Solid Waste News & Notes

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

Vol. 2, No. 2 June 1999

Inspection Season is Upon Us

It=s that time of year again when Solid Waste staffers pack up our Ainspection box@ with an assortment of forms, documents, a camera and sunscreen. Our transportation is usually a state vehicle with more than 100,000 road-weary miles on the odometer. As we slide behind the wheel to begin the trip, one thought forms, Adoes this #@*%! (tin heap) have one more road trip left in its abused body?@

The mere mention of an inspection can send the heart rate of some operators into triple digits and cause the same heartburn you=d get from eating too many chili dogs.

Contrary to what you may have heard, Glenn, our kind-hearted leader, does not give us bonuses for each violation we find. As inspectors, our job is to ensure that each facility is operated in a manner protective of human health and the environment. To ensure such compliance, solid waste disposal sites and facilities must meet the requirements of the solid waste regulations (6 CCR 1007-2) and their own respective operations plans. As regulators, we strive for fairness, objectivity and consistency when inspecting each facility.

Because inspections only allow us to observe a Asnapshot@ of site conditions, it=s important for operators to document and communicate any extenuating site conditions that may appear to be a violation. For example, recent severe weather may have resulted in ponded water at the working face or accumulation of windblown debris along the perimeter fence.

Although most owners and operators strive to operate their facility in compliance with the regulations, sometimes poor operational practices do occur and, if not appropriately corrected, serious problems may arise. Working together with the Solid Waste staff, facility owners and operators can develop a clearer direction toward correction of problem areas identified by the inspector.

Colorado Department of Public Health and Environment

Remember, as an owner and/or operator this is an opportune time to ask the inspector questions and discuss any concerns you may have. Let=s face it, the regulations are dull reading and interpreting them can be frustrating at best. No question is absurd or too weird, in fact, the strange questions often provide the best opportunity for discussion.

Historically, because of staffing issues, the annual inspection provided the only opportunity for staff to visit with facility personnel. However, hopefully this inspection season the Solid Waste Unit will become fully staffed and our presence at each facility will increase to twice a year (by government statistics that=s a whole bunch!).

So, during the next six months expect "*the call*" warning you that an inspection is scheduled for your facility. But hey relax, after all, "we=re from the government and we=re here to help."

C *Roger Doak, Solid Waste Unit, (303) 692-3437*

Compliance Assistance from the Unit Leader

As you have read in Roger's article, inspection season is here, and just in time for it, we have several new staff members for the Solid Waste Unit. Doug Ikenberry, a Professional Engineer, from the Federal Facilities Program within the Division became a full time member of Solid Waste as of June 1, 1999. I have assigned him the territory formerly assigned to Brenda Lujan. A second new staff member, Darrell Dearborn, will be on board by the time this is read. He comes to us from the Jefferson County Health Department with a very good cross section of experience and skills. We have included brief biographies of Doug and Darrell on page seven. A third new person should join us in July.

Once the new folks are acclimated, I plan on placing them into territories currently assigned to Roger Doak and Pete Laux, allowing for two staffers in each of these areas. There will be rotation of the newcomers through other territories and other assignments for training purposes over the course of time. One staff member will also be assigned to writing a *Solid Waste Report* for the Unit that will include various volumes of wastes, waste types and recycling information. We will have more on this concept at a later date.

As Roger tells you in his article, we view inspections as an opportunity to answer questions and solve compliance

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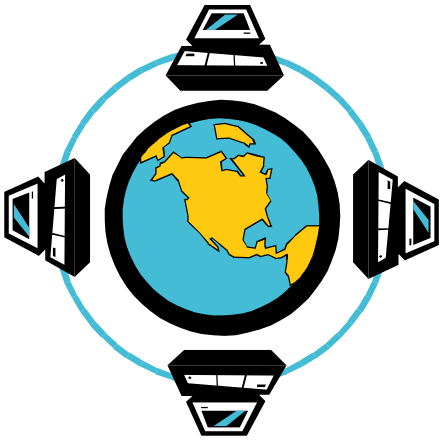
SAMS CORNER (#3)

Coordinate Mapping System Selected for SAMS

At the March meeting of the local chapter of the Solid Waste Association of North America (SWANA), Division staff made a presentation of the capability of the Site Analysis Management System (SAMS) to one of its core audiences. The presentation was held at the Landmark Inn on Colorado Boulevard over a luncheon taco buffet. The food was good and so was the crowd!

