Solid Waste News & Notes

A Newsletter from the Solid Waste Unit of the Hazardous Materials and Waste Management Division

Vol. 3, No. 2 December 2000

This was a Landfill?

I hope you enjoyed the 2000 Olympics in Sydney. Those Aussies put on quite a show. And did you see what they did with the old dump and run-down industrial area at Homebush Bay? What, you didn't notice the landfill under the Olympic Center? No wonder -- it was well concealed under the fancy new sports complex and large park. This is a stellar example of how old landfill property can be enhanced for other uses.

Many other former landfill areas have been put to good use. The easiest and most common use is to make the area "open space" and leave it alone, or incorporate it into a park or green belt, entailing minimum cost and minimum encumbrance on the landfill systems. A few large, above-grade landfills were made into attractions named "Mount Trashmore" and one in Michigan was even developed into a ski hill! Uses in Colorado include trash transfer stations, sports fields, mountain bike trails, shooting ranges, wildlife habitat, parking lots, and a golf course and driving range. And in Jefferson County, part of a landfill was shoved aside to make room for an upscale housing development . . . next to a hill -- their own mini-Mount Trashmore!

Some old landfills offer cheap land in, or close to, population centers, and these are attracting golf course developers now that the game is so popular. Reportedly, more than 50 golf courses have been built on, or partially over, old landfills in the U.S. since the first one in Brooklyn in 1961. Golf offers a continuing, potentially very lucrative, use of these sites. A few landfill owners have started planning for golf course construction after closure and are shaping final grades of the trash to accommodate their course design.

Colorado Department of Public Health and Environment

Colorado solid waste regulations do not prohibit development of landfill properties for other purposes. They do have requirements to protect the integrity of the landfill, and related control and monitoring systems, thus ensuring continued protection of human health and the environment. As an example, let's look at what would be involved in planning to build a golf course on a landfill. Of main concern would be protection of the landfill final cover and prevention of infiltration of water into the landfill material. Good drainage and erosion control are essential. Design elements for grading and drainage, irrigation, utilities and vegetation can be combined to address these priority concerns. Placement of tees, fairways, sand traps, greens and cart paths can be coordinated with the landfill situation. The layout also should accommodate landfill gas control and monitoring installations and ground water monitoring wells. Control of landfill gas is important not only for safety --

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Compliance Assistance from the Unit Leader

OH WHAT A LIFE! As some of you folks may have noted, the inspectors have been asking questions about the operational life of your site during some of our most recent inspections. We have requested current information on the anticipated closure date of the site, the estimated volume and the area that is expected to be filled. The information that has been gathered to date has been quite variable, everything from some fairly precise numbers to "its anybody's guess." Once the data, if any are available, are entered into our database, we often end up with some rather bizarre calculations. For example, we will have an anticipated closure date of 2030 for a site and the computer will calculate a six-month site life. An initial review of the data indicates that our two-way communication may have been faulty. Terms such as life of site, and life of the current operating cell, are being confused. Just more of the "garbage in, garbage out" phenomenon, I would guess.

In order to address this gap in our information, we will be reviewing the data for sites between December and January to identify data gaps and inconsistencies. Then, for those sites where data are faulty, we will send you a site-specific questionnaire in order to correct the information we have. Now, you may ask, why do these @*&^%# ! bureaucrats need this information? These data are some of the most commonly requested types of information received by the Division from the general public, and, further, these data are useful when regions

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This Was a Landfill?

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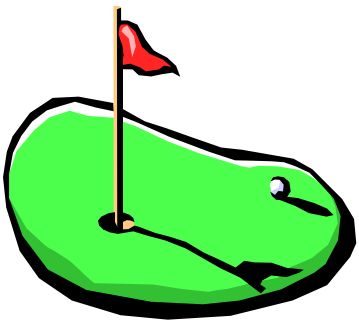
it contains methane that can burn or explode in certain mixtures with air – but also because it can damage grass and vegetation. Who wants brown patches on the fairway? Gas collection may be necessary, and that may entail a layer of porous material under an impermeable membrane over much of the area, or a network of perforated pipes in the cover.

The simple way to prepare the landfill for construction of a golf course is to pile more dirt on it. An extra thickness of fill dirt affords protection for the landfill cover, provides a place for irrigation and utility lines, and allows contouring for the desired surface topography for the golf course. Sand traps can be built with an impervious bottom liner and drainage. There should be contingency plans to repair course disruptions caused by settlement, a common problem as landfill material decomposes. A potential problem area may be addressed with extra amounts of fill material. Place a hill or elevated tee box there, for instance. For safety, buildings and enclosed structures should be located away from landfill areas, or be built with methane mitigation systems.



