

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

March 31, 2006

Mr. Bruce Brusso
CBA Environmental Services, Inc.
57 Park Lane
Hegins, Pennsylvania 17938

Re: **Mobile Injection Treatment Unit (MITU) Technology**

Dear Mr. Brusso:

The Bureau of Petroleum Storage Systems hereby accepts Mobile Injection Treatment Unit (MITU) technology for onsite, in situ, treatment of soil contaminated by petroleum and other suitable contaminants. This technology makes use of track-mounted trenching machines and excavators, modified in such a way that their booms no longer attach to conventional buckets and plows, but rather soil tilling devices covered by a steel hood. Hot air and remediation chemicals can be delivered to the hood for the treatment of contaminants. The MITU is much like a combine-harvester in that it is an all-in-one machine, driven by a human operator, carrying its own power supply and everything else that is needed to perform several tasks in a single pass.

The mechanical components located under the hood are either rotating, solid, steel disks with carbide cutting teeth, a rotating drum with carbide cutting teeth, or a cutting chain. The hood itself serves as an environmental control to prevent the escape of dust and contaminants tilled by the cutting teeth, and also as a treatment vessel. For example, it serves as the housing for thermal treatment of soil that is tilled by the cutting teeth and chains. Hot air delivered to the hood desorbs, volatilizes and transports contaminants to activated carbon filters or a thermal/catalytic oxidizer carried on the back of the vehicle. The hood can also serve as the housing of a mixer, to which remediation chemicals of the user's choice can be delivered and mixed into the soil that is tilled by the cutting teeth and chains. The supply tanks and the feed pumps for these remediation chemicals are carried on the back of the vehicle.

There are no objections to the use of MITU, provided the considerations of this letter are taken into account and a site-specific Remedial Action Plan is submitted pursuant to Chapter 62-770, F.A.C. Regulations are cited in Enclosure 1. This acceptance applies only to the regulatory jurisdiction and the remediation needs of the Bureau of Petroleum Storage Systems, which is the cleanup of petroleum contamination pursuant to Chapter 62-770, F.A.C. Other agencies and local governments may choose to recognize this acceptance if their needs and regulations are similar. This Bureau, however, is not responsible for applications beyond its jurisdiction.

While the Department of Environmental Protection does not provide endorsement of specific remediation products or processes, it does recognize the need to

determine their acceptability from a regulatory standpoint and the interests of public health and safety. After receiving regulatory acceptance for a product or process, vendors must then market it on its own merits in regard to performance, cost and safety in comparison to competing alternatives in the marketplace. In no way, however, shall this regulatory acceptance be construed as Department certification of performance. Additionally, the Department emphasizes a distinction between its regulatory "acceptance" and an approval. Products and processes are accepted but they are not approved.

Also, it is not a requirement that a particular remediation product or process have an official acceptance letter in order for it to be proposed in a site-specific Remedial Action Plan. The plan, however, must contain sufficient information about the product or process to show that it meets all applicable and appropriate rules and regulations.

Those who prepare Remedial Action Plans may include a copy of this letter in the appendix, and call attention to it in the text of their document. In this way, technical reviewers throughout the state will be informed that you have contacted the Florida Department of Environmental Protection to inquire about the acceptability of MITU. To aid those reviewers, supplemental information is provided in Enclosure 2.

The Department reserves the right to revoke its acceptance of a product or process if it has been falsely represented. Additionally, Department acceptance of any product or process does not imply it has been deemed applicable for all cleanup situations, or that it is preferred over other treatment or cleanup techniques in any particular case. A site-specific evaluation of applicability and cost-effectiveness must be considered for any product or process, whether conventional or innovative, and adequate site-specific design details must be provided in a Remedial Action Plan. Please contact Rick Ruscito at (850) 877-1133, extension 29, if there are any questions.

Sincerely,

Rick Ruscito

Rick Ruscito, P.E.
Ecology and Environment, Inc.
Bureau of Petroleum Storage Systems
Petroleum Cleanup Section 6

Rebecca S. Lockenbach

Rebecca S. Lockenbach
FDEP Section Leader
Bureau of Petroleum Storage Systems
Petroleum Cleanup Section 6

enc: (1) Regulatory Information
(2) Supplemental Information

c: Kiron Senapati, P.E.
Anant Technologies, Inc.
5147 West Clifton Street
Tampa, Florida 33634

