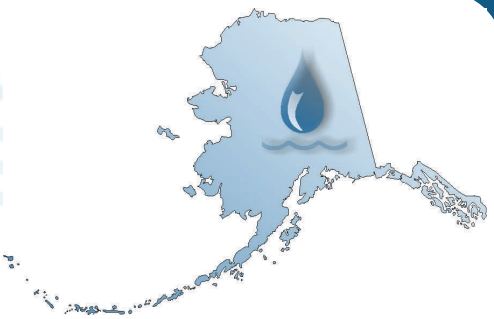
Northern Flows

Alaska's Drinking Water Program Newsletter

Issue 38 • Fall / Winter 2009



City of North Pole Sulfolane

By Cindy Christian

This edition of the Northern Flows Newsletter is dedicated to Wellhead Protection issues in preparation for the Ground Water Rule (GWR). The new federal GWR became effective in the state of Alaska on December 1, 2009. The GWR establishes a multiple-barrier approach to protecting ground water from microbial and chemical contamination, when it is used as a source of water by a public water system (PWS). One of the most important barriers to protect drinking water wells from contamination is developing a Drinking Water Protection Plan (DWPP). A DWPP is designed to protect ground water used by a PWS from contamination. Planning a DWPP is necessary to provide an early warning mechanism to detect up-gradient aquifer contamination. Most cases of aquifer contamination become known when low levels of contaminants are detected through routine monitoring of the PWS.

This type of scenario happened recently in the city of North Pole, Alaska. This case illustrates the importance of developing a DWPP to protect ground water sources supplying PWS. One of the major industries in the city of North Pole is the Flint Hills Refinery. The Flint Hills Refinery supplies most of the gasoline, diesel fuel, jet fuel, and heating oil used in the Interior. As part of the refining process, a chemical called sulfolane, or tetrahydrothiophene 1, 1-dioxide, is used for the recovery of aromatic components of petroleum. Sulfolane is classified as an organic solvent, but unlike most solvents, it is very soluble in water. Long-term, ongoing ground water monitoring on the refinery site indicated that sulfolane contamination was confined to the property. But in October 2009, sulfolane was detected in monitoring wells immediately north of the refinery property. Additional monitoring wells were drilled north of the refinery, and sulfolane was also found in those wells. Because the city of North Pole's drinking water wells are located north of the refinery, samples were also taken from both of the primary wells.

The city of North Pole's PWS uses two primary wells to supply drinking water to the community. The wells are situated within 100 yards of each other and both are fairly deep, between 165 and 185 feet deep. The raw water is treated with potassium permanganate and green sand filtration to remove iron and manganese. The water is also treated with soda ash to reduce corrosion in the distribution system. The water is not routinely disinfected, and only one well is in use at any time. Well 1 is the primary well and is in use for most of the year as it is located outdoors and needs to be run to prevent freezing. Well 2 is used mostly in the summer. Samples of raw water from Well 2, which was being used at the time, were collected on October 30, 2009, and were sent to two private laboratories for analysis. One lab reported results of 18 parts per billion (ppb) and one lab reported non-detect. At this time, the system was switched over to Well 1 and samples were collected from that well. Initial tests showed no detection of sulfolane, but subsequent tests showed concentrations of 18-23 ppb. However, only one of the two labs completing analysis showed detections. The other lab showed non-detect in all samples. Because of the discrepancy in the reported results, the city began collecting weekly samples from the raw water, treated water, and distribution system. These samples were sent to the DEC, Division of Environmental Health (EH) Lab in Anchorage for analysis. The EH Lab reported non-detect in the initial samples. An investigation conducted by a third-party environmental chemist found that the lab that had reported results of 18-23 ppb in the wells had an inaccurate calibration curve for its analytical method, which resulted in inaccurate results at low levels of concentration. When an accurate calibration curve was used, this lab reported results similar to the other two labs.

Weekly sampling was continued throughout the month of November and into December. Results for both wells showed that

(Cont. on page 6)

This Issue

Message from the Manager 2 & 5

Drinking Water Protection Grant Opportunity 3

What's Wrong With This Picture? 3 & 5

Regulations Corner 4

The First Barrier: Drinking Water Protection 6

Message from the Manager

By James Weise

Winter is upon us and we are into a new year, 2010. I hope it will be a great year for everyone. Our "Winter Wonderland" weather here in south-central Alaska has been cold, lots of ice fog, and to date, very little snow. Hopefully, we will get some additional snow, in moderation of course, to build a good snow pack for our fun-filled winter activities as well as for the recharge of our aquifers and filling our surface water basins, rivers, and streams.

