FUGITIVE DUST CONTROL

These case study examines the challenges and innovative solutions in fugitive dust control, highlighting EC Contractor's expertise in sustainable mitigation strategies. By leveraging plant-based, eco-friendly products and strategic partnerships, EC Contractors has enhanced environmental protection, improved site safety, and fostered local economic development.

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WHO WE ARE

Erosion Control Contractors Inc. (ECC) was founded in 2008 with a mission to provide environmentally sustainable erosion control solutions. Our services primarily include hydroseeding and fugitive and road dust mitigation, among others, all designed to maximize efficiency and minimize environmental impact.

At ECC, we are certified **Erosion and Sediment Control Specialists** who implement industry-leading Best Management Practices (BMPs), integrating research and innovation to deliver effective, eco-friendly solutions. We prioritize environmental stewardship by sourcing and using only plant-based, biodegradable, and natural materials wherever possible.

Beyond service delivery, ECC is committed to education and knowledge-sharing, empowering individuals and organizations to make sustainable choices for **land preservation and habitat protection.**

DustFloc™ 1.0 – FUGITIVE DUST MITIGATION (for non-traffic areas)

At ECC, environmental protection is our top priority. As the exclusive Canadian partner and distributor of DustFloc™ 1.0 and 2.0, we provide a biodegradable, plant-based polymer that is salt-free, non-toxic non-corrosive and effectively controls fugitive dust without harmful chemicals.

About DustFloc™ 1.0

- **USDA BioPreferred Certified** – Plant-based, salt-free, non-toxic, and biodegradable.
- **Long-Lasting** – Up to 90-day guarantee (dependent upon site conditions), even in high winds (up to 165 km/hr).
- **Eco-Friendly** – Unlike traditional water-based methods, DustFloc™ conserves millions of gallons of water annually.

How it works

- **DustFloc™ 1.0** creates a ¼ to ½ inch thick crust atop the areas being sprayed. This crust protects the area from erosive elements.
- It is good for areas with **no foot traffic** (foot traffic breaks down the top crusty layer, rendering it less efficient) and can be sprayed next to a watercourse.
- Loses protective capacity at 1km/hr/day, reaching a threshold capacity of 75km/hr by day 90. Recommend reapplication every 90 days or as per site-specific mandate.

> "With 15 million acres of land under construction globally consuming approximately one trillion gallons of water per day for dust abatement, using a sustainable palliative like DustFloc™ 1.0 and 2.0 will help us conserve billions of gallons of water".
>
> "Take care of the earth and the earth will take care of you."
>
> **NNTC**

Sustainability Benefits

Traditional water-based dust control methods require frequent reapplication, whereas our product offers a long-lasting alternative, reducing water usage and improving efficiency.

- **Reduced Water Usage** – Less frequent applications compared to conventional dust control methods.
- **Regulatory Compliance** – Supports ISO 14001 environmental standards and emissions reductions.
- **Lower Operational Costs** – Fewer applications mean improved efficiency and cost savings.

Case Study:
DustFloc™ 1.0 at Teck HCV

Wind erosion and industrial activities generate road and fugitive dust, which consists of airborne particulate matter that can pose serious health, environmental, and regulatory concerns. **As the Ministry of Energy (2018) notes:**

"Particulates of various size fractions can become suspended in high concentrations, becoming a hazard or nuisance for the public, reducing visibility, contaminating property and country foods, while the finer, respirable fraction can have acute and chronic health impacts."

In addition to respiratory risks, fugitive dust can transport heavy metals and contaminants, affecting both on-site and off-site environments. Contaminants deposited in terrestrial and aquatic ecosystems can lead to:

- Habitat degradation and loss
- Increased mortality rates in aquatic species
- Bioaccumulation of toxins in the food chain (DFO, 2017)

Case Study:
DustFloc™ 1.0 at Teck HCV

Managing fugitive dust is particularly challenging due to multiple environmental and operational factors, including wind, humidity, precipitation, heavy equipment operation, and vehicle movement.

Since 2014, ECC has collaborated with Teck at the Highland Valley Copper (HVC) Project to control fugitive dust at the LL Dam during arid summer months. Our annual application of DustFloc™ has provided valuable insights into managing logistics, resources, and challenging terrain conditions at large-scale mining operations.

Site/Project Information

- Project Scope: The Teck HVC Project spans 50,000 hectares, with dust control efforts focused on LL DAM, which encompasses an extensive 800-acre tailings area.
- Operational Challenges: LL Dam operates with heavy machinery, large stockpiles, and extensive haul roads, making dust suppression critical for both worker safety and environmental protection.
- Climate & Conditions: The site is located in an arid region with extreme temperatures, high winds (up to 80 km/hr), and dry conditions—factors that make dust control both essential and complex.

