

## Our Mission

To be the leading consultant solving the engineering or land surveying problems unique to rural-urban communities and their enterprise—government, business, and agribusiness. And in the process, to build trust and lasting relationships with the people among whom we work and live. ◀

## New groundwater protection rules for municipal sanitary landfills

### Impact on clients is substantial

New rules covering the groundwater protection systems for the disposal of nonhazardous wastes at Iowa's municipal landfills went into effect last December 10. It has meant some major changes for Kuehl and Payer, Ltd. landfill clients.

Says Ivan Droessler, who works with Sac and Cherokee County landfills, "The issue having the biggest impact on clients is the forced closure of any unlined landfill areas and how this translates into unplanned closure costs, new construction costs, and increased operating costs."

There are also rule changes that will affect spring and fall groundwater sampling protocols. Where once nine items were checked, there are now 62 different parameters. And, where the old rules called for down gradient monitoring wells every 600 feet; the new rules require them every 300 feet; twice as many wells. And of course, there is the paperwork, the detailed plans and schedules which have to be prepared and submitted by operators of landfill facilities, describing how the new rules will be implemented.

But, the new rules that required landfills without special liners to stop accepting waste by October 1 of last fall are causing the most significant changes. "Buena Vista County, for instance, stopped accepting all waste at its landfill and closed down its landfill completely as of October 1, 2007 because it was no longer compliant."



The pictures above (going clockwise from lower left) show installation of the groundwater diversion layer in Cherokee's new landfill cell; the finished cell in September just days before waste filling began; and landfill operations two months after opening.

Buena Vista now recycles what it can and sends the remaining solid waste, approximately 1000 tons a month, to Cherokee County's landfill for burial. Bob Payer is now working with Buena Vista on the final closure and cover for this facility—an effort which will require 45,000 to 60,000 cubic yards of dirt cover. Cherokee County is also closing its original noncompliant landfill area which involves 100,000 cubic yards of dirt cover.

"Actually Buena Vista has been sending some of its solid waste to Cherokee for some time. Buena Vista County is part of a PCB planning area along with Cherokee and Plymouth Counties, and these three counties have worked together on planning and disposal for several years, sending part of

their waste (approximately 6000 tons a year) to Cherokee." With the closure of Buena Vista's landfill, this county now sends 12,000 tons a year of waste to the Cherokee landfill.

So just how is it that the new regulations on landfills are making it so difficult for some clients, like Buena Vista County, to meet?

Ivan explains, "First, the new rules say that any landfill cell that did not have what is known as a Subtitle D liner—one that meets EPA specifications and has a two foot clay base covered with a 60 mil thick membrane; or an alternative liner, defined as a four foot clay liner, had to close. Landfill facilities had to close noncompliant cells, Continued, LANDFILL, page 2

## PROJECTS

### Pool in Belmond with new zero depth addition now open

WHEN THE municipal swimming pool in Belmond opened on Father's Day it featured a new 2300 square foot zero depth addition designed by Kuehl and Payer, Ltd.

"The zero depth area replaced a separate wading pool," says Neal Kuehl, "and, when additional funds are raised, will include an interactive activity structure." This is the second improvement project for the Belmond pool completed by Kuehl and Payer, Ltd.

The first was in 1994 when the bathhouse was renovated and new filters and stainless steel gutters were added. A water slide was added to the pool at the same time. This slide is 20 feet high and 144 feet long.

On other projects, Neal reports that 2500 feet of **water main** has been added to the **Albert City** project. This will serve the new ethanol plant in the southeast corner of the City. Lundell Construction will be the contractor.

Bids were taken for the project in **Denison** to convert their **chlorination facilities** from gas feed to onsite sodium hypochlorite generation.

"Bids were received on both equipment and installation with the net total slightly below budget. The system will use electrolytic cells to convert salt to 0.8% sodium hypochlorite; and the equipment manufacturer will be MIOX Corporation. It will include a 40 ton salt storage/brine maker unit." The chlorine will be used to disinfect about 3.5 million gallons per day of water from the Denison Municipal Utilities water treatment plant.

Approximately 2800 feet of **water main** has been designed for **Kinglsey** to provide for new service and better pressure on the south side of the city. The

contractor will be Beelner Service from Kingsley.

Bidding is complete for the **Winnebago water project** and construction will start soon.