The irrigation system must provide enough water to maintain vegetation, but at the same time not enough to soak through the final cover and reach the trash. Because water is a major operational expense, most new courses employ sophisticated, computer-controlled systems tied to on-site weather stations for maximum efficiency with minimum amounts of water. Irrigation piping should be non-rigid and installed below frost line. The system should have leak detectors and automatic shutoff if there is a line break. Trees and shrubs with deep roots must be placed away from landfill areas. Alternatively, a links-style course could fit well in prairie areas, such as Eastern Colorado.

Care and maintenance of the landfill and golf course can be combined for efficiency. Common problems for the golfers on a former landfill, besides a hook or slice, are poor grass conditions due to landfill gas displacing air in the root zone, sinkholes or depressions due to subsidence caused by compaction of rotting trash, and trash items "floating" to the surface. Tires, bottles, even auto bumpers and bowling balls have surfaced in fairways over old landfills with thin cover. A clean, well-maintained course attracts more golfers than a trashy one. So, grab your golf bag and head to that new course -- you may be helping with post-closure care of an old landfill.

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Compliance Assistance from the Unit Leader

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look to the future for their solid waste planning. Therefore, building, and maintaining, a quality set of data is of long-term benefit for all of us in Colorado.

DO YOU KNOW WHERE YOU ARE? We hope soon to find out more accurately. We have been entering, albeit slowly, various ground water data, well log data and geological data into a database over the past year or so. We will continue to do so in the future even though the data will vary some in quality and quantity. Over time we will make corrections to the data as the data quality improves. As a part of this long-term project, we will be using Geographical Positioning System information to locate sites more accurately and their monitoring points. We are currently working towards this end. You may be contacted by a member of this staff, or a contractor, during the course of 2001 for information or access so that geographical positioning point measurements may be made. In conjunction with data on operating facilities, we will begin to use this method to locate closed facilities. Again, this is a long-term project, and the location of closed solid waste sites is a very common question received from the public.

LET'S RECYCLE THIS! You may be wondering about the current status of the draft recycling regulations that were discussed in a work session held this past February. I have recycled many a sheet of paper, and coined a new lexicon that will never be ready for prime time, in attempting to rework that draft based upon input that has been received. After recent discussions with senior staff and the Attorney General's office, we will be giving it yet another go around fairly soon. All of you who are on the mailing list will receive notice when that document is available; I have given up projecting a tentative date. The basic problem stems from the broad spectrum of potential materials that may be included under this concept, and how best to deal with it all.

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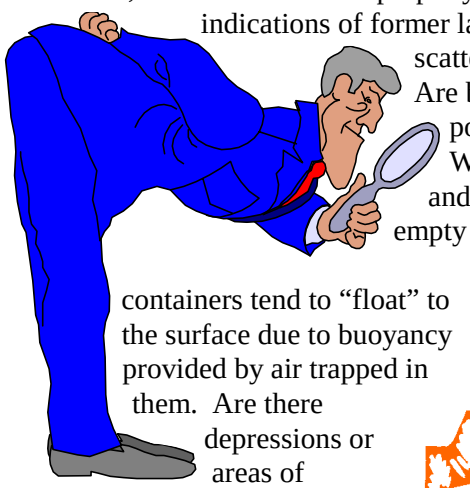
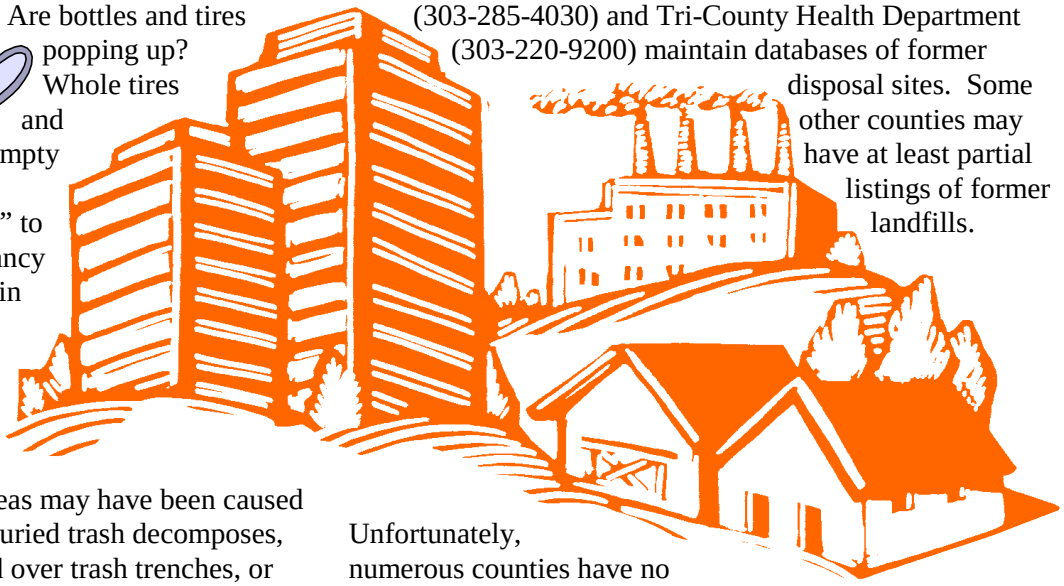
Is There an Old Landfill Here?