During the past summer and also this past fall, Drinking Water (DW) Program staff have been very busy with several significant projects. The DW Program and Environmental Health (EH) Laboratory finalized three "Requests for Proposals" and also a multi-phased Task Order project with the intent to utilize $814,600 American Recovery and Reinvestment Act (ARRA) "Economic Stimulus" funds for nonconstruction-related DW Program projects. Contracts have been awarded, or are in the process of being awarded, for the following projects: Regulatory Engineering Services; Engineering Technical Services; Public Water System (PWS) file scanning, digitizing, and cataloging for availability statewide; and StarLIMS Data Base Coding and Crystal Reporting for management and statewide accessibility of DEC-certified laboratories PWS data. The focus for use of the ARRA "Economic Stimulus" funds by the DW Program and EH Laboratory is to better inform and assist Alaska PWS owners, operators, consultants, technical assistance providers, DEC-certified laboratories, and the general public in achieving and maintaining sustainable compliance with Safe Drinking Water Act requirements and greater overall public health protection for the residents and visitors to the state of Alaska.

An additional DW Program project with a key public health protection focus and also assessing long-term compliance capacity issues for Alaska's PWS using a surface water source is our "Status Component Project." Engineering Section staff have developed and tested data collection forms for use with onsite assessments of PWS using surface water. Staff plan to begin visiting all water systems using a surface water source to obtain information to more fully, and accurately, document a water system's treatment status. This information will be useful for the system and the State in documenting the systems compliance with the Long Term 1 Enhanced Surface Water Treatment Rule (LT1) and more fully prepare systems for compliance with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2). The "Status Component Project" is expected to require 18 – 20 months to complete.

The Alaska Drinking Water Regulations, 18 AAC 80, development and implementation projects continue to progress slowly, but steadily. In November 2009, we completed the adoption by reference of the Lead and Copper Short Term Revisions and Clarifications Rule and have submitted our primacy revision package to U.S. EPA Region 10. These new regulations became effective November 20, 2009. The public comment period for our most recent regulations revision package, covering increased DW Program and EH Lab fees, ended on December 28, 2009, and overall, we received few written comments to the proposed fee package. We are reviewing comments and preparing a responsiveness summary to those who provided written comments to the proposed fees regulations package. For the remainder of the calendar year, we have two, or possibly three, significant regulations revisions packages planned. These packages include:

- Restructure of the State-Regulated water systems information (Class C systems) into a completely separate section;
- Restructure and update of the Engineering Section (Article 2) to better meet with current requirements and planned future requirements; and
- Adoption by reference of the Stage 2 Disinfectants/Disinfection Byproducts Rule, LT2, and the Ground Water Rule.

For more in-depth information about these planned regulations packages, please check out the "Regulations Corner" article in this issue of *Northern Flows*.

(Cont. on page 5)

Drinking Water Protection Grant Opportunity *By Charley Palmer*

Drinking Water Protection has allocated some funds to the Department's Alaska Clean Water Actions (ACWA) grant process. The funds are to be used for public water systems (PWS), with priority given to Community Water Systems (CWS), to conduct protection activities identified in an Endorsed Drinking Water Protection Plan: see →

http://www.dec.state.ak.us/eh/dw/DWP/endorsed_plans.html

The grant funding is intended to focus on protection activities that address potential and existing sources of contamination identified within the Drinking Water Protection Area(s). These areas have been provided as maps in the completed Source Water Assessment(s) (SWA) for PWS source(s) (i.e., well capture zones or surface water buffers). To access the SWA for the PWS source you're interested in protecting, please contact Drinking Water Protection staff: Chris Miller at (907) 269-7549, or Charley Palmer at (907) 269-0292.

Examples of qualifying protection activities may include, but are not limited to, the following:

- Properly decommissioning abandoned wells;
- Developing an educational outreach program for on-site septic system maintenance;
- Developing an on-site septic system maintenance program for your community;
- Developing an ordinance that explicitly addresses drinking water protection; and
- Removal of leaking underground storage tanks (LUST).

At this time, funding is limited and proposed projects must meet a $2,500 minimum. We hope that by showing an interest and need through increased participation that we will be able to slowly increase the amount of funding available. However, please do not let this discourage you from applying because your application enables us to determine where there is active interest in protecting drinking water, and we can then make an effort to direct staff's time to your area in the form of workshops and/or technical assistance.

The open application period should begin the first week of January 2010. If you're unsure on whether your project would qualify for potential funding, contact Chris Miller. For more information on this funding opportunity, see: →

http://www.dec.state.ak.us/water/acwa/acwa_index.htm

What's Wrong With This Picture? *By Scott Forgue*

(Answer on page 5)

AWWMA CONFERENCE

50th ANNUAL STATEWIDE CONFERENCE
MAY 3 - 5, 2010 in Sitka, Alaska

ALASKA WATER WASTEWATER MANAGEMENT ASSOCIATION
Clean, Safe Water for Alaska

To learn more about Alaska Water Wastewater Management Association, register for this conference or future conferences, please visit the AWWMA website at: http://awwma.org/

Regulations Corner *By Gloria Collins*

As calendar year 2010 opens, it is a good time to reflect on Drinking Water (DW) regulations accomplishments from the past year and to look ahead at new projects.