Andy Putnam first took the helm and showed off some of SAMS enhanced functionality. After his quick tour through the system, I took the floor and led the group through an exercise showing how we have used SAMS to interject some computer technology into our work. We displayed data from wells that could not physically be affected by current landfilling operations. The data we examined showed values that were clearly in exceedance of ground water standards for sulfate. We first displayed the data using one of the statistics programs we have linked to SAMS. Then we used the spatial aspect of SAMS to clearly show that the elevated values were from naturally-occurring phenomena.



A rather spirited question and answer period took place after our demonstration, and I=d like to take the rest of this corner to address one issue in greater detail. All landfills have a coordinate system that operators work from. In many cases, it will consist of an Aeasting@ and a Anorthing@ position based on some known point. This works very well for most landfills, and we would not think of asking you to change. However, the Division has to deal with many sites across the state. Some of these sites are landfills and many are not. We need to be able to understand the spatial relationship among all of the sites, and in order to do this, we have chosen a real world coordinate system.

A real world coordinate system, as its name implies, is based upon a real location on the earth from which all other points are referenced. In such a coordinate system, we can locate and spatially orient the location of a flea on the tail of a Kangaroo in Australia with the rattles on the tail of a Rattlesnake in El Paso County, Colorado. More practically, we can display the spatial data of all our sites and have them all plot in the appropriate location in reference to each other.

The system we have chosen to standardize our coordinates on is based on the Universal Transverse Mercator Map Projection, or UTM. It consists of 60 north-south zones, each six degrees wide in longitude. Most of Colorado falls within the 13th zone. For our datum we have chosen the World Geodetic System of 1984 (WGS 84), which is (for our purposes) identical to the North American Datum of 1983. Finally, we have chosen the meter as our basic unit of measure.

What does all of this mean to landfill operators? We will be working to develop appropriate maps, ground water monitoring well and gas probe locations for your sites. While we have information in-house on much of this, there

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Compliance Assistance from the Unit Leader

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problems together. As the program becomes fully staffed, we believe our ability to assist you will increase considerably.

A Solid Waste Unit staff member recently attended a day-long training seminar entitled Preparation of Spill Prevention, Control and Countermeasure (SPCC) Plans. This federal rule applies to certain above and below ground tanks and may affect solid waste facilities. An article addressing this topic will be in the next issue of this newsletter. Meanwhile, if you have questions regarding this subject, please call us and we will try to assist.

In closing, I would like to mention that the Solid Waste Unit is looking forward to working with all of our customers in what will be Aa retraining@ of the Unit. There has always been a large degree of technical expertise shared by operators and facilities that assists us in doing a more thorough and better job. This and our customers' efforts to keep us within some level of consistency are always appreciated. I have spoken to some of you about getting the new folks onto sites in a Alearn the business@ mode, rather than only in an inspector mode, and we will be proceeding with this concept later this summer. So, I take this opportunity to thank you for past efforts and efforts yet to come!

C *Glenn Mallory, Solid Waste Unit Leader, (303) 692-3445*

REGULATION UPDATE

Recycling and Composting Draft Rules

The draft rules are almost ready for upper level management to read and approve for release. They should be distributed in early July if all goes according to plan. As always, there will be mailings to interested parties and work sessions concerning these two proposed rules. We will place the draft documents on the Internet in the same manner as the last rule change. That worked very well from our viewpoint, saving time, printing costs and postage. Scheduled dates for work sessions will be in the memoranda that accompany the release of the drafts. Your input on these draft rules is appreciated.