Work on **2008 street improvements for Fort Dodge** is being handled in both the Storm Lake and Algona offices says Bob Payer.

Nick Frederiksen, Algona, assisted by Bryan Muhlbauer of Storm Lake, completed the survey. The preliminary assessment was prepared by Nick Roethler and Kent Rode in the Algona office and by Bob Payer in the Storm Lake office.

The plans and specifications for the **2008 Laurens, Iowa, street improvements** were completed and filed in late May. Zac Anderson assisted Bob Payer with this package. The 2008 infrastructure project for the City of Alta was let on June 2. "R and R Excavating from Hutchinson was the low bidder," reports Bob. "That work should also begin in June."

In **surveying news**, Scott Shevel reports that the preliminary phase of the **I-29 construction** project is complete and that construction staking for the **Highway 60 project** is done.

"We are working on a condo plan in Storm Lake; we have subdivisions under construction in **Holstein, East Ridge**. The final plat for a subdivision in **Alta, the 8th addition**, is complete; and we are doing a preliminary plat for **Friesen** in Storm Lake.

"We also have surveys coming up for new **cell tower sites in Ruthven, North English, and Storm Lake.**"

Surveys in the Sac City office include **turkey feeding sites for Sara Lee**; two **CREP sites** in Buena Vista County, and surveys for the **Iowa Department of Natural Resources** in Lake View. Jeff Krueger is project manager for these projects.

A number of animal waste projects continues in the Storm Lake office. **Continued, PROJECTS, page 3**



Looking out at the new 2,300 square foot zero depth addition to the swimming pool in Belmond are Earl Zimmerman (left) and Kent Brcka, of Henkeo Construction. The bathhouse in the right of the picture was renovated in 1994 to a design completed by KPL. The picture was taken from atop the new 20 foot high slide.

**LANDFILL, continued ...** develop an area with an appropriate liner, or make other arrangements."

Buena Vista had to close because their cell was noncompliant and did not have any appropriate land available for development of a new compliant cell. "But, in anticipation of these changes, Sac and Cherokee Counties, working with the team of Kuehl and Payer, Ltd. and Fox Engineering of Ames, prepared plans for horizontal expansions to their land fill areas. These expansions involved the installation of a groundwater diversion system, and then the placement and compaction of four feet of clay liner (defined by the rules as an alternative liner); and then a pipe collection system with an overlaying leachate drainage layer. "

The construction of this horizontal expansion at Cherokee had to be completed before the October 1, 2007 deadline (construction finished in September) for two reasons. One, no waste could be disposed of in the old, noncompliant cells because of the rule changes. And two, the incoming waste had to be immediately disposed of in the new horizontal cells because the bottom of the new cells had to be covered with at least two feet of garbage and then two feet of soil to

prevent the clay liner from damage of desiccation that could occur during the winter freeze if the liner was insufficiently covered.

Sac County completed their horizontal expansion cell in August of 2007. Because of the potential for winter desiccation (described previously) and because Sac County only accepts waste generated in the county, approximately 5000 tons annually, they needed the extra time to build up the two foot layer of waste needed to protect the clay liner.

But, there is a new challenge. "It appears that now the Iowa DNR may be opposed to the use of an alternative liner, defined as the four foot compacted clay liner such as used in Sac and Cherokee counties. The DNR has issued new guidelines for modeling to be used to prove the equivalency of the alternative liner.

If the DNR does not permit an alternative liner, it means that the more costly Subtitle D liner will have to be used. This will require an increased cost in liner preparation of about \$20,000 an acre. But, that is not the major cost. The even bigger cost will come at closure of Subtitle D lined cells. **Continued, LANDFILL, page 4**

**PROJECTS, continued ...**

Says Ivan Droessler, project manager, "Work continues on the **Sara Lee feeding sites**. Two sites are under development; seven additional sites are designed and ready for construction, and plan development is under way for two more.

"Potentially four more facilities may be sited and developed yet this year." Zac Anderson and Steve White are assisting with development. Eric Yunginger and Justin Anderson are doing the drafting.

Two **EQIP funded turkey manure barns** designed in late 2007 are under construction. Earl Zimmerman and Ted Zimmerman are providing construction inspection.

