

BILLY E. (GENE) MCGOWEN



## Rent-A-Can Toilet Co.

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STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
ANCHORAGE DISTRICT OFFICE  
800 E. DIAMOND BLVD. SUITE 3-470  
ANCHORAGE, ALASKA 99515

ATTN: ROBERT WEIMER, ENVIRONMENTAL SPECIALIST

RE: SPILL # 91-2-1-1-295-1 FILE # L55138

ENCLOSED FOR YOU IS A REPORT PERTAINING TO THE CLEANUP OF THE CONTAMINATED SOIL INVOLVED WITH THE ABOVE SITE SPILL #. WE WANTED TO SEE IF THE COMMERCIAL PRODUCT OIL SPILL EATER, MANUFACTURED BY OSEI CORPORATION, WOULD MITIGATE THE HYDROCARBON CONTAMINATION. BECAUSE OF THE SMALL QUANTITY OF CONTAMINATION, WE TREATED ALL THE SOIL AT THE SAME TIME INSTEAD OF JUST A SMALL TRIAL PLOT. AS YOU CAN SEE IN THE REPORT, THE SOIL HAS BEEN CLEANED TO BELOW THE ADEC GUIDELINE OF 100 PPM. THEREFORE, WE REQUEST THAT YOU ACCEPT THIS REPORT AS A REMEDIATION PLAN AND ALSO GRANT US A SITE CLOSURE PER THE RESULTS OF THE INCLUDED FINAL TEST RESULT OF THE BIOREMEDIATION. WE ALSO ARE REQUESTING TO SPREAD THE CLEAN SOIL ON OUR PARKING LOT AS ADDITIONAL AERATION WILL CONTINUE THE BIOREMEDIATION PROCESS TO UNDETECTABLE LIMITS ASSUMING THERE IS NO RUN OFF FROM SPRINGBROOK DRIVE WHICH WE FRONT ON AND IS OILED REGULARLY. WE WILL NOT SPREAD THE SOIL UNTIL AFTER YOUR REVIEW AND APPROVAL.

REGARDS,

WAYNE CROMWELL  
MANAGER

WC/CS



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## **RENT A CAN**

**EAGLE RIVER, ALASKA**

### ***BIOREMEDIATION OF CONTAMINATED SOILS***

**AUGUST 28, 1992**

For: Mr. Wayne Cromwell  
Rent a Can  
P.O. Box 770433  
Eagle River, Alaska  
99577

Prepared by: Steve Karcz  
OSEI of Alaska  
PO Box 190151  
Anchorage, Alaska  
99519

This report represents the results of the bioremediation of contaminated soil located at the Rent a Can Shop, 12211 Springbrook Drive, Eagle River, Alaska. The goal was to reach a total petroleum hydrocarbon (TPH) level acceptable to the Alaska Department of Conservation (ADEC) by bioremediation using Oil Spill Eater (OSE), a biocatalytic nutrient, to enhance the growth of the local indigenous bacteria found in the contaminated soil. The acceptable level to be low enough to dispose of the soil as back fill on site. This report shows that independent companies with petroleum contaminated soils can clean the soil very inexpensively on site.

## THE NUTRIENT

Oil Spill Eater is a biodegradable, non-toxic, water soluble, liquid nutrient. Oil Spill Eater stimulates and accelerates natural biological reactions. There are no petroleum components or any cultured bacteria in OSE. Oil Spill Eater rapidly grows the existing hydrocarbon degrading bacteria into large colonies quicker than fertilizers due to its nutrient components. Oil Spill Eater's use in Alaska and abroad has been proven as a most effective means of mitigating hydrocarbons.

## CONTAMINATED SOIL

The contamination was believed to be diesel fuel which leaked from an underground storage tank. The soil was removed and stockpiled outside on a poly membrane. The amount was estimated to be 1 1/2 cubic yards. The TPH test showed a level of 3060 ppm by EPA test method 8100 MOD. Other EPA test methods, 8015 and 8020, also indicated diesel fuel was the probable contamination. The soil was permeable, consisting of mostly gravel up to two inches mixed with organics.

## REMEDICATION PLAN

A remediation plan was designed allowing the clean up to be conducted in treatment cells on location inside the Rent a Can shop. The amount of contaminated soil was relatively small allowing for remediation of all the material in a controlled environment. This also allowed easy and convenient access by their employees for the daily remediation labor.