From time to time we get the question "Is there an old landfill here?" Or "Was there a landfill on such-n-such property?" If there is no file for that site in our Hazardous Materials and Waste Management Division Records Center, we may have no way of knowing. Our files on open landfills are good, on recently closed landfills, fair, and on old landfills that closed more than about 20 years ago, practically non-existent. So what can you do, short of digging up the property, to find out?

First, I'd look around the property to see if there are any indications of former landfill use. Is trash scattered about the site? Are bottles and tires popping up? Whole tires and empty containers tend to "float" to the surface due to buoyancy provided by air trapped in them. Are there depressions or areas of subsidence? Ponding of water may occur in areas of differential settlement. Low areas may have been caused by reduction in volume as the buried trash decomposes, compaction of dirt cover placed over trash trenches, or both. Stressed vegetation, especially in patterns, can also result from compaction of the soil or presence of landfill gas (mainly methane and carbon dioxide) that deprive root systems of moisture and nourishment. Landfill gas may, or may not, have an odor. Methane is a flammable gas that is explosive in certain concentrations (5% to 15%) in air. Landfill gas may collect in pits or structures on and near old landfills. It is commonly called "swamp gas" when detected, and it can be distinguished from Public Service Company natural gas by hydrocarbon component ratios. Seepage of water, especially if smelly and/or colorful, could be an indicator as well. Keep in mind that these are indications, and confirmation would be required by digging (cautiously!) or sampling these areas.





Another approach would be to investigate the history of the property. The best bet is to start with local property records, title archives, and planning and zoning files. Since 1967, when Colorado's Solid Waste Statute came into effect, landfill permits have been issued by the county upon approval of a commissioners' resolution, so county board files may provide information, if a landfill had been authorized on the site. Adams County, for instance, has compiled old commissioners' records on landfills onto an indexed map and files available for review at the Planning Department office (303-853-7000). The library at the Colorado Historical Society (303-866-2305), and some county offices, have old street directories and fire insurance maps (the "Sanborn" maps) that give information on former uses of urban property. Old maps and air photos may show landfill activity. Former sand and gravel pits were commonly used as disposal sites. If you can locate them, "old-timers" may recall useful information, too.

Local health departments may have files on old landfills, as well. In the Denver metropolitan area, the City and County of Denver, Environmental Services Division (303-285-4030) and Tri-County Health Department (303-220-9200) maintain databases of former disposal sites. Some other counties may have at least partial listings of former landfills. Unfortunately, numerous counties have no organized, easily searchable records regarding landfills.

The Hazardous Materials and Waste Management Division offers two services through its Records Center (303-692-3331) to help track down information on specific sites. Under the Colorado Open Records Act (CORA), our files are available for public review during normal business hours. Simply submit a written request for a file review, or ask if a file exists for a given address or location. Request forms are available from the Records Center. You will get a response within three days, and an appointment time will be made to ensure the file is available when you arrive. Copies of file material may be purchased.

