TANK NOTES

STATE OF
NEW MEXICO
ENVIRONMENT
DEPARTMENT

... A Newsletter from
the Underground
Storage Tank Bureau

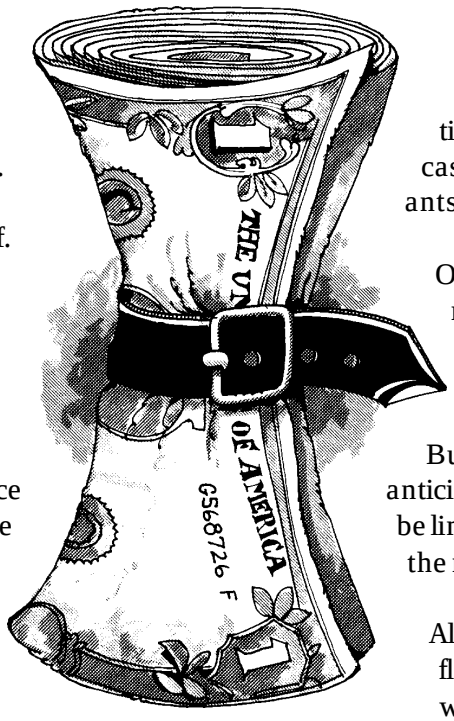
PUBLISHED BY THE NEW MEXICO ENVIRONMENT DEPARTMENT AND THE INSTITUTE OF PUBLIC LAW

VOL. 7, NO. 4

WINTER 1995

Legislature slashes Corrective Action Fund

New Mexico tank owners were holding their breath during the latest legislative session as the fate of the Corrective Action Fund was pondered. When the dust settled, the Ground Water Protection Act had been amended in ways that will significantly change the way both the Department and UST owners manage corrective action at leak sites.



First, the fund was slashed in half. The penny-a-gallon loading fee which has been financing the fund was thrown into the heated debate over gasoline taxes in Santa Fe. The gas tax bill passed by the legislature and signed by Gov. Johnson leaves the petroleum products loading fee in place but distributes half of the money to the local governments road fund. The corrective action fund will receive just $6 million a year instead of the $12 million received in the past.

Senate Bill 11, sponsored by Ann Riley (D-Albuquerque), also amends the Act to require competitive bids on all work. No longer will tank owners or their consultants be able to submit only one corrective action and cost proposal per phase to the Department. The bill also requires the Department to qualify contractors to perform corrective action. Tank owners may only be reimbursed if they use one of these qualified contractors. Readers may recall that when the reimbursement regulations were first proposed, contractor certification language had been included. However, the Secretary chose not to adopt it at that time. The legislation also prohibits payments in most cases to tank owners who use consultants with whom they are affiliated.

Owners and operators are likely to be most concerned about a provision requiring that reimbursement be based in part on financial need when funds are limited. UST Bureau Chief James Bearzi says he anticipates funding for corrective action to be limited as early as the beginning of the next calendar year.

All of these changes will need to be fleshed out by regulations, many of which need to be in place by October of this year. The Department is putting together working groups to develop these regulations. These and other legislative developments will be described in more detail in the next issue of *Tank Notes*.

A Quarterly Newsletter of the Underground Storage Tank Bureau, New Mexico Environment Department

TANK NOTES

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The information in this newsletter is directed at the UST owner/operator population and is provided as a general information guide. It is not intended to replace, interpret or modify manufacturers' protocols, or the rules, regulations or requirements of local, state or federal government, nor is it intended as legal advice.

Thank you for your interest in *Tank Notes*. We welcome your comments and suggestions. Send address changes and correspondence to: New Mexico Environment Department, Underground Storage Tank Bureau, Harold Runnels Building, 1190 St. Francis Drive, P.O. Box 26110, Santa Fe, New Mexico 87502

Transitions!

The UST Bureau looks forward to the guidance of Environment Secretary Mark Weidler, Deputy Secretary and UST Committee Chair Edgar Thornton, and Environmental Protection Division Director Pete Maggiore. Division Directors Ed Kelley, Tito Madrid, and Robert Menke complete the Secretary's management team.