Closure and capping of a cell at the **Cherokee landfill** began in May. "This involves approximately 100,000 cubic yards of earth work which is being handled by Bluewater Contracting of Spirit Lake. But, progress is slow because of the wet weather we've had this spring," says Ivan. Earl Zimmerman is providing inspection on this project. Greg Villegas and Jon Myers are doing the construction staking.

In the area of **General Management Services**, Clarence Krepps

reports that the candidate **search for a new city administrator for Rapid City**, South Dakota, is nearing completion; and a **search for a new public works director for Algona**, Iowa, continues.

From the Algona office, Curt Wiseman again reports that his area is: "Busy! A rural subdivision outside Algona has hired us to look at alternatives to deal with **radium** that has been **found in their well**. We don't know if this will result in treatment, a new well, or exactly what. Another big project is for an **egg breaking and drying facility**. This client is taking over an existing plant and we are looking at the wastewater treatment lagoons for possible improvements and permitting."

A **wastewater collection system** evaluation for **Swea City**, Iowa, is underway. "Both television and flooding studies are being made aimed at eliminating any infiltration from the sanitary sewer into the storm sewer." Construction is beginning on a **storm sewer improvement** project for **Algona** to help eliminate flooding in the city.

The **Buena Vista County Solid Waste Commission** is making an **addition to its recycling facility**. Construction grading and site

improvements are started, shop drawing review and building will start early this summer. Construction on a lift station and force main for Leland will also begin in early summer; and improvements to a wastewater treatment lagoon in Early have begun. Earl Zimmerman is the construction inspector for the Buena Vista County project and the Early project.

"We are also writing a number of **storm water pollution prevention plans** for clients. These are being done to meet new requirements."

Kent Rode reports that repairs to **Grand Avenue in Emmetsburg** are continuing; that work on the Emmetsburg Business Park has moved to sanitary sewer installation, and that construction is proceeding on the **Maple River Energy BioDiesel Plant**. Kent is also working with Bob Payer on the 2008 Fort Dodge street improvements.

**Drainage news**

Approximately \$500,000 in federal **FEMA** funds will be extended in **Pocahontas and Palo Alto Counties** to make repairs. Says Don Etler, "There are disaster repairs needed in 11 drainage districts in those counties. Bids were taken and contracts awarded

in May. Repairs are primarily for bank reconstruction or stabilization. Work will continue throughout the summer." Bob Reinhart will provide observation services.

For **Joint Drainage District 1, Palo Alto and Kossuth Counties**, repairs to the Lateral B Open Ditch has produced what Don calls an "unusual wetland problem."

Don describes the situation, "For the repair, the tile drain which is now submerged in the drainage district will be opened up so that its capacity will be restored. It runs under a CREP wetland. The land owner has been told that even a repair to a drainage district system built 100 years ago, will be in violation of his CREP contract if the wetland is drained.

"That will require that he refund all CREP payments plus pay a liquidated damage settlement. We are working with the landowner to try and convince the United States Department of Agriculture to change their opinion and allow the maintenance."

The Algona office is also proceeding with designs for **two drainage well closures in Kossuth County** and is working on two **CREP projects** in Buena Vista County. **Continued, PROJECTS, page 4**

**News about KPLers****Devin Rode is presented the Hackbarth Award**

DEVIN RODE, son of Kevin Rode, has received Algona High School's Hackbarth Award for outstanding achievements in track. Awarded annually, it is given to the year's outstanding track athlete at the junior or senior level. Devin competed at the Drake Relays this spring and in the state track meet where he helped Algona to place fourth overall in the AAA competition. Devin plans to attend Iowa State University this fall and will major in pre-med biology.



Devin Rode

**Graduation**

**Major Vincent Krepps**, son of **Clarence Krepps**, has graduated

from Fort Leavenworth's Command and General Staff College, and reports to the Pentagon this month. He will become the project manager for the new F-35 Lightning II fighter plane.

**Professional activities**

**Neal Kuehl** presented a paper, *Ammonia Removal in Wastewater*, to the Region III Water and Wastewater Operators conference held in Storm Lake on June 5.

The paper discussed the different methods available to meet the newer ammonia removal requirements of the Iowa Department of Natural Resources.

**Happy birthday**

To **Jon Myers** whose birthday was May 9; to **Jon Hanson** whose birthday was May 15; and to **Nick Frederiksen** whose birthday was June 15.