Disposal Restrictions Questioned Regarding Lead Paint Debris Rule

The comment period for the lead-based paint debris rule (mentioned in previous editions of this newsletter) closed April 2, 1999. The Solid Waste Unit did send in a comment that objected to the disposal restrictions. It is our understanding that both the Solid Waste Association of North America (SWANA), and the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), have submitted similar objections to the proposed rule. The EPA held a session on the topic in New Orleans in early June. We will keep you updated on this draft rule in future editions of the newsletter.

EPA Proposes New Industrial Septic System Regulations

The U.S. Environmental Protection Agency (EPA) is proposing new requirements for certain facilities that discharge drain water into a septic system or leachfield. The EPA is targeting cesspools, industrial waste disposal wells, and motor vehicle waste disposal wells, which are called Class 5 Injection Wells. The proposed regulations would either phase out such wells, or require that water discharged from these target businesses into ground water systems meet either drinking water or ground water standards (called Maximum Contaminant Levels, or MCLs) before they are discharged to the septic or leachfield systems.

These new regulations are geared toward protecting areas where ground water is, or could be, used for drinking water. An inventory of such areas is currently being compiled under an EPA-authorized program, called the Source Water Assessment Program (SWAP), by the Water Quality Control Division at the Colorado Department of Public Health and Environment.

Specifically, for large capacity cesspools, under the terms of the proposed regulations, new cesspools would be prohibited, and existing cesspools would be phased out over five years. Industrial waste disposal wells would be prohibited from exceeding drinking water standards or other health-based limits at the point of injection. These kinds of wells would also be required to meet MCLs within 90 days of the completion of its local SWAP. Finally, for motor vehicle waste disposal wells, two options are being proposed: ban motor vehicle wells completely, or owners would be allowed to receive a waiver from the ban and apply for a permit that would require the waste to meet drinking water standards at the point of injection. The well owner must close the well or apply for a waiver within 90 days of the completion of the local SWAP.

The EPA anticipates that the new regulations for these wells will be finalized this fall—probably in November 1999.

For further information about the new EPA regulations, call Douglas Minter at EPA in Denver at (303) 312-6079. For more information about Colorado=s SWAP program, call Kim Parker at the Department=s Water Quality Control Division at (303) 692-3582.

***C** Pat Martinek, Solid Waste Unit=s CDOT Liaison*
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ARegulated Gas@

Colorado Solid Waste Regulations Pertaining to Landfill Gases

(Part 3 of a 4-Part Series on Municipal Solid Waste and Landfill Gas)

In the first two parts of this series we examined the chemical and physical properties of landfill gases and noted potential dangers that may be caused by these gases. The main components of landfill gases are carbon dioxide and methane. These gases pose a danger of asphyxiation if they displace air to the extent that sufficient oxygen is not available to support life. Further, if they mix with air so that methane concentrations are between 5 and 15 percent by volume with air, an explosive mixture will be formed.

An explosive mixture needs only a source of ignition to explode. Open flames and electrical sparks were mentioned earlier as sources of ignition commonly found in buildings. A potential ignition source, not mentioned due to its rarity around landfills, is a discharge of static electricity built up by friction, such as a person shuffling across a rug and touching a doorknob or sliding across a seat and touching a metal object. Friction may cause an electrical charge to form, and it discharges to a ground at the first opportunity. Recently, an article in *Waste News* (March 29, 1999, page 4) reported that the city of Atlanta was considering an expenditure of $2 million to remove an old landfill from under a city park. A young girl suffered serious burns to her hands after a mysterious explosion while playing on a slide. The cause was attributed to a static electrical spark from friction near tubular slide supports where methane had been trapped.