The Bureau was both sad and proud to see Reimbursement Program Manager Kathleen Garland tapped to direct a division within the Energy, Minerals and Natural Resources Department. Congrats to Gregg Crandall who is now the UST program manager for District I! Finally, a fond farewell to Keith Fox who is fulfilling his dream of farming in Durango, Colorado.

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Bioremediation: Microbes do the work in cleanup

BY ANNA RICHARDS AND KATHY GRASSEL

Petroleum-based contamination of soil and water has been a problem with few environmentally sound solutions. An emerging technology for the remediation of groundwater is the harnessing of microorganisms to degrade contaminants which are present in the subsurface. It's called bioremediation. Active, in-situ bioremediation is not always applicable but where it is appropriate, it can be a cost-effective and environmentally-acceptable remediation technology.

Petroleum has been seeping into groundwater for thousands of years, perhaps dating from 300 million years ago when organisms, instead of decaying, were converted into coal and petroleum. Natural seeps within the ocean floor have been releasing hydrocarbons for these millions of years, creating ecosystems with adaptive microorganisms that digest petroleum. Microorganisms that live there eat the petroleum and break it down into carbon dioxide and water.

Humans were slow to catch on to the idea that indigenous bugs could help clean up human-made petroleum spills. It took the Exxon Valdez oil spill to put bioremediation on the map. Exxon scientists, the U.S. Environmental Protection Agency, and the state of Alaska infused the contaminated beaches with nutrients to speed the growth of native oil-eating microbes. These bugs cleaned miles of beaches, and they generated a wealth of information for those looking at new ways to clean up hazardous wastes. The EPA was favorably impressed by bioremediation as an alternative to more conventional technologies. In 1990 the EPA approved bioremediation as a method to degrade toxic substances.

Passive, or intrinsic, biodegradation is that breakdown of contamination that occurs without addition of any materials or manipulation of the subsurface. The goal of active bioremediation is to speed up the growth of microbes that are native to the contaminated area by adding oxygen, moisture, and maybe other nutrients such as nitrogen, phosphorus, and trace elements. Increasing the bacterial growth rate accelerates the rate at which they degrade the hazardous substance.

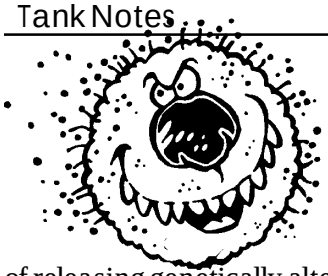
Another technique is to culture the microorganisms, mutate them, and add them to the area of

(continued next page)

Come to the Bioremediation Conference

The UST Bureau's Remedial Action Program is holding a conference to provide a forum for exchange of information among the community about bioremediation. The Bureau welcomes all vendors, UST owners and operators, consultants, and other environmental professionals to take part. Panel discussions, poster sessions, and speakers fill out the two-day program on June 22-23. This free-of-charge educational conference takes place in Santa Fe at the Harold Runnels Building auditorium and adjoining classrooms. No pre-registration is required.

The Remedial Action Program is seeking panelists and speakers. The tentative program includes sessions on bioremediation processes, history and background, case histories, and technology. The conference is not a trade show but rather a free and educational public forum for regulators, consultants, and the regulated community to develop a common language for the understanding and use of bioremediation technology at contaminated sites. If you want to present a poster, be a speaker, or otherwise participate, call Anna Richards at 827-0173. Abstracts and titles are due May 15.



contamination. However, "bioengineered" microbes meet with strong opposition from groups which question the safety of releasing genetically altered life forms the environment. They also meet with opposition from soil scientists who maintain that the cost and effort of establishing a change in the subsurface environment makes this approach impractical due to the buffering effects of the already established physical and biological equilibria. The bacteria are already adapted to the environmental conditions at the site and can often develop the ability to metabolize the toxic material. Even the "fertilizer" approach is usually unnecessary, but may be required when remediating very deep aquifers. Adding a bacterial fertilizer to boost growth and decomposition of petroleum appears to have few adverse ecological effects since the end products are carbon dioxide, water, and biomass.

