

# FIELD PROJECTS OF HYDROCARBONS REMEDIATION (2003 AND 2005)



## RESEARCH COOPERATORS

Luscar and Imperial Oil Resources.

## TRIAL PROTOCOL

To determine the effect of humic substances (Black Earth Liquid 12% and Dry Soluble 80) in enhancing remediation of hydrocarbons in soil.

## CERTIFICATIONS

Black Earth Humic products are:

- » Listed by OMRI
- » Registered with CFIA
- » Certified for use for NOP
- » Certified by the CDFA



## EXPERIMENT – FIELD PROJECTS

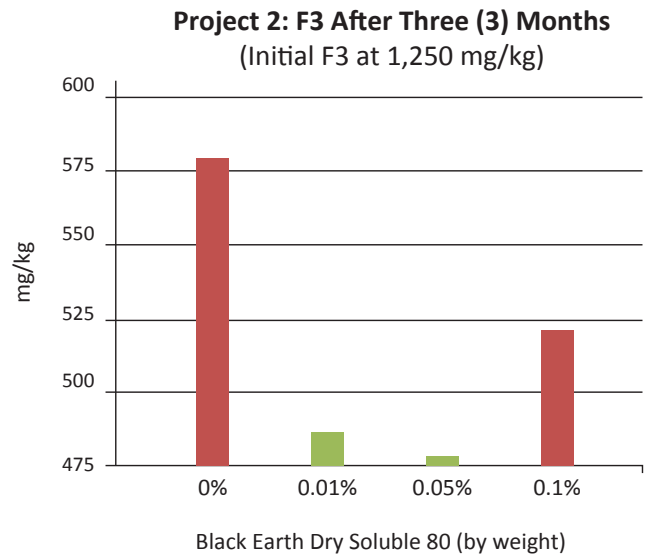
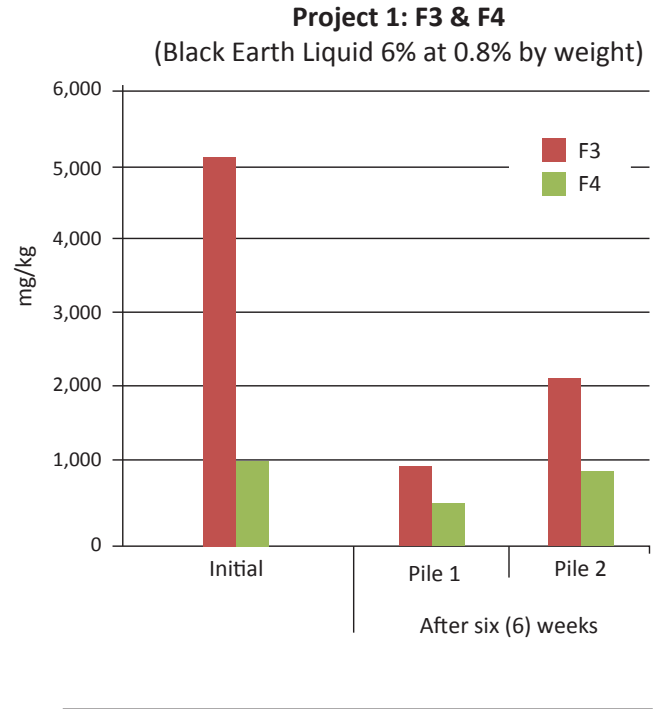
	Project 1	Project 2
Participant:	Luscar	Imperial Oil Resources
Year:	2002 – 2003	2004 – 2005
Location:	North Central Alberta	North Central Alberta
Texture:	Clay loam	Silty loam
Volume (m <sup>3</sup> ):	750	150
pH:	7.5	7.3
Contamination:	1970s	1960s
F3 (mg/kg):	5,200	1,250
F4 (mg/kg):	1,000	N/A
Amendment:	Black Earth Liquid 6% at 0.8%, biomulch at 10%	Black Earth Soluble 80 at 0 to 5%
Duration:	Six (6) weeks September – October 2002	Three (3) months June – September 2004

## TREATMENT & ANALYSES

Humic substances enhanced nutrients uptake and growth of soil microorganisms, resulting in reduction of hydrocarbons in soil. Luscar (2003) mixed contaminated soil with biomulch and Black Earth Liquid 6% at 10 and 0.8% by weight, respectively. The treatment was duplicated, each pile was mixed weekly. The treatment was completed in six (6) weeks. Imperial Oil Resources (2005) mixed contaminated soil with Black Earth Dry Soluble 80 at 0 to 0.5% rates by weight. Each pile was mixed twice throughout the treatment, lasted for three (3) months. Composite samples were taken and analyzed for F3 (C<sub>16</sub> to C<sub>34</sub>) and F4 (> C<sub>34</sub>).

## RESULTS


Black Earth Liquid 6% at 0.8% rate reduced F3 and F4 levels significantly, averaged at 72 and 40%, respectively. Black Earth Soluble 80 at 0.05% rate lowered the initial F3 (62% reduction) better than control (54% reduction). Black Earth Dry Soluble 80 at higher rates would not be beneficial likely due to the increase of soil salinity.



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