T. Conrardy - FDEP, Tallahassee/MS 4530

REGULATORY INFORMATION

1. Soil cleanup standards. For onsite treatment of soil by MITU technology during the Active Remediation phase, Section 62-770.700, F.A.C., applies. An approved site-specific Remedial Action Plan is required, and the soil cleanup goals of Chapter 62-777, F.A.C., as referenced by Chapter 62-770, F.A.C., apply. The unconditional cleanup target levels for treated soil are the lower of the direct exposure residential cleanup target levels and the leachability-based cleanup target levels specified in Chapter 62-777, F.A.C., Table II.
2. Groundwater considerations. When remediation chemicals and/or biological agents, instead of hot air, are introduced to soil as it is being tilled under the hood of the MITU, it may be necessary to observe groundwater regulations. Three types of situations are possible, two of which will require attention to groundwater regulations. They are discussed below.
 - a. Soil remediation when the underlying water table is relatively deep: In this situation, the depth of the MITU cutting teeth or chain will be shallow in comparison to the depth of the underlying water table. If site conditions, and the type and amount of remediation chemicals added, are such that the chemicals will not percolate or leach into the underlying groundwater at concentrations sufficient to cause an exceedance of groundwater standards, then it should not be necessary to take groundwater regulations and standards into account.
 - b. Soil remediation when the underlying water table is relatively shallow: In this situation, the depth of the MITU cutting teeth or chain could be equal or close to the depth of the underlying water table. Remediation chemicals and/or biological agents added to soil being tilled under the hood of the MITU under such circumstances may therefore have a greater potential to percolate or leach into the underlying groundwater. If the type and concentration of the chemicals are such that they could cause an exceedance of groundwater standards, then the groundwater should be monitored for those chemicals after the MITU treatment, and their concentrations compared to their respective groundwater standards set forth in Chapters 62-550 and 62-777, F.A.C. Monitoring on a quarterly basis should suffice in most cases, unless factors taken into account in a site-specific Remedial Action Plan indicate otherwise. The groundwater should also be sampled for those same chemicals prior to the start of MITU operation in order to determine their natural-occurring background concentrations at the site.
 - c. Groundwater remediation: If the objectives of a MITU project include the remediation of groundwater, by purposely allowing the cutting teeth or chain to travel below the water table as remediation chemicals and/or biological agents are simultaneously added at the hood, then groundwater regulations apply. However, this is not truly an injection but rather a mixing process in which chemicals are added topically at the hood and then tilled into the subsurface. The name Mobile Injection Treatment Unit is notwithstanding for regulatory purposes, and it does not require underground injection control notification. Regardless, this does not relieve the user of the MITU from a responsibility to comply with groundwater quality standards and regulations set forth in chapters of the Florida Administrative Code that are cited in paragraph 4 below.

Since it is impossible to cover every conceivable remediation chemical or biological agent that could be introduced into the groundwater by way of the MITU hood, cutting teeth and chain, the Bureau of Petroleum Storage Systems offers some general guidance: If the type and concentration of the remediation chemicals and/or biological agents entering the hood are such that groundwater monitoring of some or all of their constituent chemical species would be necessary for a direct injection into the aquifer, rather than introduction by way of the MITU hood, then Remedial Action Plans should propose monitoring of the groundwater for those species as if they would be injected. If the remediation chemical to be applied by the MITU is already accepted by the Florida Department of Environmental Protection as a remediation product, then follow the acceptance letter's advice in regard to chemical species and parameters, if any, that must be monitored in the groundwater. As for the frequency of the monitoring, use the same advice provided in paragraph 2b above.

3. Groundwater cleanup standards. The onus shall be on users of the MITU technology to ensure that all applicable groundwater standards will be met at the time of project completion for the contaminants of concern, any residuals associated with the ingredients of the remediation chemicals and biological agents used, and any by-products produced as a result of chemical or biochemical reactions involving those ingredients. The following chapters of the Florida Administrative Code are cited: Chapter 62-550, F.A.C., for primary and secondary water quality standards; Chapter 62-520, F.A.C. for groundwater classes and standards, and minimum criteria in general; Chapter 62-522, F.A.C., for groundwater permitting and monitoring requirements; and Chapter 62-777, F.A.C., for cleanup target levels and minimum groundwater criteria for specific chemical species.

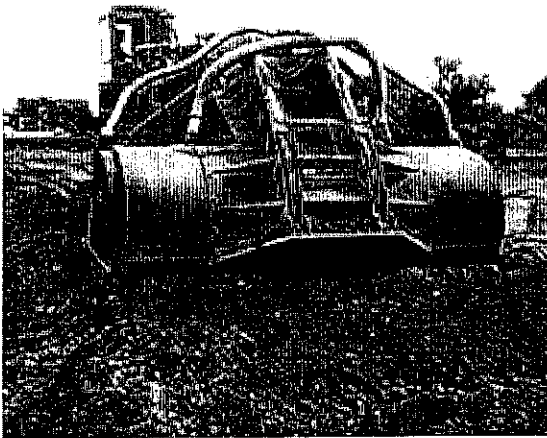
A noteworthy aspect of the general minimum criteria set forth in Chapter 62-520, F.A.C., is that it requires groundwater to be free from substances that are harmful to plants, animals, and organisms, and free from substances that are carcinogenic, mutagenic, teratogenic or toxic to human beings. In effect, these "free from" requirements form a catchall. They close what would otherwise be a loophole in the regulations by preventing injection of a potentially harmful product in the event that any of its ingredients is not regulated as a specific primary or secondary drinking water contaminant.