The three food groups

The microorganisms require nutrients and most often an appropriate electron acceptor, usually oxygen. Nutrients consist of nitrogen, phosphorus, and other inorganic salts at specified concentrations. Nitrates are the one nutrient that can be harmful to human health and is therefore monitored carefully when added to groundwater or soil. But most of the time, the organisms, nutrients and the carbon source (contamination) are present. What gets used up fastest and what is often lacking is the "electron acceptor," an essential part of the metabolic chain. For *in situ* bioremediation, oxygen for use as an electron acceptor in microbial metabolism is supplied by sparging air into the groundwater or through use of peroxide compounds. After the food source is depleted, the numbers of microbial cells should return to background levels.

Where *in situ* bioremediation works best

The destruction "on location" eliminates the responsibility trail which you leave when you physically move contamination from one location to another. The ideal candidate site for implementation of *in situ* bioremediation of groundwater includes: 1) a homogeneous and permeable aquifer; (2) a contaminant originating from a single source; (3) a low groundwater gradient; (4) no free product; (5) no soil contamination; and (6) an easily degraded, extracted, or immobilized contaminant. Cleanup is most efficient for groundwater contaminated with less than 40 ppm of gasoline. Obviously, no site can meet all these characteristics. The challenge is to gather the right information on the characteristics of the site. Armed with enough information, one can develop a bioremediation strategy for a less-than-ideal site.

Bugs with minds of their own

The goal of *in situ* bioremediation is detoxification in place, in the ground or aquifer, by changing a toxic parent compound into products that are not hazardous to human health and the environment. Getting to that goal is sometimes so simple as leaving a contaminated site and letting the bugs take the lead. Other times, a constituent may not be completely degraded, and in fact may be transformed into intermediate products which may be equally or more hazardous than the parent compound. Also a microorganism may be incapable of detoxifying a certain contaminant without the presence of another contaminant. To degrade tetrachloroethylene, or "PERC," a chlorinated solvent, toluene has been used as a "co-metabolite" with partial success. (Components of gasoline are the BTEX compounds — benzene, toluene, ethyl benzene, and xylene.)

Often the distribution of microorganisms in aquifers, as in soils, is sporadic and non-uniform, indicating the presence of micro-environments more or less conducive to growth and activity. Populations of microorganisms increase until they use up their nutrients, substrates for growth, or suitable electron acceptors. Monitoring growth rates at a bioremediation site becomes all-important so bugs don't deplete their supplies and die. Also, even though microorganisms may be present in a contaminated subsurface environment and have demonstrated the potential to degrade contaminants in laboratory studies, they may not be able to degrade these contaminants without a long period of acclimation.

Communication and mixing is the single biggest challenge of bioremediation engineering. Bacteria do not have appendages that enable them to crawl or swim through the subsurface; in fact, they are sticky. Bacteria introduced into the subsurface tend to adhere

Bureau wants to enlist bugs in the fight to clean up

While the UST Bureau explores the potential for bioremediation, Anna Richards, Remedial Action Program Manager, says the 50 percent reduction in the Corrective Action Fund takes the debate to another level. "The Bureau faces the challenge of reconciling the limits of public and private funds for corrective action with the requirements of the regulations. We continue to explore ways to get flexibility into the regs, based on our growing experience with leak sites and our observation that natural or intrinsic biodegradation is occurring at sites, and not only because of what we do at sites." Watch *Tank Notes* for further in-depth articles about the many approaches to bioremediation.

to the first solid surface they encounter, whether well casing or soil particles.

