

Overview of Assessment of Air Emissions from Reserve Management Group (RMG) Operations

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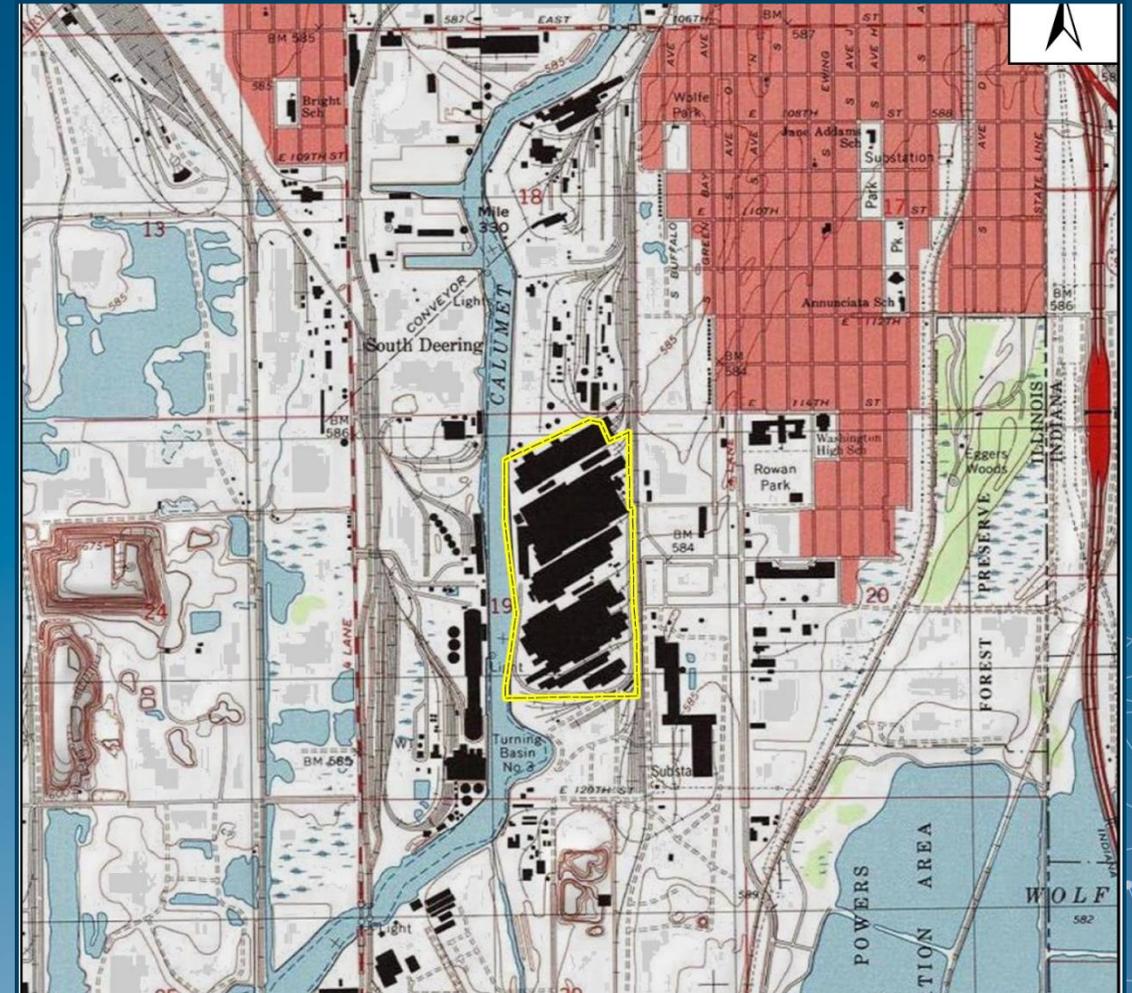
Presentation Topics

- Properties Assessed
- Surrounding Residential Communities Evaluated
- Site Operations and Activities
- Air Emissions Sources Evaluated
- Air Quality Dispersion Modeling
- Human Health Risk Assessment
- Representative EPA Guidance
- Considerations
- Results



