

Basis for Human Exposures Controlled Determination  
RCRIS Code CA725  
at the W. W. Cross Division, Emhart Industries Surface Impoundment  
EPA ID No. NHD000845768  
Jaffrey, New Hampshire

The purpose of this report is to provide the basis for determining that the W. W. Cross Division, Emhart Industries Surface Impoundment can be recorded with the status code of YE under the RCRIS Event Code of 725 - Human Exposures Controlled.

The July 29, 1994 RCRIS Corrective Action Environmental Indicator Event Codes CA725 and CA750 memo from EPA's Office of Solid Waste specifies that the event code for Human Exposures Controlled, CA725, may be counted when one or both of the following conditions are met:

1. Remedial measures have been implemented with the result that all maximum contaminant concentrations detected or reasonably suspected are less than or equal to their respective action levels, in this case, the New Hampshire Department of Environmental Services Ambient Groundwater Quality Standards (AGQS), the Department's Risk Characterization and Management Policy (RCMP) S-1 Soil Standards, or
2. There are no unacceptable human exposures to any contaminant concentration above action levels that has been detected or is reasonably suspected based on current contaminant concentrations and current site conditions. Action has been taken or site conditions are such that unacceptable threats to human health from actual exposure to the contamination are not plausible based on current uses of the site.

Based on a review of available information contained in files maintained by the New Hampshire Department of Environmental Services, and subject to the limitations cited below, the Department of Environmental Services has determined that there are no currently unacceptable risks to humans due to releases of regulated contaminants at the facility. This determination is based on the conclusions described in number 1 below and supplemented by additional facts in numbers 2 and 3 below and the references listed in number 4 below.

### 1. Conclusion

There are no unacceptable human exposures to any contaminant concentration above action levels that have been detected or are reasonably suspected based on current site conditions. No known contamination remains at the facility that may require further remediation. RCRA closure has been undertaken and site conditions are such that all releases of regulated contaminants to environmental media have been controlled. Cyanide plating wastes were removed from the site, some residual cyanide contamination in the remaining in situ soils was also removed, and any residual cyanide, RCRA metals, and volatile organic compound (VOC) contamination remaining after treatment and closure have attenuated to the extent that human exposures have been controlled, both on-site and off-site.

## 2. Release Summary

**Groundwater:** Groundwater contaminants that have historically been detected at the site include chromium; cyanide (total and amenable); zinc; sulfate; cadmium; copper; tetrachloroethylene and its degradation products; toluene; and methylene chloride. Groundwater monitoring has been required by the Department of Environmental Services, through the Department's Groundwater Management Permit process, since 1988. Beginning with the round of sampling performed in April 1996 and continuing through sampling performed in April 1997 (the latest round for which data are available), groundwater quality has been in compliance with AGQS for both on- and off-site sampling points. The next round of groundwater quality sampling and analysis is scheduled for April 1998.

**Soil:** Chromium, lead, total cyanide, free cyanide, and zinc were the contaminants of concern identified in the in-situ soils immediately below the filter bed wastes. About 4000 tons of electroplating wastes, metal parts washing wastes and steel pickling wastes were excavated from the filter bed and transported off-site for appropriate disposal in 1985 and 1986. Included in this total volume were the uppermost one foot of in-situ soils immediately below the wastes. After the filter bed wastes and the underlying first foot of in situ soils were removed, additional analyses were performed to determine residual contaminant levels. This sampling indicated that zinc was the only analyte that was elevated above background values, although the detected levels were well below the Department's RCMP soil standards for zinc. For weak acid dissociable cyanide (free cyanide), the most toxic form of cyanide, the values ranged from 0.9 milligrams per kilogram (mg/kg) to 11 mg/kg. The Department's RCMP standard for free cyanide in soil is 100 mg/kg.

**Surface Water:** Four surface water sampling locations have been established at the site. An upstream background sampling location along Cretia Brook, a location at the fire pond immediately adjacent to the surface impoundment, a downstream location before Cretia Brook discharges to Cheshire Pond, and a Cheshire Pond location. Concentrations of volatile organic compounds, cadmium, total chromium and total cyanide detected in samples from the surface water sampling stations have remained at or below method detection limits for the monitoring period from August 1992 through April 1997.

## 3. Relevant Conditions and Assumptions

**Groundwater:** The sporadic presence of groundwater contaminants (VOCs and RCRA metals) at levels just above the Department's AGQS in one of four off-site downgradient monitoring wells was observed through sampling performed in April 1995. For the two most recent rounds of annual sampling in 1996 and 1997, downgradient off-site groundwater quality was in compliance with AGQS for all contaminants of concern. Cyanide has not been detected in any on-site or off-site downgradient groundwater monitoring wells at levels above the Department's AGQS for sampling performed from August 1992 to the most recent sampling.

**Surface Water:** Three surface water bodies are in close proximity to the site. These include Cretia Brook, about 50 feet west of the surface impoundment, a fire pond formed by the downstream damming of Cretia Brook to the northwest of the surface impoundment, and Cheshire Pond. Cretia Brook flows into Cheshire Pond about 200 feet north of the surface impoundment. These are the only surface water pathways at the site by which any residual contamination associated with the surface impoundment could contaminate surface waters. Although these surface water pathways do exist, surface water sampling conducted under the terms of the Groundwater Management Permit has consistently shown that the contaminants of concern are not affecting surface water quality at and downstream of the site.

There are no commercial or residential uses at the site. Accordingly, there are no on-site workers or residents who would have the potential to ingest groundwater from the site. Also, drinking water for the city of Jaffrey is supplied by the city's public water system. Off-site human exposures to contaminated groundwater are not plausible as the most recent off-site groundwater quality data indicate that groundwater is in compliance with the Department's AGQS.

**Sediment:** There are no known sediments either on- or off-site that have been contaminated by releases of cyanide or any other contaminants of concern from the surface impoundment.

**Air:** Soil, surface water and groundwater data show no source area from which air emissions would be expected.

**Biota:** Very low residual levels of the contaminants of concern found in soil and groundwater suggest little potential for risk to human health through the food chain. Any residual levels detected have been below their respective AGQS or RCMP standards.

Exposure of trespassers, on-site workers or visitors to cyanide wastes, residual cyanide contamination in soils or any other contaminants of concern is implausible due to remediation, closure and capping of the surface impoundment. Also, access to the site is controlled through chain link fencing and locked gates.

#### 4. References

1. 1997 Annual Summary of Post Closure Monitoring Data, Former W.W. Cross Surface Impoundment, Jaffrey, New Hampshire, Loureiro Engineering Associates, May 22, 1997.
2. Comprehensive Monitoring Evaluation, W. W. Cross Waste Water lagoon, Black and Decker Corporation, Jaffrey, New Hampshire, New Hampshire Department of Environmental Services, September 1992.

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5. Sign Off

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Approved by John M. Regan Date March 17, 1998

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