Design and implementation of an *in situ* bioremediation system

In most contaminated aquifers, site characteristics and contaminant behavior are so varied that a successful remediation process must rely on multiple treatment technologies to restore groundwater quality to standards. First, the source of contamination in the soil and water should be removed to the extent possible. Physical recovery often accounts for only 30 to 60 percent of spilled hydrocarbon before yields decline. A possible treatment train might consist of (1) source removal by excavation and disposal, (2) free product recovery to reduce the amount of contaminants requiring treatment, and (3) *in-situ* treatment of remaining contamination. Well systems act as hydraulic controls to contain the plume. They can also serve as injection points for addition of the materials used for enhancement of microbial activity and for control of circulation through the contaminated zone. Materials can also be introduced to the aquifer through the use of infiltration galleries. Infiltration galleries allow movement of the injection solution through the unsaturated zone as well as the saturated zone, resulting in potential treatment of source materials that may be trapped in the pore spaces of the unsaturated zone.

Limitations of *in situ* bioremediation

Many organic compounds in the subsurface are resistant to degradation. Injection wells may become clogged from profuse microbial growth resulting from the addition of nutrients and oxygen. The process of biodegradation has been known to permanently alter soil structure and change its properties, especially where there is a lot of iron in the soil or groundwater. *In situ* bioremediation is difficult to implement in low-permeability aquifers that do not permit the transport of adequate supplies of nutrients or oxygen to active microbial populations. Bugs are sticky and attach to soil particles, making injection of bugs impractical. The subsurface environment may also contain substances or other organisms that are toxic or inhibitory to the growth and activity of the organisms.

Advantages of *in situ* and intrinsic bioremediation

One big advantage to using any form of bioremediation to remediate petroleum contamination is that the contaminants are ultimately broken down to nontoxic CO_2 and water.

Specific advantages of *in situ* vary depending on the approach. Some approaches are inexpensive to operate and maintain (O&M) because they require little or no power-consuming equipment. Others take a lot of O&M to keep injection points clear and blowers up and running. The time required to treat subsurface pollution can often be less than for pump and treat processes.

Future role of intrinsic biodegradation

Finally, the biggest advantage is that bioremediation is already occurring at many leak sites. It's called "intrinsic biodegradation." This is the cheapest method when no risk to public health or environment is present. Certainly, the cost in dollars of intrinsic biodegradation is much less than any active system; however, the time required has so far been judged not to meet the required "fast and most practicable time period" in Part 1212 of the UST regs. Compliance with Part 12 of the regs ensures that the cost in damage to public health and the environment is not too great. But when there is no risk to public health and the environment, letting nature take its course while monitoring for safety could be an acceptable approach at some low-priority sites in the future.

UST Bureau adopts policy requiring methanol extraction

by Tony Moreland

Effective immediately, field preservation of soil samples using purge-and-trap grade methanol at the time of collection will be Bureau policy. Methanol extraction will be required at tank removals where tank owners or operators disagree with the Bureau inspector's heated headspace/PID readings, and at leaking UST sites where soils analysis by an analytical laboratory is part of an investigation or where lab analysis is used in lieu of heated headspace/PID readings to determine that no further action is required.

The UST Regulations Part XII, §1209(D), states that remediation of soil will be considered complete when the total aromatic hydrocarbon value is less than 50 parts per million (ppm) and the benzene concentration is less than 10 ppm when measured using an appropriate laboratory test, or the total aromatic hydrocarbon value is less than 100 ppm when measured using an appropriate field instrument. If soils are sent to a laboratory for any reason as part of an investigation or to receive a "No Further Action" determination, then methanol extraction of the sample at the time of collection will be required for the analysis to be acceptable. The current policy that the higher of the two results from either heated headspace using a PID or laboratory analysis is what the Bureau will accept as the final result still applies.

Methanol extraction must be conducted on only those soil samples suspected of being contaminated by gasoline or aviation fuel (AVGAS). A good rule of thumb is that if the PID measures petroleum hydrocarbons, and soil samples are being sent to an analytical laboratory, then methanol extraction is required.

NOTE: Methanol extraction is not to be used for soils contaminated with diesel, kerosene, jet fuels, waste oil or other heavier-than-gasoline petroleum products. These soils should be sampled using the procedure outlined in the USTR, Part XII, Appendix C.