## TREATMENT CELL

The treatment cells consisted of 55 gallon drums without lids. A six inch tall wooden grate was constructed to create a void at the bottom as a recovery sump. Filter fabric was then placed on top of the grate to prevent any soil from migrating into the sump. A two inch hole was drilled in to the grate in which a piece of two inch diameter PVC pipe was placed. The pipe was one-fourth of an inch from the bottom and reached to the rim of the drum. The pipe served as both a monitoring tube and as recovery access. A hand pump could then be placed into the PVC pipe and the effluent water/nutrient pumped back up so to percolate back down through the soil. The smallest aquarium air pump that could be found was obtained and air was injected through rubber tubing into the water in the sump. The drums were placed in the middle of the shop so to prevent any foreign contamination from entering the cells.

## WORK PLAN

The work plan consisted of placing the contaminated soil into the drum, treating it with Oil Spill Eater, and recycle the nutrient water mixture through the soil daily. The contaminated soil was mixed in a small loader prior to placement in the drum. This was done to help get a consistent TPH level throughout the drums of soil. Previous projects have shown that consistency of contamination throughout a soil pile is not naturally congruent due to excessive excavation of cleaner soils. Approximately 5.6 cubic feet fit into each created treatment cell.

The amount of Oil Spill Eater used was determined by the manufacturers formula. The treatment for light petroleums required .22 gallons of Oil Spill Eater per cubic yard of soil. The amount of OSE required 5.8 ounces for 5.6 cubic feet of soil. This amount was then mixed at a 1 to 100 ratio with unchlorinated water. A well located on site was the water source for this project. Five hundred eighty ounces of water was mixed with the 5.8 ounces of OSE per drum.

The nutrient mixture was applied with a sprinkler type watering can at the surface of the drum. The rate of application was slow enough to prevent ponding on the surface to ensure a consistent percolation through the soil matrix.

The nutrient solution was pumped to the surface daily so it could percolate back down through the soil. This kept the soil at a high moisture content. The treatment began on April 9, 1992, and the pumping schedule continued through July 10, 1992 on a regular basis. There was no pumping on the weekends. Plain, unchlorinated water was added as needed to maintain moisture content.

## *SAMPLING*

An initial sample was taken prior to the nutrient application to determine a starting TPH. Twelve weeks later, the first treated sample was extracted after the initial treatment. The sample was taken approximately 10 inches down into the matrix with the exact location marked. This would provide that both the initial and treated samples came from the exact location which would lessen any contamination inconsistency throughout the soil. The ten inch depth was chosen to assure volatilization or evaporation would not be a factor on the lighter end hydrocarbons. The samples were then taken to Chemical & Geological Laboratory in Anchorage for testing. The initial sample was tested by EPA Method 8100 Modified. This test was chosen as previous tests were available using the 8100 modified. The after treatment test was done by EPA Method 418.1.

## *RESULTS*

The initial TPH value after the soil had been homogenized in the back hoe bucket was 572 ppm. Test results prior to the bioremediation project showed 3060 ppm with the sample being taken from the known "hot" spot. The homogenizing was necessary for this project to show a consistent level of contamination throughout the soil so the testing would represent the entire drums of soil. Due to OSE's many test results, the first treated sample was not extracted for twelve weeks. This time frame was chosen as previous tests have shown the biodegradation curve and testing would not be economic. The first treated sample by Method 418.1 had a value of 76.6 ppm. With this value being below the Alaska Department of Environmental Conservation's acceptable value of 100 ppm as being clean, the tests were terminated.

## *CONCLUSION*

After 12 weeks of bioremediation, the homogenized soil which had a consistent contamination of 572 ppm (8100 Modified) was reduced to 76.7 ppm (418.1).

With this final value achieved below ADEC's acceptable guidelines limits, I submit this report to you and recommend you contact ADEC for their approval to spread the cleaned soil on your lot. This report should suffice as both a Remediation Plan and a Closure Request.

# STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

## DEPT. OF ENVIRONMENTAL CONSERVATION

ANCHORAGE DISTRICT OFFICE  
800 E. DIMOND BLVD., SUITE 3-470  
ANCHORAGE, ALASKA 99515

(907) 349-7755

December 7, 1992

Wayne Cromwell  
Rent-A-Can Toilet Co.  
P.O. Box 433  
Anchorage, AK 99577

Subject: 12211 Springbrook Drive, Eagle River site – Soil Disposal  
File#: L55.138

Dear Mr. Cromwell:

The Department has completed the review of the information you submitted and the file regarding the 1.5 cubic yards of remediated soils in drums at the above referenced site. The soils have been remediated to the most stringent cleanup levels and are approved to be spread on-site (as per verbal approval to you on 9/21/92).

If you have any questions concerning this letter, please contact me at the Anchorage District Office at 349-7755.

Sincerely,



Robert Weimer  
Environmental Specialist

RW/cf