In April 2009, extensive changes to 18 AAC 80 became effective that translated much of Article 3 (on standards and monitoring) and Article 6 (on surface water treatment) into adoptions by reference of the corresponding Code of Federal Regulations (CFR) provisions. In addition, phrasing of "owner or operator" was revised, as appropriate, to only "owner" or "operator"; and "Class A" and "Class B" public water system categories were amended to the corresponding federal categories, "Community Water System, Non-Transient Non-Community Water System, and Transient Non-Community Water System."

In November, our adoption by reference of the federal "Lead and Copper Short-Term Revisions and Clarifications Rule" went into effect. Also in November, the regulations change proposal relating to Drinking Water Program fees and to the Environmental Health Laboratory Certification Program and fees was public noticed for a public comment period ending December 28, 2009.

December 1, 2009, was the effective compliance date for the federal Ground Water (GW) Rule. To help public water systems and others in the industry better understand this new EPA rule, the DW Program and the Alaska Training/Technical Assistance Center (ATTAC) co-sponsored two "Ground Water Rule" workshops—the first in Anchorage during September, the second in Fairbanks during December. The Environmental Protection Agency (EPA) currently oversees enforcement of the Ground Water Rule, and the DW Program is assisting the EPA with many of the compliance-related activities for this rule, as well as for the Long Term 2 Enhanced Surface Water Treatment (LT2) and the Stage 2 Disinfectants and Disinfection Byproducts (Stage 2 D/DBP) rules.

For a list of recent proposals and final rules by EPA, the "EPA Semiannual Regulatory Agenda," published in the *Federal Register* on December 7, 2009, can be found online at: → http://www.reginfo.gov/public/do/eAgendaMain

The new year finds the DW Program in the early stages of two proposed regulations change projects. One deals with Class C Public Water Systems and the other with engineering requirements. Updates on these projects will be reported in the next issue of "*Northern Flows*".

When a regulations change project is public noticed and open for public comment, the notice will be published in a newspaper and will also appear in the *State of Alaska Online Public Notice System* at: → http://notes4.state.ak.us/pn

For a PDF copy of current DW Regulations in effect, go to: → http://dec.alaska.gov/regulations/index.htm scroll down to "Chapter 80," then click on "Adobe Reader File."

A busy 2009 has set the stage for continued activity in 2010, as we all work towards keeping drinking water safe.

Message from the Manager (*cont.*) *By James Weise*

We are pleased to announce the following new staff hired over the past several months in the DEC DW Program. In the Anchorage office: Lawrence Camp, Environmental Program Technician; Dave DeLuca, Office Assistant; Dan Reichardt, Environmental Engineering Associate; and Thomas Stock, Analyst/Programmer. New staff in the Fairbanks office include Audrey Lammers, Environmental Program Technician; and in the Juneau office, Jessica Parks, Environmental Program Technician. Unfortunately, the DW Program wished Chris Clark, Engineering Assistant in the Anchorage office, a "fond farewell" in mid August when Chris moved to Seattle, WA. We also wished Ian Blake, Environmental Program Specialist in the Anchorage office, "farewell" and "good luck" when Ian left the program in late October. "Thank you" to both Chris and Ian for their good work. The DW Program is actively recruiting for a couple of positions at this time. If you have an interest in working for the State of Alaska DW Program, a progressive and challenging job that could be the "Career of a Lifetime"- please check Workplace Alaska recruitment notices for job postings in your area.

Let's all hope and plan for a healthful and prosperous New Year!

James R. Weise

James Weise
Manager
Drinking Water Program

What's Wrong With This Picture? *By Scott Forgue*

Answer:

The picture on page # 3 shows a threat to groundwater quality. The threat is more evident when viewed from a slightly different perspective:

The excavator has removed the topsoil and underlying gravel and has exposed the upper unconfined ground water aquifer. The ground water seen in this picture is the water source for the well in the first picture. The degraded water quality (muddy water) is apparent, and the potential for a more significant impact resulting from a hydraulic oil or fuel release is obvious.

The vast majority of the public drinking water systems in the state of Alaska use ground water as the source for their drinking water, and certain activities have significant potential to impact ground water quality. Once ground water quality is degraded, cleanup or treatment to meet drinking water quality standards is usually costly. Source water protection is definitely an area where "an ounce of prevention is worth a pound of cure."