The Underground Storage Tank Bureau, like similar agencies in other states, has questioned the accuracy of either field instrumentation or lab analyses of soil samples collected and preserved on ice as the final interpretation of a confirmed release or as a means of site characterization or closure. At tank removals, site investigations, or cleanups where the known contaminant is gasoline or AVGAS, if the soil samples are extracted using purge-and-trap grade methanol (methyl alcohol) at the time they are collected, the degree of accuracy and analysis of the contaminant concentrations that are there is greatly enhanced.

Methanol is a widely used solvent. When it is added to a contaminated soil sample it separates the volatiles and fixes them in solution. Once in solution, and in a tightly closed bottle with a septum cap, the sample does not volatize. If the sample is kept cold, it can be held up to 14 days before analysis and still contain greater than 97 percent of the original volatiles.

The extraction procedure is simple, but these instructions should be followed without deviation:

1. Contact the analytical laboratory that you normally send soil samples to and let them know you need the supplies required for methanol extraction. Let them know how many samples you are extracting, if known, or take enough supplies to cover any contingencies. The laboratory should have the sample bottles ready and pre-weighed with purge-and-trap grade methanol in them. The laboratory should also supply enough disposable or nondisposable syringes with which to collect the soil sample, and the paperwork required to log and ship the samples to their lab. At least two analytical laboratories in New Mexico are now ready to provide this service.

2. Soil samples can be collected from a backhoe bucket (for tank removals) or from a split-spoon sampler for soil borings or monitor wells. **Avoid placing pebbles or other particles larger than soil in the sample.**

If soil samples are collected from a backhoe bucket, scrape off the top six or so inches of soil in the bucket and fill the syringe supplied by the lab with 10-15 cc's of soil. The syringe should be marked to indicate when the right amount of soil has been collected.

If soil samples are collected from soil borings or monitor well installations, brass tube samplers should be used. Place the brass tube samplers in the split spoon and collect the sample. Seal the ends of one tube with aluminum foil and duct tape, label it and place on ice. Use the soil in the other tubes to conduct heated headspace analysis. Once the headspace analysis is complete and you have determined which samples need lab analysis, remove the aluminum foil from one end of the brass tube(s) you placed on ice and collect the soil sample for extraction. **Note: Do not send brass tube samples to the lab. Perform soil collection with a syringe, then methanol extraction on the soil from the brass tube being held on ice. Brass tubes can be reused after decontaminating them.**

3. Two procedures can be used to extract the soil sample: Unscrew the cap on the sample bottle and quickly push the sample into the bottle with the syringe plunger, being careful not to get soil particles on the rim of the bottle. Quickly replace the cap and tighten securely; or, if the methanol is provided in a separate vial from the sample bottle, unscrew the cap on the sample bottle and quickly push the sample into the bottle with the syringe plunger, being careful not to get soil particles on the rim of the bottle. Open the vial containing the methanol and pour it into the sample bottle, being careful not to spill any methanol. Quickly replace the cap and tighten securely. Gently agitate the sample so the soil is immersed in the methanol. **Excessive agitation may cause undue volatilization.** In both procedures you must work quickly to avoid VOC losses from the sample. Write the sample information on the bottle, fill out the paperwork and place the bottle on ice for transport to the lab. **Note: Two samples should be collected and extracted for each analysis requested.**

4. Collect a dry-weight sample in a VOA vial supplied by the lab for each sampling location at the site. Be sure that you have collected at least 20 grams; the bottle should be at least half full of soil. Label the sample to correspond with the labeling on the matching field preserved sample. This is to measure the soil moisture content of the soil only and the sample does not need any special preservation. Fill out the necessary paperwork indicating that the sample is for soil moisture analysis only.

5. Be sure to tell the analytical laboratory to conduct EPA Method 8020 and EPA Method 8015 modified analyses on the samples.

6. Do not use methanol extraction on diesel, fuel oil, jet fuel, kerosene or other heavy petroleum contaminated soils. Collect these samples with no headspace in jars supplied by the lab.

Methanol Field Preservation Questions and Answers

What is methanol field preservation and when is it required?