Challenges Addressed

- **Product Delivery:** DustFloc™ 1.0 is delivered in dry powder format in 50lb recyclable paper bags (as opposed to liquid format; liquid totes are not recyclable)

- **Appropriate DustFloc™ 1.0 Application to meet Site needs:**

1. *DustFloc™ 1.0 dry powder is mixed with water in a hydroseeder with agitation.*
1. *Applied at 100lbs/acre (best application rate for LL Dam to withstand the arid site and environmental conditions).*
2. *DustFloc™ 1.0 creates a crusty top layer capable of withstanding wind gusts of up to 165km/hr (with no foot traffic).*
3. *The product's wind resistance gradually diminishes over time, decreasing by approximately 1km/hr/day; 90-day guarantee to maintain integrity (depending on site conditions).*
4. *Two applications are provided between May and October each year to mitigate the harsh conditions faced in the drier months.*

- **Worker Safety:** Effective dust control improves visibility and reduces respiratory hazards for site personnel.

- **Environmental Protection:** Sustainable suppression methods help preserve natural flora and fauna while minimizing off-site contamination.

- **Operational Efficiency:** Reliable dust control solutions support **regulatory compliance, reduce downtime, and enhance overall site productivity.**

The Evolution of our Approach

Initially, ECC handled all aspects of dust control—including manpower, equipment, and material supply—directly. However, in 2022, ECC formed a strategic partnership with a fully Indigenous-owned construction company affiliated with the Nlaka'pamux Nation Tribal Council (NNTC).
This collaboration has:

- **Enhanced local economic development** by creating new job opportunities.
- **Strengthened operational efficiency** through shared expertise and resources.
- **Fostered community engagement** while ensuring continued dust control success.

Our Role Today

ECC now provides:

- **Training & Education** – Equipping Indigenous personnel with dust control expertise.
- **Oversight & Support** – Ensuring best practices, regulatory compliance, and quality control.
- **Material & Equipment Supply** – Delivering proven dust suppression products and application tools.

Results & Impact

✅ **Strengthened local workforce capabilities** through training and employment.

✅**Maintained regulatory compliance** while improving environmental conditions.

✅**Created a scalable, community-driven dust control model** adaptable to other sites.

ECC remains committed to delivering flexible, client-focused solutions from full-service dust control management to consulting and sustainable material supply.

DustFloc™ 2.0 –
ROAD DUST MITIGATION (for traffic areas)

About

✓ USDA BioPreferred Certified – Plant-based, salt-free, non-toxic, and biodegradable.
✓ An effective soil binder for dust abatement and soil stabilization.
✓ Can be used on lighter and medium traffic roads and heavy haul roads

How it works

✅ DustFloc™ 2.0 ‘sinks’ into the area being sprayed, creating an aggregate and ‘weighing down’ the particulate.
✅ Cures fast, leaving the surface skid-free.
✅ Application rates vary based on the amount of traffic seen.
✅ For heavy traffic areas, the recommended reapplication rate is every 2-5 days, depending on site conditions. For moderate traffic areas, between 1 and 4 weeks.

Case Study: DustFloc™ 2.0 at Enbridge Inc.

Challenge:
Enbridge Inc., a Canadian energy company, faced severe dust issues at its 130 MW solar farm in Jim Wells County, Texas. Persistent dust created safety hazards, regulatory fines, and excessive water consumption for mitigation efforts.

Solution:
DustFloc™ 2.0, a natural polymer-based dust suppressant, was applied through existing water trucks. The product quickly stabilized road surfaces without causing slipperiness.

Results:
✓ Immediate dust suppression lasts 48–72 hours per application.
✓ Eliminated regulatory fines for excessive dust.
✓ Reduced water consumption by 90%, lowering operational costs.
✓ Improved worksite safety, allowing uninterrupted vehicle movement.
Enbridge's safety inspectors praised the effectiveness of DustFloc™ 2.0, leading to its adoption across additional sites.

FINAL THOUGHTS & NEXT STEPS

This **strategic, community-driven dust control model** has set a **new standard in responsible mining and construction practices.** Looking ahead, ECC aims to:

- **Expand** DustFloc™ applications across multiple industries.
- **Foster additional partnerships** for sustainable solutions.
- **Continue innovating** in dust control and erosion management.

By prioritizing **environmental sustainability, regulatory compliance**, and **operational efficiency**, ECC remains a **leader in fugitive dust mitigation.**

Interested in learning how this approach can work for your site? Let's discuss how we can tailor a solution for you.

Let's Work Together

Erosion Control Contractors Inc. delivers sustainable solutions for soil erosion and dust control. We specialize in hydroseeding, slope stabilization, sediment control, and DustFloc application, working with construction companies, mines, developers, and municipalities.

With years of expertise, our team provides tailored, eco-friendly services that meet regulatory standards and minimize environmental impact. At **Erosion Control Contractors Inc.**, we are dedicated to protecting the environment and ensuring the success of every project.

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