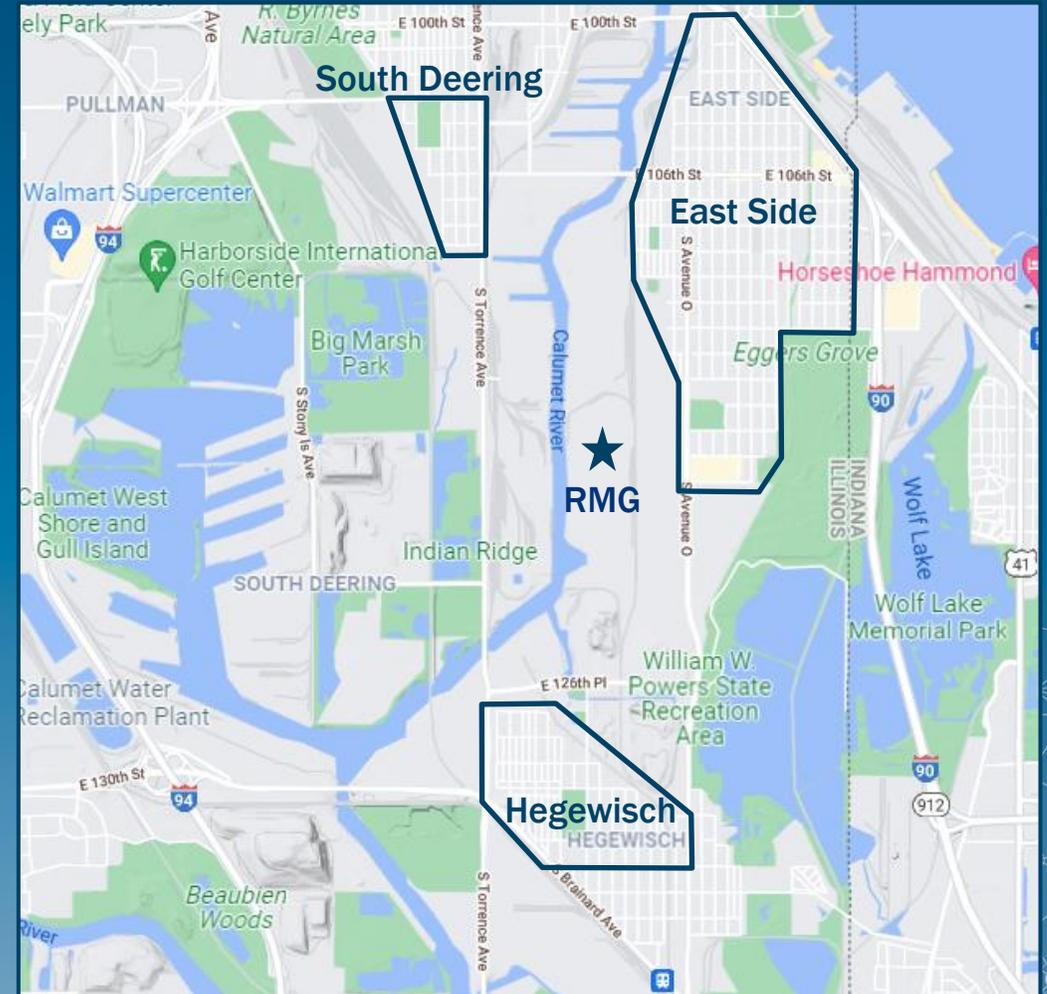
Properties Assessed

- Existing and proposed operations located at the RMG site (hereafter referred to as “the Site”).
- Comprised of several recycling facilities owned and operated by various companies under the RMG umbrella.
- Historically used for steel and coke production.
- Has been used for metals recycling for about two decades.



Surrounding Residential Communities Evaluated: East Side, Hegewisch, South Deering

- East Side is closest community to the site and vehicular traffic uses S. Avenue O to reach the site.
- Vehicular traffic to and from the site passes adjacent to Hegewisch .
- South Deering is located approximately 1 mile to the northwest.
- All three communities are potentially impacted by air emissions from the site as well as from surrounding industrial operations.