Methanol field preservation involves placing gasoline or AVGAS-contaminated soil samples in vials containing methanol or adding methanol to vials containing this soil at the time of sample collection. The methanol reduces volatilization and biodegradation of volatile soil contaminants prior to lab analysis, thus giving more accurate sample results.

Is the methanol preservation necessary?

There is strong evidence that samples which are not preserved in the field underestimate the contamination present. Scientific data shows that losses of 30 percent or more are typical. The data are supported by field experience in which screening by heated headspace using a photoionization detector, or odor and staining of soils, indicated that contamination was present while lab samples did not.

How long can I wait after collecting the soil sample to preserve it in methanol?

Methanol field preservation should be conducted within **two (2) hours** after sample collection. Samples should then be returned to an iced cooler immediately after preservation. Samples may be preserved by the laboratory **only** if they are received by the lab within **two (2) hours** of collection.

What special training is required to handle methanol?

Soil preserved in methanol is considered a hazardous substance. According to federal Occupational Safety and Health Administration (OSHA) guidelines, all handlers of hazardous substances must have hazardous communication training. This requirement is fulfilled when handlers have completed the OSHA 40-hour Health & Safety Training or when firms have a hazardous communication training program in place. For an example of a "Hazardous Communication Training" program, contact Tony Moreland at the UST Bureau at 827-0158.

How do I dispose of soil samples that are preserved but not analyzed?

Soil preserved in methanol is a hazardous waste when ready to be discarded. In general, do not collect and preserve excess samples, and if you collect and preserve a sample, have it analyzed. Check with the lab to find out their procedures for analyzing and disposing of samples.

What can be done to ensure personal safety while handling the methanol?

Do not store the methanol in a hot place. On hot days carry the methanol in your sample cooler prior to and after sample collection. Beware of pressure buildup in heated sample vials containing methanol. Avoid inhaling methanol vapors by transferring the soil sample in an open area and by not holding the sample vial next to your face. Work quickly while filling sample vials to minimize your exposure to the methanol. Use protective gloves while performing field preservation procedures. Open only one sample vial at a time. Don't handle methanol in an unventilated area. If you are preserving samples inside a vehicle in inclement weather, make sure to provide some ventilation. Make sure all internal combustion engines are turned off while performing the procedure.

What is a dry-weight sample and how many do I have to collect?

A dry-weight sample is simply a jar (at least 20 ml) filled with soil that is required by the lab to calculate the percent moisture of the soil at the sampling location. Dry weight samples should be tightly sealed to prevent loss of soil moisture but, since they are not analyzed for contaminants, they do not require special preservation. You need to collect a dry-weight sample for each sampling location at the site.

If I screen soil samples from soil borings or well bores with heated headspace to determine which samples to preserve, how do I prevent the soil sample I'm holding for preservation from volatilizing?

Collect your soil samples using brass tubes inserted in the split spoon sampler. Whenever collect-

ing samples from a split spoon, the top six inches should be considered as slough, and should not be used for any type of analyses, i.e. lab or head space. Therefore, you may need to line the whole split spoon with brass sleeves to prevent them from sliding up the spoon. Select one of the inner sleeves to hold for preservation and use the sleeves on either side for head space. Seal the tube you are holding for preservation on both ends with aluminum foil or duct tape, label the tube for identification and place on ice. Use the soil from the other brass tubes for conducting heated headspace. After you have determined which samples need to be analyzed, remove the aluminum foil from one end of the tube(s) and collect the soil sample for preservation. Remember you should preserve soil samples within two (2) hours after collection. Brass tubes can be reused after decontaminating them.

How can I avoid cross-contamination?

Site assessors should not handle petroleum products prior to sample collection. Wash your hands after filling vehicles with gas and use protective gloves when handling samples. Under no circumstances should methanol sample vials be stored with gasoline (e.g. with a gas can in the trunk of a car). Tank removers doubling as site assessors should wear coveralls during tank removal and take them off before sampling. Vehicle exhaust and ambient gasoline vapors are another potential source of cross contamination. Quickly open, fill, and reseal methanol sample vials. Low concentrations of ambient vapors can be monitored with a photoionization detector. Contamination from other samples and sample breakage are other potential sources. Put samples from each location in a separate freezer bag.