Although rare, such things do happen! Gases tend to disperse, so significant danger would be more likely in buildings and structures at and near landfills. Of the twin dangers of landfill gases, asphyxiation and explosion, the explosive mixture presents a more insidious hazard at lower concentrations, so that is the focus in landfill gas regulations. For protection against these dangers, state and federal landfill regulations (6 CCR 1007-2, Section 2.3 and 40 CFR 258.23, respectively) require monitoring for explosive gases at active landfills and include specific limits for explosive gases at a landfill. The values are based on the lower limit of the explosive mixture of methane with air, which is 5 percent by volume.

Colorado solid waste regulations are straight forward: 1) sites and facilities that may generate explosive gases (methane) shall monitor for explosive gases (Section 2.3), and 2) the concentration of explosive gases shall not exceed: A) 25 percent of the lower explosive limit (LEL —was explained in part 2 of this series) within facility structures, and B) the LEL (5% methane by volume in air) at site boundaries (Section 2.3.1.). For buildings and structures, the threshold is reduced significantly from the LEL to have a margin of safety in places most likely to have an accumulation of landfill gases. Of course, these limits do not apply to gas collection equipment and control systems where more would be expected if they are functioning properly.

A monitoring program should be based on site-specific conditions, with monitoring points placed near property boundaries mainly where the gases are likely to go. Generally, this would be uphill from a disposal cell, for example, or in a shallow, sandy lens on the site. Emphasis on the site boundary facing neighboring development may also be advisable. Monitoring should be carried out on at least a quarterly schedule. Design for a typical gas monitoring probe is found on page 93 of EPA=s *Solid Waste Disposal Facility Criteria, Technical Manual*, available from solid waste staff. This manual is especially useful for landfill operators because it not only states the regulations, it discusses applicability and practical ways to meet the regulatory requirements.

Occasionally methane collects in a monitoring well, and the 5 percent threshold is exceeded. This should trigger a follow-up to check concentration in soil around the well. Typically, probes are inserted about 2 to 3 feet into soil a

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distance of about 10 feet away in three or four directions from the well. This procedure is repeated until the gas readings are below the regulatory limit, hopefully before the property boundary is encountered. Some small landfills accomplish gas monitoring in their ground water monitoring wells. As the cap is slowly removed for water sampling, a gas probe intake line is inserted, and the atmosphere within the well casing is tested.

If readings above the regulatory limits are found, the operator shall immediately take steps to protect human health and notify the Department and local authorities, as described in Section 2.3.3 of the state regulations. First response actions may be to vacate the building or area, provide ventilation, limit access or post warning signs. A report of the problem and actions taken must be placed in the facility operating record within seven days, and an approved remediation plan is to be implemented within 60 days of detection.

It is interesting to note that landfill regulations prior to 1983 do not even mention landfill gases. Consequently, many old landfills were closed without gas monitoring or control systems. As gas generation can go on for decades, some former landfills today are causing problems for occupants and neighbors. The Department, for public safety, has chosen to use the current regulatory limits also at old landfill sites with no current operator, which places responsibility for human health on the present property owners.

And what about the danger of asphyxiation? We think this is pretty well covered by OSHA confined space entry standards (29 CFR 1910.146) and common sense. While an explosive mixture usually is not detectable, difficulty in breathing or onset of nausea should serve as warning of an unhealthful atmosphere. However, as a precaution, the Department usually requires a health and safety plan prior to disturbance of an old landfill area, and it must contain contingencies for detection of high levels of landfill gases.

Current Colorado solid waste regulations, along with all Department regulations, may be viewed and downloaded from the CDPHE website:

<http://www.cdphe.state.co.us/cdphereg.html>.

In the next installment, we will discuss air regulations regarding landfill gas emissions and how new source performance standards and emissions guidelines may impact your landfill.