4. Soil treatment permits. For on-site remediation of petroleum-contaminated soil by the MITU technology, pursuant to Section 62-770.700, F.A.C., under the authorization of a Department-approved site-specific Remedial Action Plan, no permit is needed.
5. Safety. As in any remediation project, CBA Environmental Services and users of the MITU technology are expected to pay attention to safety matters during both the planning and execution stages. This includes, but is not necessarily limited to, safety considerations in the following categories: fire, electrical, mechanical, personnel, the handling and compatibility of chemicals, air emissions, and passersby.

SUPPLEMENTAL INFORMATION

Source: www.cbaenvironmental.com

**CBA's Mobile Injection Treatment Unit
Model: MITU-LVR**

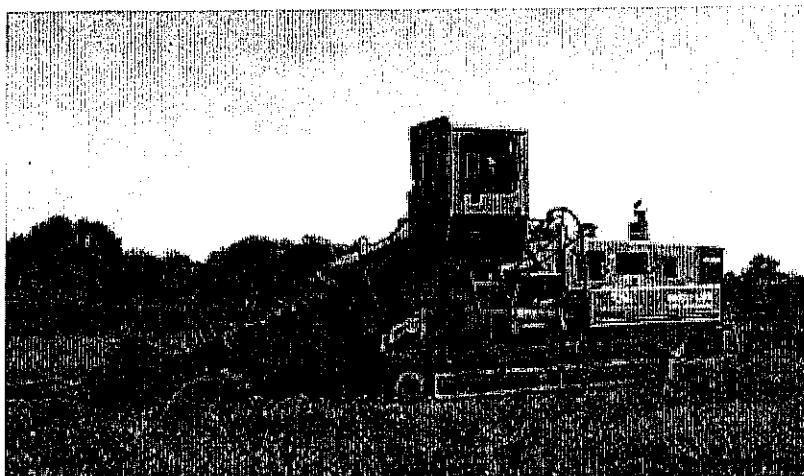


- In-Situ or Ex-Situ treatment in all soil types
- Up to 16 feet wide and 4 feet deep cut in a single pass
- Exempt from most air quality permitting

The Mobile Injection Treatment Unit Technology has been patented and successfully operated by CBA since 1993. The Large Volume Remediator (LVR) consists of a 3 ft to 5 ft diameter rotating drum mounted to a conventional track trenching machine.

The MITU-LVR is capable of treating organic and inorganic contaminated soils either in-situ or ex-situ. The MITU utilizes the rotating drum/trenching action along with heat and various other reagents to remediate contaminated soils. The cutting/mixing action of the MITU-LVR allows superior soil/reagent blending and soil density breakdown in all soil types.

Model MITU-LVR Specifications



Track Trencher

Various (typically mounted to Trencor® or Vermeer® track trenching machines).

Approximate Weight

Trencher: Varies

Disk Drum: 13,000 lbs.

Solid Drum: 15,000 lbs.

MITU Rotating

Disk Drum:

Length: 12ft - 16ft

Diameter: 5ft

Drum consists of 8 to 10 individual solid steel disks with carbide cutting teeth. Superior performance in homogenization and reagent mixing.

Solid Drum:

Length: 10ft - 12ft 8 in

Diameter: 4ft

Solid steel drum with carbide cutting teeth designed to create a veil or soil beneath the Superior performance for forced hot air/thermal desorption applications.

Hood Assembly

The hood assembly is constructed of heavy gage plate steel. The hood serves as both an environmental control device and a thermal treatment unit. Hot air is forced into the hood across the soil veil while vapors are collected for on-board treatment.

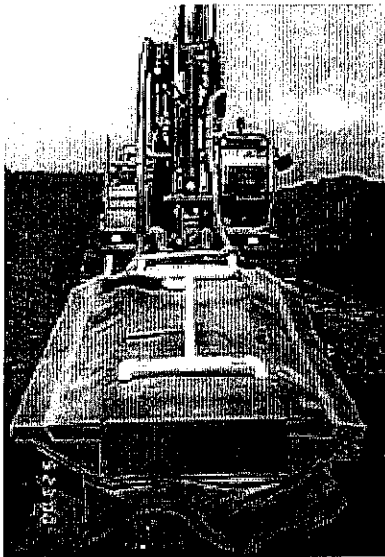
Vapor Treatment

Vapors are typically transferred to an activated carbon filter assembly, mounted on the rear of the trencher, at flow rates between 100 cfm to 300 cfm. Vapors can also be transferred to a separate thermal/catalytic oxidizing unit for treatment.