What are the consequences of spilling methanol?

If methanol is spilled from sample vials before or after sample collection the lab results will be skewed and inaccurate. When a small amount of methanol is spilled during the sampling process it is necessary to resample using a fresh vial. If methanol is spilled during shipment or transport to the laboratory, the UST Bureau will require resampling.

How should I ship the jars to the lab?

Methanol must be shipped in accordance with U.S. Department of Transportation regulations under Title 49 of the Code of Federal Regulations (49 CFR). Check with the laboratory you are shipping samples to for the proper handling of methanol shipments. A summary of the requirements for shipping methanol can be found at the end of the questions and answers.

Is there a shelf life for unused methanol vials?

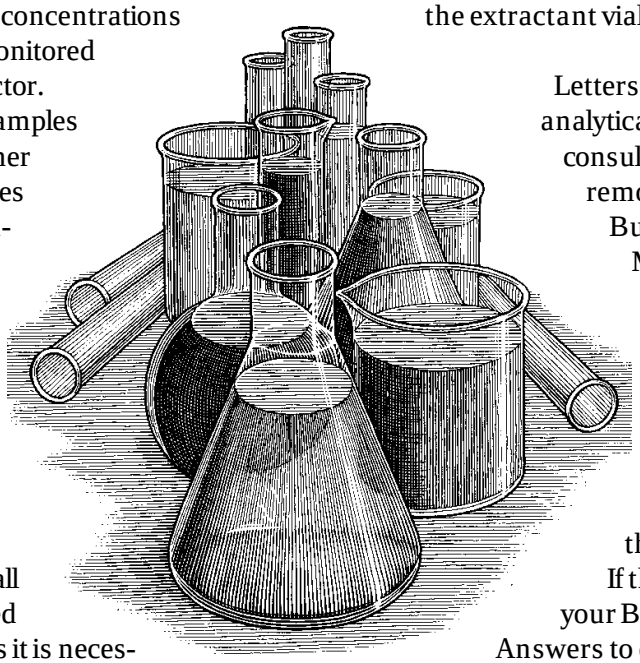
The shelf-life may be specified by the laboratory providing the vials and could be 15-30 days.

Why use only purge-and-trap grade methanol?

The U.S. Environmental Protection Agency's document on analytical methodologies (SW-846), referencing Method 5030 specifically for this analysis, requires the use of purge-and-trap grade methanol in all extraction procedures.

For analytical reference and quality assurances how is the extracted sample spiked?

Spiking will be done after the lab receives the sample, similar to the Toxic Characteristic Leaching Procedure (TCLP) where the leachate is spiked. Most labs will add a reference surrogate like metachlorotoluene to the methanol when preparing the extractant vials for use in field preservation.



Letters are being sent out to all analytical laboratories, environmental consultants, tank installers and removers known by the UST Bureau as doing business in New Mexico. If you fall into any of these categories and you do not receive this letter please contact me, Tony Moreland, at (505) 827-0158 and the Bureau will assist you in getting the information. I hope I have answered many of the questions commonly asked. If there are others please contact your Bureau project manager. Answers to questions will be given top priority.

Shipping Methanol

The New Mexico Environment Department may require laboratories and samplers from time to time to ship sample vials with small amounts (10-25 mls) of methanol for infield preservation of samples.

Methanol is considered a hazardous material by the U.S. Department of Transportation. Methanol shipments must follow Title 49 of the Code of Federal Regulations (49 CFR). However, methanol shipped in small amounts qualifies for a small quantity exemption (§173.4).

Title 49 CFR is a lengthy document. The following is a summary of the requirements for shipping samples. Consultants and laboratories should refer to the code for a complete review of the requirements.

1) Maximum volume per vial is 30 mls.

2) A vial must not be full (of methanol).