The other service is an Environmental Record Search, wherein a staffer searches numerous environmental databases for entries of sites within a certain radius of your property, as stipulated in American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment standards. The databases include Solid Waste, Hazardous Waste, Superfund, Voluntary Cleanup, Emergency Response, Uranium Mill Tailings and methane surveys. There is a fee of $25 per hour of search time, and reports typically are ready in about two weeks. Of course, you

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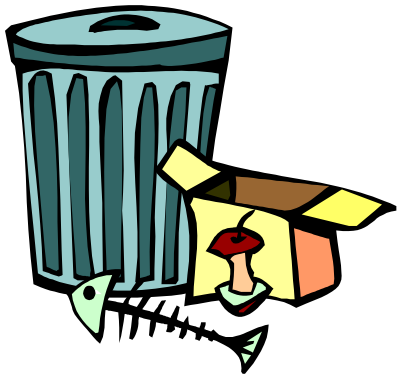
Air Division Offers Help With Landfill Regulatory Requirements

The Colorado Department of Public Health and Environment's Air Pollution Control Division (Air Division) has recently entered into a partnership with the solid waste landfill industry, and the Solid Waste Unit, to work cooperatively through various compliance concerns and to develop and provide training for the industry on regulatory requirements. This article is intended to provide background on the Air Division's efforts and current regulatory requirements for the municipal solid waste landfill industry.



Permitting:

The Air Division requires facilities to obtain construction permits prior to beginning construction of a source of air pollution, if emissions will be over certain levels (see Regulation No. 3, Part B, Section III.A.; all Department regulations are available on-line at: www.cdphe.state.co.us/regulate.asp). The threshold for any facility is determined, in part, by whether the landfill is located in an "attainment" or "nonattainment" area. Attainment areas are air sheds that are in compliance with federal ambient air quality standards. Nonattainment areas are air sheds that are not in compliance. There are more stringent requirements for nonattainment areas. Municipal solid waste landfills (for editorial considerations, this specific regulatory term will be contracted to simply "landfills or landfill") located in attainment areas are required to submit a construction permit application if the actual emissions of volatile organic compounds, or particulate matter 10 microns or smaller (PM10), are five tons per year or greater. In a nonattainment area the threshold is two tons per year of volatile organic compounds and particulate matter 10 microns or smaller. A construction permit is also required if the landfill is subject to a federal regulation entitled *New Source Performance Standard for Municipal Waste Landfills*. This regulation will be discussed later in this article.

In addition to obtaining a construction permit, landfills are required to pay air pollution emission fees. All sources of air pollution in the State of Colorado over certain thresholds are required to pay these fees. For landfills, the requirement to pay these fees is triggered by the emission of volatile organic compounds or particulate matter 10 microns or smaller in the amount of one ton per year or greater. For hazardous air pollutants (for example, ethane), the threshold is based upon a calculation found in Appendix A of air quality Regulation No. 3, Part A. The State charges the owner or operator of the air pollution source annually, based on what the owner or operator tells the State it emits on an Air Pollutant Emission Notice (APEN) (see Regulation No. 3, Part A, Section II.A.). An owner or operator submits an Air Pollutant Emission Notice to the State with a $100 check for processing every five years, or every year a significant change occurs in the process. Then, the State will send a bill each year to the owner or operator for the amount of emission fees owed. The charge per ton for volatile organic compounds and particulate matter 10 microns or smaller is $14.98 and for hazardous air pollutants is $100.

Regulatory Requirements:

Colorado's high altitude and arid climate often exacerbate conditions that lead to non-point source emissions of particulate matter ("fugitive dust"). In an attempt to minimize these emissions, many sources of dust are required to submit to the Division a fugitive dust control plan for the Air Division's review and approval (see Regulation No. 1, Section III.D.). This plan tells the State, and other interested persons, what work practices and technologies facilities employ to ensure there is not off-site transport of fugitive dust. Many landfills are also required to submit such a plan to the Air Division. The approved plan becomes a regulatory requirement that must be followed.

There may be other site-specific requirements included in the construction permit for the facility, such as monitoring requirements for the control equipment (for example, temperature of the thermal oxidizer). If a permit is required, the permit engineer will include such requirements in a draft permit, and the owner or operator should discuss any concerns with the engineer prior to the permit being issued.

New Source Performance Standard:

The U.S. Environmental Protection Agency (EPA) promulgated a regulation which specifically addresses emissions from landfills with initial design capacities over 2.5 million megagrams. The Air Division adopted this

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REGULATION UPDATE

Composters, the Clock is Ticking

As most of you know, the composting regulations were adopted on July 19, 2000. Many of you may not be aware that they became effective on September 1, 2000. The rule establishes siting, operational and permitting requirements for composting facilities. The rule allows for a great deal of operational and siting flexibility based on the facility's size and feedstock material.