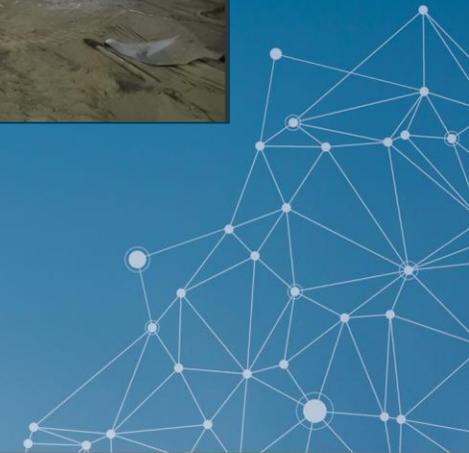
Site Operations and Activities

- Southside Recycling – Scrap metal and automobile recycling; shredder constructed but not operational.
- South Shore Recycling – Ferrous and non-ferrous scrap metal recycling.
- Reserve Marine Terminals (RMT) – Ferrous and non-ferrous scrap metal recycling as well as foundry sand recycling.
- Napuck Salvage of Waupaca (NSW) – Aluminum and mixed metal scrap and auto cast recycling.
- Regency Technologies – Small used electronics recycling.



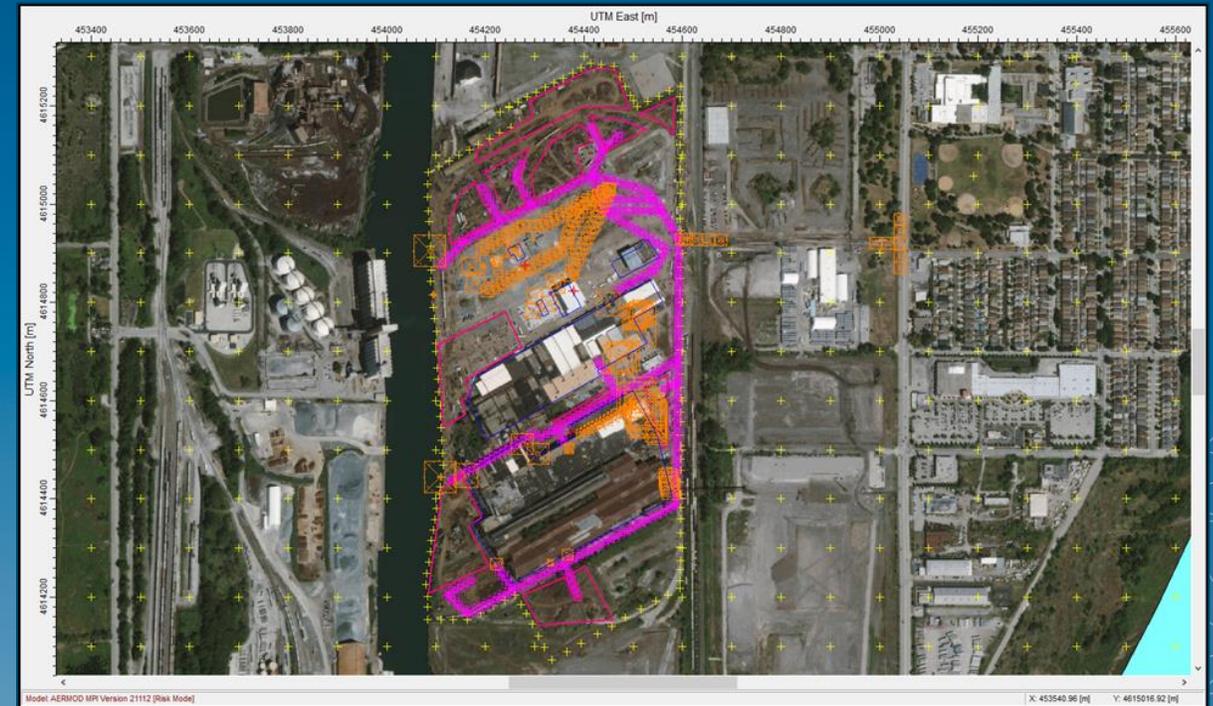
Air Emissions Sources Evaluated

- Outdoor scrap metal and foundry sand stockpile activities.
- Material handling, loading, and unloading, both indoor and outdoor.
- Crushing, shearing, sorting, and torch cutting.
- **Mobile equipment located on Site:**
 - Fugitive dust from travel over unpaved surfaces;
 - Diesel engine exhaust emissions.
- **Vehicular traffic to and from Site** traveling on public paved roads.



