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Environmental Protection Division
Environmental Compliance Programs (ENV-CP)
PO Box 1663, K490
Los Alamos, New Mexico 87545
505-667-0666

Date: JUL 02 2013
Symbol: ENV-DO-13-0054
LAUR: 13-24771

Ms. Susan von Gonten
Petroleum Storage Tank Bureau
New Mexico Environment Department
2905 Rodeo Park Drive, Building 1
Santa Fe, NM 87505

RECEIVED

JUL - 3 2013

NMED
Hazardous Waste Bureau

Dear Ms. von Gonten:

SUBJECT: PROPOSED WORK PLAN FOR BIOREMEDIATION OF CONTAMINATED SOIL AT THE RADIOLOGICAL LABORATORY/UTILITY/OFFICE BUILDING (RLUOB) ABOVEGROUND STORAGE TANK DIESEL RELEASE SITE #4670

On June 20, 2013, Los Alamos National Security, LLC (LANS) staff met with you and Mr. John Kovacs of the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) at the Los Alamos National Laboratory's (LANL) Radiological Laboratory/Utility/Office Building (RLUOB) Aboveground Storage Tank (AST) Diesel Release Site, #4670. During the meeting we expressed our concerns over having a continued, open excavation at the aboveground storage tank site. The excavation site has remained open and unchanged since soil samples were collected on March 19, 2013. We discussed some proposed actions and you stated the proposals needed to be submitted in a work plan to the PSTB for approval.

In a letter dated February 1, 2013, LANS submitted a Work Plan for the Removal of Soils Contaminated With Diesel Fuel Released From RLUOB AST 55-560 (LAUR-13-20652) to the PSTB and those activities have been completed. The purpose of this letter is to serve as an addendum to the February 1, 2013 work plan.

LANS is proposing the following additional work plan actions:

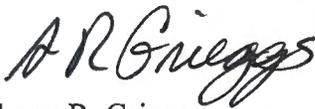
- A commercial bioremediation product will be applied with a hand sprayer to stained areas at a rate recommended by the product manufacturer on a daily basis (weekdays) for period of two weeks. The bioremediation product (Micro-Blaze) has been successfully used for several years by LANL's emergency response teams on small volume petroleum releases at LANL resulting from vehicle fuel leaks, heavy equipment ruptured hydraulic fluid lines, etc. Attached is information on the product from the U.S. Environmental Protection Agency Emergency Management web site <http://www.epa.gov/osweroe1/content/ncp/products/microbla.htm>.



- At the end of the two week period, soil samples will be collected from the excavation site for TPH-DR, VOCs and SVOCs. Required prior notice to NMED will be made to allow NMED representatives to be present during the sampling event.
- The location of the soil stained area on the floor of the excavation will be documented for possible future re-sampling.
- Following the sample collection, the excavation site will be backfilled with clean fill material. Areas around the skid pump transition sump and above the fuel lines may remain open to facilitate possible operational repairs/modifications to the AST pipelines and sump.
- The analytical results of the sampling will be provided to the NMED.

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 Due to the possible onset of periods of precipitation in July and August, the RLUOB facility personnel would like to be able to proceed with the bioremediation of the soil and the backfilling of the open excavation as soon as possible to stabilize the site. We would appreciate your timely review and approval of this work plan addendum. While you are continuing to evaluate the April 2013 preliminary assessment report, LANS would like to begin the bioremediation product application on July 15, 2013. If you have any questions, please contact Mr. Albert Dye of the Environmental Compliance Programs (ENV-CP) at dyea@lanl.gov or at (505) 667-4715.

Sincerely,



Anthony R. Grieggs
 Group Leader
 Environmental Compliance Programs, (ENV-CP)
 Los Alamos National Security, LLC

ARG:AD/lm

Enclosure: USEPA, Oil Program Center, Technical Product Bulletin #B-41

Cy: Jennifer Fullam, NMED/GWB, Santa Fe, NM, w/enc.
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ENCLOSURE 1

USEPA, Oil Program Center, Technical Product
Bulletin #B-41

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ENCLOSURE 1

LAUR-13-24771



http://www.epa.gov/osweroe1/content/ncp/products/microbla.htm

Last updated on Thursday, October 18, 2012

Emergency Management

You are here: [EPA Home](#) [Emergency Management](#) [NCP Subpart J](#) [NCP Product Schedule](#)
MICRO-BLAZE®

MICRO-BLAZE®

TECHNICAL PRODUCT BULLETIN #B-41
USEPA, OIL PROGRAM CENTER
ORIGINAL LISTING DATE: DECEMBER 18, 1991
REVISED LISTING DATE: JANUARY 21, 1997
"MICRO-BLAZE®"

I. NAME, BRAND, OR TRADEMARK

MICRO-BLAZE®
Type of Product: Biological Additive

II. NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER/CONTACT

Verde Environmental, Inc.
9223 Eastex Freeway
Houston, TX 77093
Phone: (713) 691-6468
Phone: (800) 626-6598
Fax: (713) 691-2331
Website: www.micro-blaze.com [EXIT Disclaimer](#)
Email: bscogin@micro-blaze.com
(Mr. William Scogin)

III. NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS

Verde Environmental, Inc.
9223 Eastex Freeway
Houston, TX 77093
Phone: (713) 691-6468 or
Phone: (800) 626-6598
Fax: (713) 691-2331
Website: www.micro-blaze.com [EXIT Disclaimer](#)
Email: bscogin@micro-blaze.com
(Mr. William Scogin)

IV. SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION

1. Flammability:
Non-flammable
2. Ventilation:
Normal room ventilation
3. Skin and eye contact; protective clothing; treatment in case of contact:
Avoid eye contact. Wear protective gloves, and wash hands with soap and water after handling the product. Wash contaminated clothing and footwear before reuse.
- 4.a. Maximum storage temperature: 120°F
- 4.b. Minimum storage temperature: 35°F

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- 4.c. Optimum storage temperature range: NA
 4.d. Temperatures of phase separations and chemical changes: NA

V. SHELF LIFE

Minimum 10 years, with proper storage, in original container. Freezing will not kill these microbes; however, extreme heat for long periods of time (over 180°F) will kill the microbes.