What does this mean if you're a compost owner/ operator? Existing compost facilities have 180 days from the effective date to comply with applicable portions of the composting regulations. If your operation fits the definition of a Class I or II facility (defined by the feedstock type accepted), an application for a certificate of designation must be submitted before March 1, 2001. If you're operating as a Class III or IV facility (defined by the feedstock type accepted, facility size and volume), a certificate of designation is not required. However, a Class III facility must submit an operations plan within this 180-day window. A Class IV facility does not require an operations plan, however, compliance with the minimum standards (minimize and control nuisance conditions, control access, control storm water and prevent water pollution) is necessary.

The composting regulations are found in Section 14 and associated definitions in Section 1.2 of the Regulations Pertaining to Solid Waste Disposal Sites and Facilities 6 CCR 1007-2. Visit our website at www.cdphe.state.co.us/hm/ to review or download the regulations. If you have any questions, contact your solid waste representative, or me, at (303) 692-3437.

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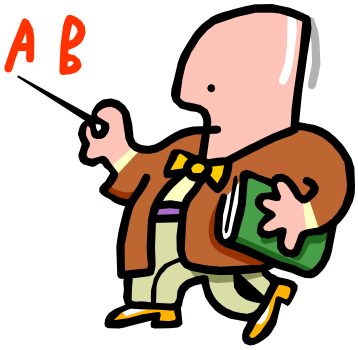
Composting 101 – Odor Control

As we divert waste from landfills for beneficial use as compost, we encounter new issues and problems associated with that process. Odor is perhaps the most common problem associated with composting. Failure to address odors inevitably leads to neighborhood complaints, and in some cases, closure of facilities. For the most part, however, odors can be controlled with proper management.

Composting is complex and has many considerations. It is not an exact science, but rather an art form. The following recommendations are just a few considerations when developing an odor management plan at a compost operation, regardless of the size of the facility.



Many composting odors may originate from the condition of the incoming feedstock. If these materials have been stored for some time prior to transport, they may arrive in an anaerobic (without oxygen) condition. If incorporated directly into the compost, odors may result due to a continued anaerobic condition.

If feedstocks are already in an odorous anaerobic condition when they arrive, they need to be brought to an aerobic condition as quickly as possible. This is usually accomplished by mixing them with coarse, dry, bulking materials to increase porosity and allow oxygen to penetrate. Turning the pile is also important for continued aeration, but the frequency is part of the art referred to earlier. Turning frequency depends on how thoroughly the materials were mixed initially, as well as the porosity of the pile. If the porosity is adequate, it may make sense to let the pile sit for a few days or weeks to get through the initial period of high oxygen demand.

Oxygen is the obvious compound to add when the source of odor is an anaerobic condition. Forced aeration systems mechanically introduce oxygen and are common at large facilities composting materials likely to generate odors. These systems require uniform pile size and porosity in order to assure complete pile aeration. These piles may sit undisturbed for longer periods of time than piles of a passive aeration system. Passively aerated systems depend on diffusion, convection and porosity to reduce the resistance of oxygen to move throughout the pile. The pile, or windrow dimensions, must be appropriate for both the mix of ingredients and the stage of the composting process, so that the oxygen diffusing through the pile is not entirely consumed before it reaches the center of the pile.

In addition to traditional aeration methods (turning piles and forced aeration), oxidizing chemicals may be added for odor control. These compounds chemically oxidize

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What is the "Ones Own Waste" Exemption?

According to the Colorado Solid Waste Act, each solid waste facility is required to get a certificate of designation before operating. However, according to section 30-20-102(3), Colorado Revised Statutes, if a person disposes of his/her waste on his/her own property (and is not a governmental unit), he or she may not have to obtain a certificate of designation. The person would not have to get a certificate of designation if they comply with solid waste rules and regulations and do not let their property become a nuisance.