Heat Generation

Exhaust from the trencher is captured and delivered through a heat exchange unit to provide forced hot air at temperature ranging from 200° F to 800° F.

CBA's Mobile Injection Treatment Unit Model: MITU-12



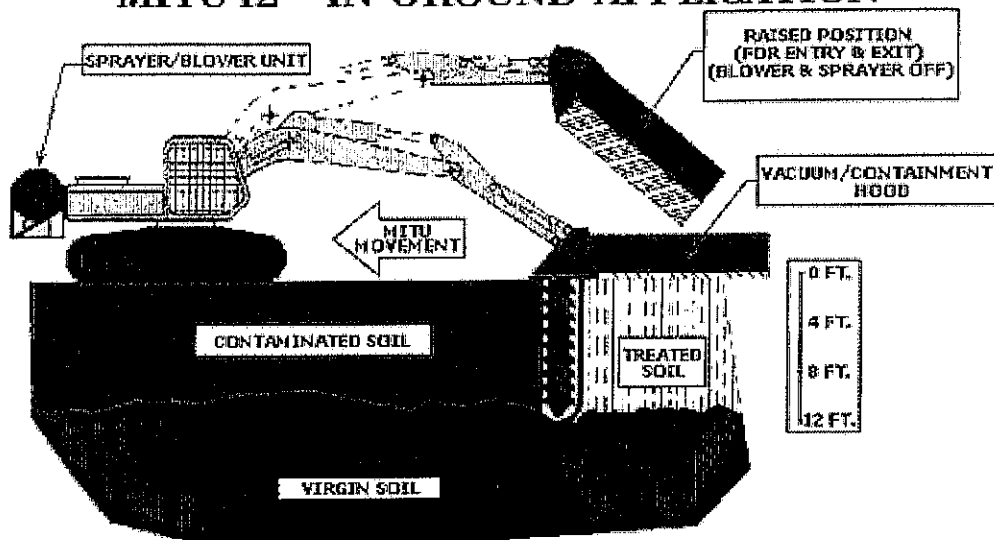
- Adaptable to any standard 45,000 to 70,000 lb excavator
- Easily transported, setup, and operated
- In-Situ or Ex-Situ applications
- On-Board vapor recovery and treatment
- Exempt from most air quality permitting

The Mobile Injection Treatment Unit Technology has been patented and successfully operated by CBA since 1993. The patented technology consists of an auxiliary power unit and a modified trenching head which are connected to standard excavators.

The MITU-12 is capable of treating organic and inorganic contaminated soils either in-situ or ex-situ. The MITU utilizes trenching action along with heat and various other reagents to remediate contaminated soils. The trenching action of the MITU allows superior soil/reagent blending and soil density breakdown in all soil types.

Model MITU-12 Specifications

MITU 12 - IN-GROUND APPLICATION



Excavator

Standard John Deere® Model 690, 45,000 lb hydraulic excavator. The MITU attachments are adaptable to various excavator brands and models.

Approximate Weight

Trenching Head: 5,000 lbs.

Power Unit: 3,100 lbs.

*Total: 53,100 lbs.

(*mounted on John Deere® 690)

MITU Power Unit

A John Deere® 4 cylinder, 110 hp diesel engine is used to power a Commercial 3-state hydraulic pump. The trenching head, vapor collection system, and a liquid injection pump are all powered by separate stages of the hydraulic pump. All components are mounted on a skid assembly attached to the rear of the excavator.

MITU Trenching Head

Vermeer® VH-1850 trencher is Hydrostatically driven by a Poclain motor operating at a maximum pressure of 2500 psi. The cutting chain has been modified to fit a 12 ft. reinforced boom designed and manufactured by CBA. The optimum cutting depth is 10 ft. at a width of 12 inches.

Hood Assembly

The hood assembly is constructed of a solid steel frame with a sheet metal exterior. The hood assembly serves as a vapor collection unit as it is subjected to negative pressure. The hood assembly also houses electric heating elements as a source of heat/hot air.

Vapor Treatment

Vapors are typically transferred to an activated carbon filter assembly, mounted on the MITU Power Unit, at flow rates between 100 cfm to 300 cfm. Vapors can also be transferred to a separate thermal/catalytic oxidizing unit for treatment.

Heat Generation

The exhaust from both the excavator and MITU Power Unit engines is captured and delivered beneath the hood assembly at an approximate temperature of 120° F. Forced air at a rate of 100 cfm to 300 cfm is also delivered beneath the hood through a Wellman Thermal® heat exchanging unit. The heat exchanging unit adjusts the ambient air temperature approximately 600° F to 800° F. The heating unit and associated blower are powered by a separate 50KW generator.