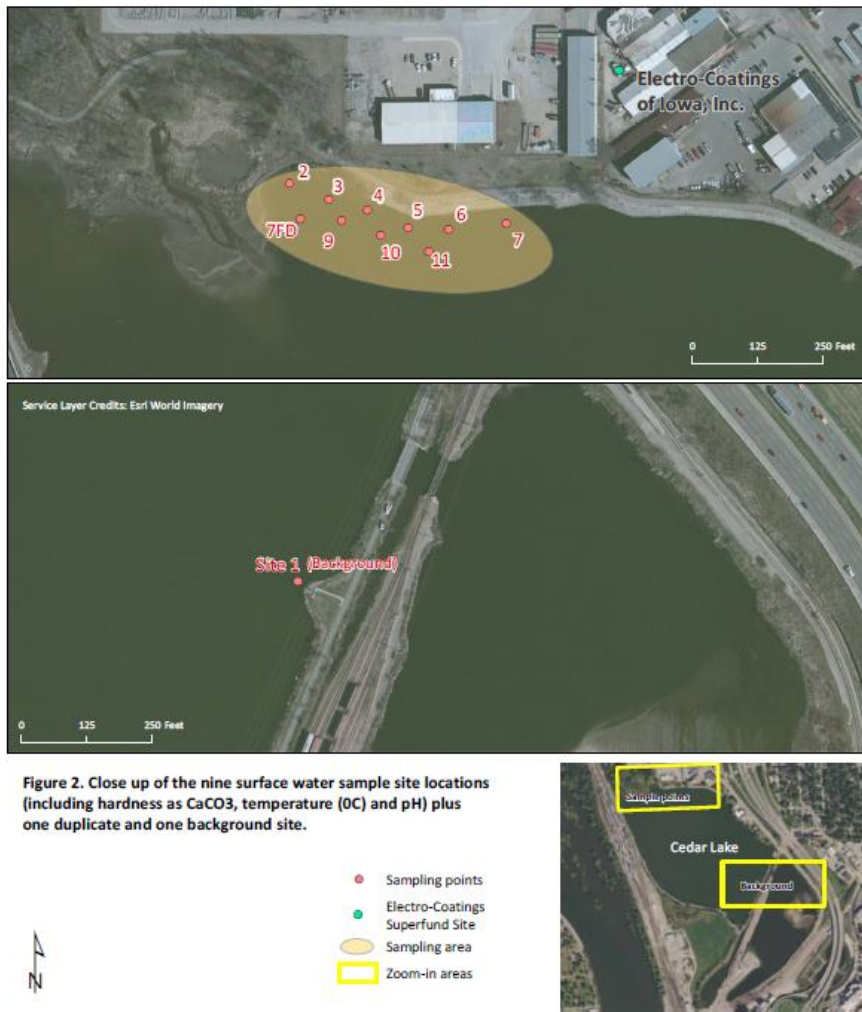
EPA, 2001. Comprehensive Five Year Review Guidance. Office of Emergency and Remedial Response. EPA 540-r-01-007. OSWER 9355.7-03B-P.  
<https://semspub.epa.gov/work/HQ/128607.pdf>

EPA, 2016. National Ambient Water Quality Criteria.  
<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>

## Surface Water Sample Sites on Cedar Lake



## Surface Water Sample Sites on Cedar Lake



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HM 8/16/2016