Some people think that if you don't dispose of anyone else's waste, but your own, you are not required to follow the Solid Waste rules and regulations. However, they are wrong! What this exemption means is that so long as you take care of your property, and your disposal practices, to ensure that your property is meeting the minimum standards of the regulations, you don't need a certificate of designation. The minimum standards of the regulations require such things as: taking reasonable measures to collect, contain and dispose of litter; ensuring that noise, dust and odors don't pose a health hazard; managing the site so that birds, insects, rodents and other vectors don't pose a health hazard; and providing adequate cover so water does not pond on the site, and that wind erosion and/or water pollution does not become a problem. The minimum standards also contain a requirement that a facility or property shall submit a design and operations report to the Department for review and approval prior to disposing waste. However, the Department does not routinely require the submission of the design and operations plan, unless the Department receives complaints about the property or otherwise feels a need to review the plan. In addition, once an owner sells his or her property, or ceases on-site disposal activities, the owner is required to leave the site in an orderly manner and with a good aesthetic appearance. In addition, the property owner may have to inform prospective purchasers of the site, that solid waste had been disposed of on the property.

The "one's own waste" exemption was likely created to deal with the historical situation where rural landowners had waste to dispose of (and plenty of their own land on which to dispose), and the nearest landfill, or disposal site, was a significant distance away. In order to make life a little easier for people in this type of situation, the Colorado legislature decided to exempt such people from the certificate of designation, but still requiring such people to comply with the substantive requirements of the solid waste act and regulations.

So just because you are only throwing away your own waste on your property, you still have to comply with the Solid Waste Act and Regulations and ensure that your property does not adversely affect human health or the environment.

©Monica Sheets, Colorado Attorney Generals Office

UNIT LEADER'S NOTE: For a number of reasons, such as our thriving economy and increases in property transfers and development, the Solid Waste Unit has had to work on a growing number of "one's own waste" issues in recent years. Often we are brought into a situation the day prior to, or the day of, the property closing. There is little we can do to facilitate a timely closing at this stage in the process. So, if you are involved in an "ones own waste" situation, please contact the Solid Waste Unit representative assigned to your area sooner, rather than later. The main telephone number into the Division is (303) 692-3300.

Composting 101 – Odor Control

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anaerobic odors, but may kill the composting microorganisms as well. Although expensive, in low concentrations and with even distribution these compounds may be effective.

Odors can also be biologically oxidized after they have formed. This is important for composting systems. Odorous anaerobic products produced in the low oxygen center of the pile usually pass through an aerobic zone on the way out. Microorganisms will then degrade the odors aerobically as they pass to the exterior of the pile. This process is known as in situ biofiltration. When turning an anaerobic compost pile this advantage is lost, which is why frequent turning is not the best way to deal with an odor problem, but may make the problem worse instead. In a windrow system it is better to address porosity and pile size to ensure passive aeration throughout the compost pile.

Preventing odors requires consistent management throughout the composting process, starting with the incoming compostable materials. While emphasis should always be placed on prevention, odor treatment may also be required, particularly in sensitive neighborhoods.

Different anaerobic odors, whether they are from sulfur compounds, aromatic compounds or ammonia, may require specific considerations. These specifics, and the most common factors that result in anaerobic conditions: excessive moisture, inadequate porosity, rapidly degrading feed stocks and excessive pile size will be discussed in future editions of *Solid Wastes News and Notes*.

The information for this article was obtained from literature searches, web sites and industry references. The solid waste staff is available to provide technical assistance for composting and other solid waste issues through document references as well as referrals in the industry. Please feel free to contact any of us with your questions.

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Is There an Old Landfill Here?

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have the option to hire a professional environmental firm or consultant to do an assessment of your site. The American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment standard, E 1527-97, has brought improvement to the process and assures a minimum quality to the product, so be sure it is applied in yours.

In addition to files on certain landfill sites, the Division Record Center has several other sources of information on old landfills. The landfill gas surveys from the late 1970s and early 1980s (Raymond Vail report, 1979; The Denver Office of Emergency Preparedness report, 1981; Jefferson County report, 1980; and a Denver Regional Council Of Governments listing of methane-emitting landfills, 1981) contain much information about old landfills mentioned in them. Unfortunately, the listings are not complete. Another incomplete listing is in a document entitled "Historical Landfill List," which is very limited in usefulness. As far as we know, the historical landfill list was simply a compilation from memory and limited file review of sites known to the staff in 1983 or 1984. It has not been kept up- to-date. The list contains only spotty information, and current staff has no knowledge of many of the entries!