***C** Pete Laux, Solid Waste Unit, (303) 692-3455*

Northeast Plains Landfill Operators Demonstrate Leadership in Creating Model Professional Organization

Colorado, with an area of 104,247 square miles**C**the eighth largest state, is home to great diversity in geography, geology, climate and demographics. Elevation ranges from 3,350 feet by the Arkansas River at the Kansas border to 14,433 feet atop Mount Elbert near Leadville. There are mountains and plains, forests and deserts, sprawling urban areas and desolate corners in many counties. With such a variety of conditions, it may be difficult to follow state-wide solid waste rules and regulations in an economical manner and also meet needs of the local community and conditions at the local disposal facility. Many local needs are common to several counties.

Bob Terrill in Logan County recognized this need for area landfill operators to have more open communications and exchanges about their methods of operations in general, and their problems in particular. According to Bob, he first tried with a group that proved too large. Then about two years ago, almost by demand from a few of the first participants, he called together a more select group of operators from nearby counties. It worked, and now they are known as the AGreat Plains Landfill Operators and Associates.@ Bob=s main goal for the group is to help each other achieve compliance on a small budget! Bob Terrill, President, and Shirley Unrein, Secretary/Treasurer, organize quarterly meetings, usually held in Sterling, that are attended by 6 to 10 landfill operators. The Aassociates@ in the group are local composters, recyclers and a few other technical folks. In addition to open discussions about their operations and challenges, there may be a guest from industry or government to bring new, practical information to the group. Often a field demonstration, such as alternative daily cover material, is provided. Nominal money is collected to cover administrative costs, mainly postage and doughnuts, although I=ve heard that Bob=s wife, Culleen, makes great cookies!

Surely there is a place for similar groups around the state. Following Bob=s lead of keeping the group small, focused and informal, why not get a group started in your area? The solid waste staff is available for support and suggestions, but why not hear directly from Bob Terrill? His phone number at Logan County Landfill is (970) 522-8657. Good luck!

***C** Pete Laux, Solid Waste Unit, (303) 692-3455*

THE LIFE AND TIMES . . . STAFF BIOGRAPHIES

Mr. Roger Doak

The second biography in our series brings us face to face with Mr. Roger Doak, another East Coast native who has made Colorado his home. When asked what one thing best describes him, Roger replied, patience and persistence. Considering the fluctuating and sometimes rocky road that brought Roger to the Solid Waste Unit, patience has truly been his virtue.

Roger=s path toward solid waste regulation began at Western State College in Gunnison, Colorado. While starting out pursuing a degree in forestry, Roger decided to take the road most graveled and obtained a B.A. in geology instead. Following graduation, the oil industry was booming, allowing Roger to quickly obtain work as a well-site geologist in Utah. Unfortunately just a year later, the oil boom ended, and Roger, as with many others, found himself out of a job and headed back to Colorado.

Little experience and a tight job market left Roger working odd jobs for over a year, until he contacted a former college professor, who recommended putting windshield installation aside in exchange for enrolling in graduate school.

With this opportunity to get back into geology, Roger packed up Jeannie, his wife of just three months, and headed northwest to Eastern Washington University. Two years later after obtaining a masters degree in geology, they returned to Denver, moved in with Jeannie=s folks (couldn=t beat the rent!), and the road again turned rocky as Roger spent a year looking for a job in petroleum geology, while working temporarily for the Denver Water Department.

A breakthrough came when Roger was offered a job with ChemNuclear Geotech, where he remained for four years directing the contractors responsible for remediation of the Denver Radium sites. As fate would have it, an ad in the newspaper caught his eye and Roger (along with approximately 300 other geologists **C** Ron Forlina included!) sat for an employment screening test for the State of Colorado. Results of the test placed Roger in the top 25, but with only three available positions, it would take an oral exam and another year of patience and persistence to finally become a part of the Solid Waste Unit in the Spring of 1992.