Air Quality Dispersion Modeling

- Computer modeling simulates the transport of emissions downwind of the site.
- Calculates ambient air concentration in the communities.
- Calculates the amount of emissions deposited to soil in communities over time.
- Uses the following information:
 - Local meteorology (Hammond in this case)
 - Calculated emissions
 - Emissions source locations
 - Impacted population locations



Human Health Risk Assessment

- **Process to estimate the probability of adverse health effects.**
- **Who is evaluated:**
 - Children
 - Adults
- **Exposure duration evaluated:**
 - Years (chronic)
 - Single hour (acute)
- **Locations considered:**
 - Residential areas
 - Sensitive locations (schools, parks, hospitals, churches, daycares, etc.)
 - Water bodies and watersheds
 - Current and reasonable potential future use



Human Health Risk Assessment

- **Exposure pathways considered:**
 - Breathing (inhalation; direct pathway)
 - Eating (ingestion; indirect pathway)
 - Homegrown produce consumption
 - Incidental soil consumption
 - Fish consumption
 - Breast milk consumption (infants only)
 - Touching (dermal; indirect pathway)
 - Insignificant; not evaluated per EPA guidance
 - **Benchmarks**
 - Cancer-causing compounds (carcinogens) = Less than 1 excess cancer risk per million people (1×10^{-6}).
 - Non-carcinogen compounds (no appreciable risk of adverse health effects) = Less than a Hazard Index of 1 – acute and chronic hazards evaluated, each with their own Hazard Index.
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Representative EPA Guidance

- **Framework followed: EPA's Human Health Risk Assessment Protocol (2005)**
 - “This protocol is a “snapshot” of current risk assessment science, and we encourage you to evaluate updates and alternatives to the recommended parameters (e.g., toxicological benchmarks; exposure factors) when they become available.”
- **EPA Regional Screening Levels (2021)**
- **EPA Regional Removal Management Levels (2021)**
- **EPA Integrated Risk Information System (2021)**
- **Department of Energy (DOE) Protective Action Criteria (2018)**
- **EPA Exposure Factors Handbook (2011)**
- **EPA Guideline on Air Quality Models (2017)**
- **EPA AERMOD Dispersion Model User's Guide (2021)**
- **EPA AP-42 Compilation of Air Emissions Factors (various years)**
- **EPA Motor Vehicle Emissions Simulator (2021)**



Considerations

- **Assesses current and reasonable potential future land use**
 - Assesses only the current and proposed RMG site and associated traffic on public roads.
 - Assumes activity occurs 24 hours per day, 7 days per week (Site does not operate at night or on Sundays).
 - Does not consider historic industrial uses.
 - Does not consider other industrial activity in the area.
 - **Assumes a resident is occupying a single location 24 hours per day, 7 days per week, 365 days per year for as long as 70 years.**
 - **Sensitive locations (schools, parks, daycares, hospitals, churches, etc.) assume all residential exposure factors.**
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Results

- **Calculated risks and hazards for residential areas and sensitive locations are less than benchmark thresholds for carcinogenic risks and non-carcinogenic hazards.**
 - Calculated carcinogenic risk is less than the EPA benchmark of one additional cancer per million exposed residents ($< 1 \times 10^{-6}$ – low end of EPA’s acceptable risk range).
 - Calculated non-carcinogenic acute and chronic hazards are less than the EPA benchmark of a Hazard Index less than one, considered by EPA to represent no appreciable risk of adverse health effects (Hazard Index < 1).
 - **The considerations presented on the previous slide for current and reasonably foreseeable future uses of the Site contribute to the overestimate of cancer risk and acute and chronic hazards at offsite locations. Therefore, actual risks and hazards are expected to be less than those calculated.**
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