The Division Record Center has recently acquired (or re-discovered) a set of maps of the Denver metropolitan area showing landfills, sludge disposal areas, Superfund and hazardous waste sites and well locations. The maps are at a scale of 1:100,000 and cover from Meade on the north to Castle Rock on the south, and Hudson to Evergreen east to west. The maps were prepared in conjunction with the 1995 U.S. Geological Survey publication, "*Vulnerability of the Uppermost Ground Water to Contamination in the Greater Denver Area, Colorado*," Water-Resources Investigations Report 92-4143, which also is available at the Records Center. The U.S. Geological Survey and EPA Region VIII libraries should have them as well. The maps are useful, but certainly not complete. The series of maps is entitled, "Land Uses Which Affect Ground-Water Management," and they are known here as the 1994 Land Use maps. With our policy of stable areas of responsibility, Solid Waste staff members have become fairly familiar with many of the old landfills in their counties. The current wave of expansion and sprawl has brought many new ones to light, however, so please keep us informed, too. We will be glad to advise and assist in assessing the situation. However, you may have to hire a professional environmental contractor to determine whether an old landfill is present, and possibly to design appropriate protective measures.

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Training Opportunity

The Solid Waste Unit is considering bringing in a training course, entitled, *"Design of Waste Containment Liner and Final Closure Systems."* This course is designed and presented by the American Society of Civil Engineers.

Our purpose in sponsoring this class is to help train our staff and to offer technical assistance to local governments.

Attendance will be limited. If you work for a local government solid waste office or health department, and are interested, please send me an e-mail.

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The Perfect Souvenir

Congratulations to Roger Doak, his wife Jeannie and their five-year old daughter Maddie! They returned home on Thanksgiving Day from 17 days in China, with their new adopted daughter, Julia Junmei.

Julia was born on December 14, 1999, in Yongxiu, China. Julia's middle name, Junmei, means "forever beautiful." Roger's family is adjusting well to the many changes and challenges that come with an adoptive child.

Air Division Offers Help With Landfill Regulatory Requirements

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regulation and is currently working with landfill operators to ensure compliance in the State of Colorado.

Landfills are required to submit an initial design capacity report to the Division that notifies the State whether a landfill has a design capacity of greater than 2.5 million megagrams (Mg) or 2.5 million cubic meters (m^3). The initial design capacity report was due by June 10, 1996, for any landfills operating as of that date. If the design capacity is less than 2.5 million Mg or m^3, the facility is not subject to the rule. If the landfill is later modified to increase the design capacity to greater than 2.5 million Mg or m^3, the landfill is then subject to the rule.

For operations with capacities that are already greater than 2.5 million Mg or m^3, the next step is to determine whether the landfill's emissions of nonmethane organic compounds (NMOC) are over 50 Mg/yr. If the emissions from a landfill are greater than 50 Mg/yr, the owner or operator must install a gas collection and control device to reduce the nonmethane organic compounds emissions to the atmosphere.

There are several methods to determine nonmethane organic compounds emissions. The first method is the Tier 1 calculation, the simplest method, which is found in the New Source Performance Standards rule. This is a rough calculation that overestimates the emissions from the landfill. If the Tier 1 calculation indicates that the landfill is below 50 Mg/yr, then the owner or operator need only recalculate the emissions, using the Tier 1 method, at specified intervals. If the nonmethane organic compounds emission rate is greater than 50 Mg/yr, the owner or operator has several options. The first option is to recalculate the nonmethane organic compounds emissions using more sophisticated and accurate procedures (Tier 2 and Tier 3). The second option is to capture and control the nonmethane organic compounds emissions from the landfill. Obviously, most owners and operators of landfills that run the Tier 1 calculation and have nonmethane organic compounds emissions greater than 50 Mg/yr will run Tier 2 and/or Tier 3 procedures prior to installing capture and control equipment. But, in certain cases the owner or operator knows the nonmethane organic compounds emissions are so great that the capture and control system must be installed.

There are other monitoring, record keeping and reporting requirements under this rule, which are detailed in an EPA guidance document dated February 1999 and entitled, *"Municipal Solid Waste Landfills, Volume 1, Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills."* This document can be found on EPA's website.

Conclusion:

The Air Division intends to include another article in the next publication of this newsletter that provides additional information on the New Source Performance Standard and an explanation of the State's operating permit program. Please call Jill E. Cooper of the Air Division at (303) 692-3269, if you have any questions or comments about the requirements and programs discussed above.

CJill E. Cooper, Air Pollution Control Division

SAMS CORNER #5

We Need More Data, Please

As Glenn mentioned in *"Compliance Assistance from the Unit Leader,"* our Site Analysis Management System, or SAMS, has been growing ever so slowly, and I've missed an issue of "News and Notes."

