

# EFFECTS OF METHANE LEAKS ON VETIVER GROWTH



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## **INTRODUCTION**

**Due to its high level of tolerance to adverse conditions and particularly heavy metal concentrations, Vetiver Grass has been used extensively in Australia and China for rehabilitation of landfill and treating landfill leachate.**

**When methane gas is not tapped, Vetiver grass can be planted on top of the dump covered by a layer of soil.**

**The following photos show the growth of Vetiver on the side slope of an 5 year old landfill in Australia and a new landfill in China .**

# EFFECTS OF METHANE LEAKS ON VETIVER GROWTH

When not covered by membrane, methane leaks are fairly common on old landfills, they tend to stop and start and shifting randomly around the site.

**In general the damages caused by the leaks are fairly temporary and has little impact on vetiver growth.** Even in severe cases, vetiver was not killed and could recover slowly

- In mature plants it causes discoloration (yellow) in vetiver leaves. When the leak stops, vetiver leaves return gradually to its normal green colour
- In newly planted plants, the effect is more severe and plant growth is badly affected, but not killed. Growth will resume when the leaks stop

The following slides show the effects of methane leaks on vetiver growth on an old landfill in Brisbane, Australia. Vetiver was planted for erosion and seeping leachate control

**The side slope of this old dump was initially covered with 1m of soil, but seeping leachate killed the plant cover and initiated erosion**



**One week after planting, Vetiver was planted on contour line to control soil erosion as well as leachate seepage.**



**One week after planting**



## Six weeks after planting



# Ten weeks after planting





**Young vetiver plants are more susceptible to methane leaks, but gradually resume growth when the leaks stop**



# Methane leak affecting young plants



**But fully recovered later**



# Methane leak affecting old plants



**But fully recovered later**



**Typical symptoms of methane leak on a mature vetiver plant.  
Chlorosis normally start on young shoots at ground level, where the  
gas comes out**





**If not badly affected,  
almost full recovery  
after a few months,  
starting with new  
growth from the  
bottom up**





**Even in severe case,  
gradual recovery  
after 3-4 months  
after the leak  
stopped**





**In less  
affected case,  
faster  
recovery.**



**One year after planting, with little effects on vetiver growth**



**Three years after planting, with little effects on vetiver growth**