To **John Devitt** whose birthday is June 29; to **Sharon Gerdes** and **Gary Atherton** whose birthdays are July 6; to **Scott Shevel** whose birthday is July 16; to **Brian Blomme** whose birthday is July 21; to **Eric Yunginger** whose birthday is August 29; to **Nick Roethler** whose birthday is September 1; to **Greg Villegas** whose birthday is September 13; to **Bob Payer** whose birthday is September 30; and to **Jeff Krueger** whose birthday is September 30. ◀

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**PROJECTS, continued ...**

Ivan Droessler reports that **FEMA repairs in Calhoun County** resulting from 2007 storm damage are underway and are 30% complete.

“But wet weather is slowing progress. FEMA repairs for storm damage from the same storm in **Drainage District 81, Sac City**, also began in May and is also slowed by weather.” Greg Villegas is performing staking and inspection for these repair projects.

In **Monona County FEMA repairs**, also from the May 2007 storm, were completed in April; but additional slope stability problems have occurred and FEMA money may not be available and districts may have to do the additional repairs at their own cost.

For **Losey Drainage District, Monona County**, an open ditch clean out project is underway. “Greg Villegas and Jon Myers completed the survey in May. Plan development is 50% complete. Justin Anderson and Eric Yunginger are doing plan preparation; and the engineers report is due in July.

“The bank stabilization for **New Farmers District, Monona County**, has been approved by the board. Greg Villegas has completed a cross section survey and plans will be developed this summer for fall construction.

“Lastly, for **Drainage District 6, Calhoun County**, final plans and specs are 90% complete for construction involving five miles of open ditch clean out . Brian Blomme is working on this project. Plans should be filed in June, bids in August, and construction to begin after harvest.”

*If you would like to know more about these or similar projects, talk to any of the people mentioned. ◀*

**CELEBRATING  
25 YEARS  
1983-2008**

# Welcome aboard to Steve White

WELCOME TO STEVE WHITE who joins the Storm Lake office and will be working primarily with Ivan Droessler. Steve has a BS in Ag Engineering and an MS in Ag Engineering with a co-major in Biorenewable Resources & Technology, both from Iowa State University.

Steve, who grew up on a dairy farm near Bloomfield in southeast Iowa, decided towards the end of his sophomore year of college, “that I wanted to do some other things than school.” And when the opportunity to be an intern in Senator Grassley’s office came up in 2002, Steve went to Washington.

“It was a neat experience, giving me an insight on the political system and government I wouldn’t have gotten otherwise. I was there after the Hart Senate Building was shut down for the anthrax contamination. The senate office was short on staff and interns so it meant I was able to do a lot of research and projects that I might not have normally had the opportunity to pursue.”

Steve also spent six months in Germany during his undergraduate



**Steve White**

years on a 4-H youth exchange staying with a different family each month. The host families lived on farms in what were formerly the East and West Germanys.

Running up to five miles a day, Steve enjoys glass blowing, painting, and carving as hobbies. “And, I’m a big ISU fan!” He worked for the Missouri Department of Natural Resources before joining Kuehl and Payer. ◀

**LANDFILL, continued ...**

“That’s because the rules require the final cap to have an equivalent impervious system as the bottom liner. And this will require a membrane liner in addition to compacted clay in the cap. That will cost an additional \$67,000 per acre. So the per acre cost for the landfill if a Subtitle D liner is used, will go up about \$90,000 per acre.”

Construction and closure of landfill cells is an ongoing process. All new cells will have to meet the new rules. Cherokee who in addition to its own waste, is now accepting waste from Buena Vista County, Plymouth County and Ida County, and is filling up at a rate of 23,000 tons a year. That means two new cells will need to be ready for disposal by October of 2009.

“We are requesting approval to use the current alternative liner system in the two new Cherokee cells; but if approval is not received by early

2009, we will have to redesign using the more expensive Subtitle D composite liner.”

Sac County which only accepts waste generated in the county, approximately 5000 tons a year, projects the life of its new cell to be four years or until 2011.

“All in all these changes are having major impacts on both client operations and their budgets.”

Besides meeting the more restrictive criteria, landfill facilities must now submit additional documents not required before, including a Development and Operations Plan; a Quality Control and Assurance Plan, and an updated Hydrologic Monitoring System Plan.

If you’d like to know more about these rule changes, contact Ivan Droessler, PE., or Bob Payer, PE., at Kuehl and Payer, Ltd.’s, Storm Lake office. ◀