1. Applicable or relevant and appropriate requirements and Remedial Action objectives

This section discusses the potentially applicable or relevant and appropriate requirements (ARARs) and remedial action objectives (RAOs) for the Satralloy Site (Site). RAOs are site-specific goals for protecting human health and the environment. They take into consideration the site-specific risk assessments and ARARs. Although the State of Ohio oversees the remedial activities at the Site, the ARARs and RAO process suggested in EPA guidance (EPA 1988b), §121(d) for CERCLA remedial activities provides the framework for this discussion.

* 1. Potential Applicable or Relevant and Appropriate Requirements

Identification of ARARs must be made on a site-specific basis and involves a two-part analysis: first, a determination is made whether a given promulgated requirement is applicable; then, if it is not applicable, a determination is made whether it is both relevant and appropriate. A requirement may be either “applicable” or “relevant and appropriate,” but not both.

Applicable requirements are defined as cleanup standards, requirements, criteria or limitations promulgated under state or federal environmental laws that specifically address a hazardous constituent, remedial action, location, or other circumstance found at a site.

Relevant and appropriate requirements are cleanup standards, and other substantive requirements, criteria, or limitations promulgated under state or federal laws that, while not ‘applicable’ to a site, address problems or situations sufficiently similar to those encountered at a site that their use is well suited to the particular site.

Promulgated requirements that are neither applicable nor relevant and appropriate at the site are not ARARs.

* 1. Discussion of Potential ARARs

Potential ARARs are comprehensively evaluated in Table 1, which has been approved by the OEPA for the Site (OEPA 2022). The following discussion of ARARs focuses on the most significant potential ARARs.

* + 1. Air Pollution Control (APC)

The Clean Air Act (CAA) regulates emission of pollutants to the air. In Ohio, CAA authority has been delegated to the State of Ohio by the USEPA and is implemented by law at ORC Chapter 3704 and the corresponding rules in the OAC.

Any remedial action that involves excavation, consolidation, or crushing of concrete or slag may trigger APC regulations due to the generation of dust from these activities, which would result in particulate emissions. Air regulations governing stack emissions or activities or conditions that do not occur at the Site (e.g., open burning) are not ARARs.

Asbestos removal has been completed at the Site in compliance with OAC Chapter 3745-20. All asbestos containing materials were removed from the site. The Site is not an asbestos disposal site.

* + 1. Waste Management

Regulations related to waste management include solid and infectious waste, construction and demolition debris and hazardous waste.

* + - 1. Hazardous Waste (HW)

The Resource Conservation and Recovery Act (RCRA) and federal regulations define “hazardous wastes”. In Ohio, RCRA authority has been delegated to the State of Ohio by the USEPA and is implemented by law at ORC Chapter 3734 and the corresponding rules in the OAC.

Future Site remediation will be conducted pursuant to the U.S. EPA Area of Contamination (AOC) policy and the issuance by the Director of the OEPA of an exemption under Section 3734.02(G) of the Ohio Revised Code (“02(G) Exemption”).[[1]](#footnote-1) The AOC policy, which interprets certain activities as not constituting generation or active management, and the 02(G) Exemption are designed to facilitate and encourage remediation, such as that contemplated for the Site. Thus, RCRA obligations will not be triggered regardless of the extent of future Site remediation.

* + - 1. Non-Hazardous Waste

OAC Chapter 3745-27 contains regulations pertaining to solid and infectious wastes. Many of these regulations are intended for specific solid waste facilities and conditions that do not occur at the Site. They include rules governing explosive gas, incineration of waste, infectious waste, open burning, residual solid wastes, sanitary landfills, and transfer facilities.

OAC Chapter 3745-400 contains regulations governing the management of construction and demolition debris (C&DD) in Ohio. Similarly, many of these regulations are intended for specific C&DD facilities and conditions that do not occur at the Site. They include rules governing facility design requirements, construction specifications, operation of facilities, final closure of facilities, and financial assurance for C&DD facilities.

Regulations covering disposal of non-hazardous waste could be applicable to on-Site consolidation of some Site materials (e.g., slag). A 02(G) Exemption will be requested to allow the selected remedy to be based on Site-specific considerations of risk and risk reduction.

* + - 1. 3734.O2(G) Exemption

A 02(G) Exemption from the Director will be requested prior to managing any materials at the Site that could be considered solid or hazardous waste or C&DD. The 02(G) Exemption will allow implementation of a remedy based on Site-specific considerations of risk and risk reduction.