We now have 15 sites in the system, each with varying degrees and types of data. We are encouraging all facilities to talk to their consultants, or their labs, about electronic data submittals for ground water analysis. The more requests the labs get for electronic data submittals, also known as electronic data deliverables, the easier it will be for the labs to produce them.

Electronic data will also benefit all of us, because it will be much easier to understand and interpret the data using our growing toolbox of computer applications.

A critical link in the whole process is knowing exactly where the data are coming from. As Glenn mentioned, we hope that you will be kind enough to let us bring our geographical positioning system unit to your sites and collect spatial data from your monitoring points. It is important to have "real world" coordinates for Site Analysis Management System. Many of you are using what is known as a "site specific" coordinate system. This works well in the design and construction of a landfill, but it doesn't work in our system.

As always, if you have survey data that you'd like to share with us, we'll be more than happy to accept it. Of course the reverse is also true; if we've captured your data by hand (for example, geological information from well logs), we'll be more than happy to share it with you.

To sum things up, please talk to your lab or consultant about electronic data submittals, and keep an eye out for that regulator with the bright yellow bag containing a Geographical Positioning System strung over his or her shoulder

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THE LIFE AND TIMES . . . STAFF BIOGRAPHIES

Ms. Pat Martinek

Welcome to the fifth in our series of staff biographies. This edition of the newsletter profiles Ms. Pat Martinek, technically a fourth-generation Colorado native, though her family did not move back to our beautiful state until she was fourteen years of age.

Born in Indiana, Pat grew up in the Midwest, moving to Colorado as a teenager and graduating from Denver's East High School (go Angels!). Pat went on to obtain her B.S. in geology from Western Washington University in Washington State, in 1979, and from there returned to Colorado, where she obtained her masters degree in geology and geochemistry from Colorado State University in 1983.

Pat Martinek and the men in her life

Following graduation, Pat worked in the mining industry as a contract employee. This work was never quite fulfilling for Pat, however, spurring her to re-enter academic life in 1985 at the Colorado School of Mines. While attending Mines, Pat enrolled in a variety of environmental courses, such as environmental engineering and ground-water hydrology and modeling, all in an attempt to shift paths and find a more stable career.

Pat's first environmental job along this new path was with HydroSearch, a local, private environmental consulting company. After a few short months, however, Pat was still restless, and in late 1985 she accepted a position as a mined land reclamation specialist with the Department of Natural Resources. As part of that agency, Pat had a variety of regulatory duties including permitting, inspection and enforcement.

After three years, the last year of which Pat also took on duties as a Superfund coordinator, she made the jump to the Colorado Department of Public Health and Environment and the Uranium Mill Tailings Remedial Action Program, under Mr. Ed Bischoff. As part of the Mill Tailing program, Pat was site project manager from 1989-1990 and then acting supervisor until late 1991, when she accepted a new challenge, that of mother. Pat and her husband of seven years welcomed baby Ryan, and Pat began working again part-time, first as a continuing part of the Mill Tailings program, and then, in 1992, as part of the Solid Waste Unit, where she has been ever since.

Pat is very enthusiastic about her role as the Colorado Department of Transportation (CDOT) liaison for the Solid Waste Unit, describing her position as “trying to keep the Transportation Department out of trouble” by assisting them with both solid waste and hazardous waste permitting issues. Pat's responsibilities, as part of the solid waste staff, include a great deal of technical review and conducting site visits with Transportation Department personnel and fellow Division staff members. Pat agrees with Ron, Roger, Pete and Donna when she says that it is the variety of people and issues that keep her job interesting. Working with “practical and down to earth” people, and being involved with projects ranging from a “big hazardous waste solvent plume to handling road kill” has given Pat assurance that the career change she chose 15 years earlier was the one for her.

How does this satisfied Transportation Department liaison relax? By having a second child of course! Yes, Pat and her husband welcomed baby boy number two in 1993, and now that the boys are old enough, the four Martineks enjoy great outdoor Colorado activities together, such as biking, camping, sailing and skiing.

A self-described “people pleaser,” Pat would like to retire early and become a full-time fiber artist. She has already been recognized in the Department’s employee art competitions, receiving blue and red ribbons four years running — a true people pleaser indeed.

CBrenda Lujan, Contributing Columnist,
Extended Family and Former Solid Waste Unit Staff

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