3) Vials must be securely packed with cushioning and surrounded by an absorbent material such as vermiculite.

4) Packaging must be strong enough to hold up to the intended use [see specifications in §173.4(6)(i)].

5) The maximum package weight is 65 pounds.

6) The package must be marked with the following statement: "This package conforms to conditions and limitations specified in 49 CFR 173.4."

Refer to §173.4 of Title 49 CFR for detailed information on these requirements. In addition, it would be prudent to mark these packages with the words, "This Side up," and arrows in case the vials are improperly sealed.

If the methanol has leaked from the vials in handling or transport to the lab, the Department will require resampling.

GETTING TO KNOW UST

The Envelope Please. It's Tony Moreland.

We've dubbed this issue of Tank Notes *"Tonymania." He's responsible for the sampling guidelines insert and the methanol extraction article. After such a* tour de force, *it's only fitting that we tell you something about the man behind all those words.*

Anyone who knows that saguaro is forest and that dry river beds are rivers is a true desert rat. That's Tony Moreland. He was delighted to return to his home state of Arizona in 1980 after 10 years gadding about the world in the Coast Guard. He continued his Coast Guard career as a reservist in Arizona and New Mexico for 12 more years before retiring in 1992. Meanwhile, from Florida to Alaska to Antarctica, Tony has had more adventures during his fortysomething-years than he has time to tell them. He joined the military in 1970 with mixed feelings, but as a medical officer and health services chief in the Coast Guard, Tony soon got into the business of saving lives. "I did everything from major surgery to search-and-rescue to running a medical dispensary," Tony says. "Everything from being lowered down from a helicopter in the middle of the night in high seas to take a guy off a fishing vessel who'd broken his back to delivering a baby in a helicopter on the way to the hospital."

Tony's education was in the fields of emergency health care and biomedical electronics — that branch of electronics that deals with medical equipment such as heart monitors or dental operatory units. "But when I got out of active duty, jobs were pretty scarce in the field so I decided to go back to school." Tony went back to college full time and, all the while working full time, got a degree in environmental resources from Arizona State, majoring in soils and hydrology.

Graduating in 1985, he got a job doing groundwater management with the Arizona Department of Water Resources. He issued water rights, audited water usage, and did compliance and enforcement. "I would take satellite imagery and superimpose it over water rights to locate illegal water users." After four years, Tony went to the UST section of the Arizona Department of Environmental Quality and a year later, landed in the UST Bureau in New Mexico. That was almost five years ago.

Tony started out as a ground-level Water Resource Specialist II and came up through the ranks. Now he's a Geologist III and a senior technical advisor for the Remedial Action Program. He revises and updates the soil and water sampling and disposal guidelines (see insert this issue). He's project manager for five state-lead and 10 RP-lead sites. His job includes remedial action database management which includes generating special reports and ensuring accuracy in the database. In fact, when we asked Bureau Chief James Bearzi about Tony, his first words were, "Tony was my single biggest help during this legislative session because of his ability to manipulate the database. Stellar!"

Whenever leak reports come in, he assigns cases to staff. He also assigns Leak o' the Week duties. He's the Bureau's public information officer and the liaison to the administrative services cost recovery unit. He assists in developing the geographic information systems for the Bureau, helps develop program standard operating procedures for EPA's quality management and assurance plans, and reports quarterly statistical data to EPA for funding purposes. Most important of his duties: "Everybody comes to me with questions," Tony says.

Tony says he plans to stay with the Bureau "till there's no more money." That's at least until 1998 when all the upgrades are in place. As his next challenge, Tony wants to develop computer models to do risk assessments.

Whew! Yes, Tony has hobbies. Preferably, he hikes and backpacks in undisclosed (classified) places in Arizona's White Mountains and New Mexico's Gila National Forest. "Here in Santa Fe, I like the idea that I can walk out and in 10 minutes be in pines," he says. "But give me the beautiful country of the Gila and the White Mountains."

Who knows, when there's no more money for UST work, maybe we'll all meet up in the Gila.