Specifically, ORC Section 3734.02(G) states, in pertinent part, that “[t]he director, by order, may exempt any person generating, collecting, storing, treating, disposing of, or transporting solid wastes, infectious wastes, or hazardous waste………in such quantities or under such circumstances that, in the determination of the director, are unlikely to adversely affect the public health or safety or the environment from any requirement to obtain a registration certificate, permit, or license or comply with the manifest system or other requirements of this chapter.” On July 26, 2013, the Director of the Ohio EPA issued Director’s Final Findings and Orders (DFFOs) exempting Cyprus Amax from the requirements to comply with ORC Chapters 3714 and 3734 and the rules promulgated thereunder during the implementation of the approved RI/FS Work Plan and the approved IA Work Plan at the Site. Cyprus Amax will be requesting that the Director issue a further 02(G) Exemption to facilitate the remediation of the Site once a remedy has been approved by the agency.

* + 1. Division of Surface Water (DSW)

The Clean Water Act (CWA) regulates discharges of pollutants to surface water. In Ohio, CWA authority has been delegated to the State of Ohio by the USEPA and is implemented by law at ORC Chapter 6111 and the corresponding rules in the OAC.

The Site is not an active industrial facility and thus does not produce an industrial process water discharge. Site seeps and surface water may contain COPCs (particularly chromium) originating in slag. Surface water from the Site discharges under County Road 74 into Cross Creek through a number of culverts. Cyprus Amax has obtained a discharge permit under the Ohio EPA Industrial Storm Water General Permit related to discharges into Cross Creek affected by Site COPCs.

On-Site wetlands and surface waters regulated under the federal CWA and State of Ohio regulations have been identified on the Site. These wetlands may be affected during remedial activities, and will be managed under their corresponding state and/or federal regulations.

* + 1. Groundwater (GW)

Groundwater monitoring wells exist on-Site and have been monitored to evaluate potential impacts from slag to groundwater quality. Regulations related to the design, construction, maintenance, and closure of groundwater monitoring wells are applicable to the Site.

There are no microbial contamination impacts, or radioactive impacts, and there are no drinking water wells on-Site or drinking water uses in Cross Creek. Therefore, regulations related to these conditions are not applicable.

1. Remedial Action Objectives

RAOs are site-specific remediation goals that define the desired outcome of actions taken to reduce human health or environmental risk due to chemicals of concern. Development of remedial action objectives requires consideration of potential human health and ecological risks and ARARs.

All COPCs were considered in the human health risk assessment (HHRA, Appendix A of the RI Report [Golder 2022]). The only COPC coming from Site slag that exceeded acceptable risk levels (excess cancer risk > 10-5 or hazard index > 1) was hexavalent chromium. Therefore, the RAOs below reference only hexavalent chromium with respect to acceptable risk levels.

The RAOs for remediation of the Site are:

* Reduce physical hazards at the Site
* Prevent direct contact with Site slag
* Prevent off-Site migration of Site slag with hexavalent chromium concentrations above acceptable risk levels in surface water or air
* Decrease the potential for leaching of COPCs from Site slag
* Prevent potable use of Site groundwater affected by Site COPCs
* Provide ecological habitat enhancements as part of the remedy
1. Preliminary Remediation Goals

Slag removal will be based on two criteria:

* Preliminary remediation goal (PRG) for hexavalent chromium
* Visible slag

The only COPC coming from Site slag that exceeded acceptable risk levels (excess cancer risk > 10-5 or hazard index > 1) was hexavalent chromium. Therefore, the only numeric PRG needed is for hexavalent chromium. Based on the exposure assumptions in the HHRA (Appendix A of the RI [Golder 2022]), to be below an excess cancer risk of 10-5 and a hazard index of 1.0, the PRG for hexavalent chromium is 63 mg/kg.

The Site slag is generally visually distinct from soil (although there are certain areas where slag and soil have been mixed in varying proportions and the slag is not visually distinct). Visually distinct slag will be removed first. Mixed soil and slag remaining on the soil surface, after removal of visually distinct slag, will be removed until the PRG is met in the removal grid. The Site will be divided into removal grids, and a grid will be considered to meet the PRG if the average surface concentration of hexavalent chromium is below the PRG.

Buried slag will be removed to the extent practicable. It is possible that some buried slag will not be found or will not be practicable to remove. Buried slag left in place will be covered by at least 2 feet of clean soil.

1. The letter from Michael Sherron of OEPA to Barbara Nielsen dated October 19, 2012 states: “Ohio EPA acknowledges that Cyprus has demonstrated that contamination appears to be present across the Site in the continuous and contiguous fashion that designation of the AOC requires, and thus we conclude that the AOC concept is applicable.” It is Cyprus’ view that the AOC policy alone is legally sufficient to allow the on-site management of the mineral by-products and wastes remaining at the Site, without the need for the 02(G) Exemption. Nevertheless, Cyprus is agreeable to obtaining an 02(G) Exemption, without waiving its position that the AOC policy is applicable and sufficient. [↑](#footnote-ref-1)