



POTENTIAL ENVIRONMENTAL EFFECTS, CONCERNS AND ISSUES TO BE ADDRESSED

Highlighted in this document are potential environmental effects, concerns and issues (as identified in the Screening Criteria Checklist) to be addressed in the Environmental Screening Process for the proposed Electric Arc Furnace Dust Recycling Facility located at 227-237 Brant Street, Hamilton, Ontario. Also recognized are positive effects of the project and relevant regulatory provisions/approvals that will be required. The items identified will be assessed by third party consultants and detailed in the Environmental Screening Report.

Surface and Groundwater

The facility will be designed in a manner to ensure that potential surface and groundwater impacts would be negligible. The potential for contamination is an important consideration and measures will be enacted to ensure the appropriate study and containment.

A qualified professional will assess hydrogeological features associated with the site. Surface and groundwater baseline data (e.g., measurements and elevations, flow patterns, chemistry) will be established to compare current site conditions against Ontario Ministry of the Environment, Conservation, and Parks (MECP) standards. If deemed necessary, a groundwater-monitoring network will be constructed onsite to analyze groundwater quality changes and track potential impacts. A Stormwater Management Plan will also be produced to assess potential drainage and erosion concerns and highlight mitigation measures.

Incoming waste shipments will include hazardous solid waste (*i.e.*, Ontario Waste Class 143 – residues from steel making) only. No liquid waste will be received at the site, significantly reducing risk associated with spills to the natural environment. Vehicles traveling to site will fully contain the waste material, to prevent a release, and will unload in closed silos located outside. There will not be any processing activities conducted outdoors, and no exposed storage piles will exist at the site. In accordance with Ontario Regulation 224/07, a Spill Prevention and Contingency Plan will be assembled before the site is operational, and all staff will be trained on it as part of their onboarding.

There will be limited liquid waste generated onsite from the High Temperature Metal Recovery (HTMR) process. Approximately 88% of generated wastewaters will be recycled by reverse osmoses and contained in storage tanks having secondary containment inside the processing building. The concentrated salt solution waste products will be shipped offsite via tanker truck for disposal. Regularly inspected sealed concrete floors and curbing inside the processing building will prevent potential leaks into the natural environment. Liquid waste transfers will take place indoors under direct supervision of facility staff, in accordance with the Standard Operating Procedure. Onsite generated waste streams will be registered with the Hazardous Waste Information Network (HWIN).

Air and Noise

Adverse air and noise impacts are not expected as the site will be designed to ensure that air quality and noise impacts are well-below the MECP criteria. As part of the air and noise study, all sensitive receptors in the area of influence of the facility (typically 1-km radius) will be identified, which may include houses, schools, hospitals, and places of worship (if any). Local air and noise quality, including existing industrial activities and emission sources, will be assessed.



An Emission Summary and Dispersion Modelling (ESDM) report, in accordance with Ontario Regulation 419/05, will be completed by a qualified professional as part of the ECA application. This process will include a detailed identification of all potential emission sources to the atmosphere, analysis of facility emissions and potential pollutants, collection of associated safety data sheets and equipment specifications (e.g., flow rates, stack dimensions, building and stack heights), and modelled off-site ground-level concentrations. An Air Quality Impact Assessment of emissions using the AERMOD dispersion model will be performed, and the results will be used to determine compliance with Regulation 419 Schedule 3 guidelines and standards. Property line and off-property concentrations will be compared to applicable criteria in order to evaluate air compliance.

Although the HTMR process is designed to prevent fugitive dust (all handling and storage of dust occurs in enclosed systems), a Best Management Practices document will be completed due to the potential metals content in fugitive dust. This document will consider emissions calculations and dispersion modelling results, but also identify sources of fugitive dust, potential receptors, and planned control measures. A Dust Monitoring Plan will also be created, and staff will be trained on it as part of their onboarding.

As part of ECA application a detailed Acoustic Assessment Report (AAR) will be completed to determine the maximum potential noise impacts at sensitive receptors. Noise levels (factoring in equipment installations, building layout, supplier and manufacturer recommendations) at sensitive receptors will be predicted based on the worst-case operating scenario and compared to the NPC-300 Guideline exclusionary limits. Potential offsite impacts will be modelled and compared to MECP noise guidelines using the CADNA-A sound propagation model, which is the preferred noise model of the MECP. Any proposed sources in the study that are found not able to meet the NPC-300 guidelines will be designed with the appropriate noise controls to achieve compliance.

In accordance with Ontario Regulation 419/05, an Air and Noise Environmental Compliance Approval (ECA) application will be submitted to the MECP for formal engineering review and approval.

It is important to note that implementing HTMR technology will have an overall net-positive impact on greenhouse gas emissions. This system generates significantly less carbon dioxide when compared to competitor technologies. As a local solution situated close to large steel manufacturers, this process eliminates transport of this waste stream into the U.S. for recycling or disposal, decreases operating temperatures when compared to direct fired processes, and reduces carbon dioxide generated (1.8 tonnes per tonne of zinc produced) when compared to sources from virgin mining.

Socio-Economic

An assessment will be conducted to determine impacts on neighbourhood community and character (including ecosystem form and function). Positive impacts include local employment opportunities, reduced reliance on landfills for electric arc furnace dust, cost-savings for local steel mills (*i.e.*, reduced landfilling fees, significantly reduced transport fees, etc.), less energy and water consumption relative to primary zinc production through mining, and a local Canadian solution to be proud of. A variety of consultations with community members will be held to seek public input and solidify relationships.

Truck traffic will be minimal as there will only be a maximum of four trucks entering/exiting the site per day, but the impacts of truck traffic will still be assessed by a qualified professional. On a grand scale, the elimination of long



distance truck haulage of electric arc furnace dust waste will reduce highway congestion (calculations show a reduction of over 1,500 trucks per year, which travel more than 1,000 km per trip, and consume more than 600 L per trip, which results in a savings of 900,000 L of fuel annually) and eliminates reliance on shipping this industrial waste across the border.

Impacts to public health and safety will also be assessed. In case of emergency, this facility neighbours the location of our Emergency Response Team. This team is trained to quickly respond to any type of chemical incident or spill and to remediate the environment back to pre-spill conditions.

Other

An application to amend the current Waste Disposal Site ECA will be submitted to the MECP for formal review and approval. The purpose is to gain approval to receive the aforementioned Ontario Waste Class, and to include various new onsite design and operational changes. A new Design and Operations (D&O) Report will be established, and all staff will be trained on this as part of their onboarding. Once approved by the MECP, Financial Assurance will be provided in accordance with the Ontario F-15 Guideline. Furthermore, all requirements of the Environmental Protection Act and Ontario Regulation 347 will be met at all times.

The HTMR process results in purified zinc, which can be used as feedstock in a variety of applications and replaces mining of virgin material. During the recycling process, a non-hazardous slag is created. There is potential for this material to be shipped to manufacturing facilities as an iron additive, otherwise, this material will be disposed. The HTMR process also creates a by-product hazardous wastewater, which will be fully contained and disposed at a local permitted hazardous waste facility.

A general assessment of any other potential negative environmental effects, not addressed in the Environmental Screening Checklist, will be examined to ensure no important considerations are overlooked.