As a member of the Unit, Roger oversees facilities in 11 counties with populations ranging from less than 1,000 to more than 500,000. As Roger describes it, he=s in charge of Aa little bit of everything, a chunk of the metro area, a block in the mountains and sections of the plains.@

Jean, Maddie and Roger Doak

Roger likes the diversity as it keeps the job interesting and allows him to continue doing oversight on such large facilities as Denver Regional Landfill in Weld County, yet provides him the opportunity to get his hands dirty in the field assisting smaller facilities, such as Firstview in Cheyenne County.

Roger is very enthusiastic about ensuring that his facilities are provided the technical and regulatory assistance they need to get things done right, and does not

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THE LIFE AND TIMES...

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hesitate to literally take the smaller, inexperienced facilities by the hand.

Beyond regulation, Roger=s laid back attitude will usually lead him to pick up his camera and head into the mountains, or to jump on his bike, or to take his three-year-old daughter, Maddie, hiking. Of course, hanging around town enjoying a cold beer isn=t out of the question either!

Though the path ahead is always uncertain, Roger=s life appears to have leveled out for now, particularly as March 1999 saw the third anniversary of Roger and Jeannie=s trip to China where the ultimate test of Roger=s patience and persistence occurred**C**adoption of Maddie and bringing her home to Colorado.

Next issue we will profile Mr. Peter Laux.

C *Brenda Lujan, Contributing Columnist, Former Solid Waste Unit Staff Member and Environmental Attorney with the Firm of Burns, Figa & Will, P.C., (303) 414-6999*

Coordinate Mapping System Selected for SAMS

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may be times when we will need your assistance. Division staff will always be willing to share information created through this system. If this is of interest, we will need to get the map makers or AutoCAD groups of both of our organizations together to determine how a data transfer can occur.

Don=t forget to visit our SAMS website and keep up to date with the latest news. It can be found by pointing your browser to <www.cdphe.state.co.us/hm/samsmain.html>.

C *Ron Forlina, Solid Waste Unit*
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Solid Waste Unit Adds Two New Staffers

Two new staff members have recently joined the Solid Waste Unit: Doug Ikenberry and Darrell Dearborn.

Doug Ikenberry comes to the Unit from the Federal Facilities Program of the Hazardous Materials and Waste Management Division. Doug received his B.S. degree in civil and environmental engineering from the University of Colorado at Denver in 1983. Out of college, he started employment with a civil and structural engineering firm, where he was responsible for civil design of commercial and residential developments. Doug also worked for two geotechnical engineering firms, where his tasks included field and laboratory construction materials testing, as well as exploratory drilling and environmental remediation activities.

In 1991, Doug joined the Division as the on-site coordinator at the Eagle Mine, where he provided State oversight of environmental clean-up operations for four years. He received his Colorado license as a Professional Engineer in 1995 and was assigned to Rocky Flats, where he reviewed bulk and containerized storage Corrective Action Management Unit (CAMU) documents and designs for capping of the present landfill. Doug concurrently worked at the Rocky Mountain Arsenal, where he also reviewed a CAMU document and subsequent designs for an on-site hazardous waste landfill. Finally, at the Federal Facilities Program, Doug was responsible for project management for the Peterson Air Force Base site, which entailed ground water evaluation.

Darrell Dearborn comes to the Solid Waste Unit from the Jefferson County Department of Health and Environment where he was employed for nine years in the Air and Underground Storage Tank Programs. Darrell received his B.S. degree from Metropolitan State College of Denver in 1986. At Metro he studied geology and land use planning. With the Solid Waste Unit, Darrell=s responsibilities will include regulatory compliance inspections of solid waste landfills, pollution prevention activities, recycling activities, medical waste disposal and review of operation and design plans for landfills.

Darrell has two sons, Matthew and Stephen, age 16 and 13. He enjoys skiing, fishing, boating and camping with his boys and hopes to soon take them to Cabo San Lucas in Mexico to fish for Marlin and Sail Fish.

Solid Waste Unit

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George Carnes, Editor

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Solid Waste Unit Leader

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