VI. RECOMMENDED APPLICATION PROCEDURE

MICRO-BLAZE® is a liquid formulation of several microbial strains, surfactants and nutrients designed to digest organics and hydrocarbons in soil and water as well as control odors.

1. Application Method:

Use normal spray equipment, fire or response equipment, eductor setups, water trucks, etc. as methods of application. Mix MICRO-BLAZE®/water mixture with contaminated soils and liquids thoroughly for maximum contact. Pick up treated contamination after volatile hazard has been negated per local regulatory parameters. For general bioremediation: For in-situ soils, mix MICRO-BLAZE®/water mixture can be tilled into the contaminated area. For shallower contamination, areas can be oversprayed with normal spray equipment, eductor setups, water trucks, etc. For deeper contamination, application can be applied through underground setups using perforated piping per regulatory recommendations. For wastewater and other operational by-product sludges and soils extracted from contaminated areas, a bioslurry or bioreactor can be setup using MICRO-BLAZE® and water in the process.

2. Concentration/Application Rate:

For more viscous or less hazardous contamination, apply MICRO-BLAZE® at a 3% solution mixed with water (3 parts MICRO-BLAZE®, 97 parts water). When bioremediating soils, generally, per every 10 cubic yards of contaminated soils, use one gallon of concentrate, diluted with water according to contamination type.

3. Conditions for Use:

Water Salinity: Can be mixed with any fresh, brackish or brine. However, brine reduces the effectiveness by 10%.

Water Temperature: 35°F - 180°F

pH: 4 to 11.5

Temperature: 32°F - 120°F

Nutrient Requirements: Nutrients for microbes are included in product. However, for longer-term bioremediation projects, additional applications for Bio-Catalyst may be added to boost microbial activity.

Type and Ages of Pollutants: For use on organics and hydrocarbon-based materials. These strains of bacteria provide the capability of biodegrading various straight chained, branched chained, aromatic and polynuclear aromatic hydrocarbons found in diesel and other fuels. Age of contamination is not a factor as much as its density. Tar-like substances may need to be cut for timely remediation.

VII. TOXICITY AND EFFECTIVENESS

Non-toxic, naturally-occurring spore-forming microorganisms common to soil and water.
 Non-pathogenic, certified by count; will not mutate.

a. Toxicity

NA

b. Effectiveness

Bioremediation Agent Effectiveness Test (40 CFR 300,900) Federal Register September 15, 1994.
 Microbiological Results - Average

Day 0 - 1.7×10^9

Day 7 - 8.43×10^8

Day 28 - 5.2×10^7

The organisms in this product convert to a spore state (dormant) to survive an unfavorable environment and will reactivate upon favorable conditions. Documentation available from Verde Environmental.

Summary Data Table:

ENV-DO-13-0054		ENCLOSURE 1		LAUR-13-24771	
DAYS	PRODUCT	TOTAL MEAN	RED%	TOTAL MEAN	RED%
	3 REPS/PROD	ALKANES (ppm)	28 Days	AROMATICS (ppm)	28 DAYS
0	CONTROL	31258.6	0	973	0
	NUTRIENT	28251.8	0	976.6	0
	MICRO-BLAZE®	29548.9	0	1081.2	0
7	CONTROL	31401.73	0	990.5	0
	NUTRIENT	20728.3	26.6	619.1	36.6
	MICRO-BLAZE®	12870.5	56.4	496.3	54.1
28	CONTROL	32465.8	0	925.7	0
	NUTRIENT	1787.2	93.7	722.6	26.0
	MICRO-BLAZE®	1758.2	94.1	566.9	47.6

Alkanes showed significant reductions with aromatic components less dramatic but still significant.

Results of Gravimetric Analysis:
 Percentage (%) Decrease in Weight of Oil on Day 28
 CONTROL: < 1%
 NUTRIENT: 17.6%
 MICRO-BLAZE®: 12%

CONCLUSIONS: The MICRO-BLAZE® product shows an initial rapid consumption of all measured hydrocarbons at seven (7) days. This rate apparently slows over 28-day period in a closed environment which may be due to a change in the environment of the flask due to the rapid degradation rates. Because of the high microbial population at the end of the test, it is to be assumed that the quantity of metabolites might account for the increased weight as determined by the gravimetric analysis.

VIII. MICROBIOLOGICAL ANALYSIS

1. Listing of all micro-organisms by species and percentage in the composition: CONFIDENTIAL
2. Optimum pH, temperature, and salinity ranges for use of the additive:
 pH 7.5
 Temperature: 45°F - 105°F
 Salinity: 0 - 10%
3. Minimum and maximum pH, temperature, and salinity levels below or above which the effectiveness of the additive is reduced to half its optimum capacity:
 pH: <5.9, >9.0
 Temperature: <32°F, >180°F
 Salinity: <0%, 10%
4. Special nutrient requirements: none
5. Test results regarding the determination of the presence of the following:
 Salmonella: Negative
 Fecal coliform: Negative
 Shigella: Negative
 Staphylococcus Coagulase positive: Negative
 Beta hemolytic Streptococci: Negative

IX. PHYSICAL PROPERTIES

NA

X. ANALYSIS OF HEAVY METALS, CYANIDE, AND CHLORINATED HYDROCARBONS

NA