

**COMPARING BACKGROUND TO IMPACTED MICROBIAL ACTIVITY TO DETERMINE  
MICROEFFECTS OF A CRUDE OIL RELEASE IN A TROPICAL RAINFOREST**

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An oil battery (Site) located in the Amazon rainforest experienced releases of crude oil that resulted in a large impacted area of approximately 8 hectares. Aerial photographs from 1996 provided insight to the extent of the overall impact. Quickbird images from 2008 indicated a reduced impact and significant natural recovery of both indigenous and non-indigenous flora (cattails). A case was made to the national environmental agency for limited aggressive remediation followed by natural attenuation and recovery. To make that case, the use of molecular biological tools (MBT's) on five sediment samples collected at the Site was conducted. The MBT's used included two specific types of microbial analysis. The first was Denatured Gel Gradient Electrophoresis (DGGE) analysis to ascertain what dominant indigenous microbes are present at the Site. The second was Quantitative Polymerase Chain Reaction (qPCR) analysis to elucidate any microbial activity related to the degradation of the crude oil. The analyses were intended to indicate what effect (if any) the crude oil had on the indigenous microbial community and/or microbial activity at the Site. The diverse enzyme activity identified by the MBT's in both the background and the most oil- impacted areas suggests that the presence of the crude oil has not inhibited the growth or activity of these indigenous microbes and that active biodegradation is occurring in the impacted areas.

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