City of North Pole Sulfolane (*cont.*) By Cindy Christian

there are trace amounts of sulfolane (less than 5 ppb) present. An on-going monitoring schedule will be implemented to track the sulfolane concentration in the city of North Pole's public water wells. The Flint Hills Refinery, in conjunction with the DEC Contaminated Sites Program, is currently installing additional monitoring wells in the area and doing a full delineation of the contaminant plume. At this time, sulfolane is not a regulated contaminant in drinking water; therefore, no maximum contaminant level (MCL) has been set by the EPA. DEC has requested a review of the toxicological data be done by the Dept. of Health and Social Services, Division of Public Health, and the Federal Agency for Toxic Substances and Disease Registry (ATSDR) to make recommendations on levels they think are protective of public health. The results of this study are expected in early calendar year 2010.

Although a DWPP focuses on preventing contamination of water sources, the Drinking Water Program's Protection group will continue to support the city of North Pole's efforts to develop a long-term DWPP to help reduce future contamination. The DW Program engineers will also be working with the city to review and approve water treatment options should treatment become necessary to remove sulfolane from the drinking water. The DEC Contaminated Sites Program is currently working with Flint Hills Refinery to make sure the on-site remediation system is working at its full capacity. The refinery has recently upgraded its remediation system to allow pumping ground water at a higher rate. This system removes petroleum products and sulfolane helping to reduce the source of sulfolane in the ground, slows the movement of sulfolane in the aquifer, and reduces concentrations of sulfolane in the ground water over time.

This case illustrates the importance of having a DWPP in place to protect precious sources of drinking water. Please contact your local DEC DW Program Environmental Program Specialist or Chris Miller in the Drinking Water Protection group if you have questions about developing a Drinking Water Protection Plan.

The First Barrier: Drinking Water Protection By Charley Palmer

Protecting your source of drinking water from potential contamination is the first step in a multi-barrier approach to maintaining clean and safe drinking water.

Current Events

Source Water Assessments

Drinking Water Protection (DWP) staff continue to work on completing Source Water Assessments (SWA) for new Community Water Systems (CWS) and Non-Transient Non-Community Water Systems (NTNCWS), both formerly known as Class A public water systems, and new sources for existing systems. DWP staff also continue to strive towards verifying the information included in existing SWAs through field visits whenever possible, usually in conjunction with workshops and other travel opportunities. If your community needs assistance in developing a drinking water protection plan or if you feel that your SWA needs corrections, please contact us. Remember, having an Endorsed Drinking Water Protection Plan may help build your grant application portfolio! To understand Endorsed Protection Plans, please visit: → http://www.dec.state.ak.us/eh/dw/DWP/endorsed_plans.html

2008-2010 SOC Monitoring Waiver Applications

The deadline for submitting SOC Monitoring Waiver Applications for the 2008-2010 Compliance period was December 31, 2009. To verify whether your SOC Monitoring Waiver Application and payment were received by DEC, please contact the Compliance and Monitoring staff assigned to your system.

For those water systems that didn't apply for an SOC Monitoring Waiver or whose waiver was denied, initial sampling must begin ***before*** March 31, 2010.

If your water system has received an SOC Monitoring Waiver, please consider including this in your annual Consumer Confidence Report (CCR). Many states require public notification when applying for an SOC Monitoring Waiver. Public notification is not required in Alaska at this time; however, the option is currently being explored for the next SOC Waiver Compliance period beginning in 2011. Including this information in your CCR is a good starting point to assure that your customers are properly informed.

Staff Profile: Fairbanks Office

DW Program Directory

ANCHORAGE OFFICE:

Jenny Blommer	Administrative Assistant	269-6066
Lawrence Camp	Env. Program Technician	269-7623
Gloria Collins	Regulations Specialist	269-3075
Dave DeLuca	Office Assistant	269-7656
David Edmunds	Env. Program Specialist	269-7653
Paul Gabbert, P.E.	Env. Engineer	269-7624
Leah Guzman	Env. Program Specialist	269-7518
Justin Holvoet	Analyst Programmer	269-6722
Kathy Kastens	**Stwd Tech Svcs Mgr**	**269-7639**
James Latimer	Env. Program Specialist	269-7521
Chris Miller	Env. Program Specialist	269-7549
Heather Newman	Program Coordinator	269-7619
Jeanine Oakland	C/E Coordinator	269-2007
Charley Palmer	Hydrologist	269-0292
Georgia Rand	Administrative Manager	269-3068
Dan Reichardt	Env. Engineer Associate	269-7631
Maria Ridgway	Analyst Programmer	269-7625
Sarah Rygh, P.E.	Env. Engineer	269-3076
Leslie Shurtleff	Env. Program Specialist	269-8924
Kathleen Spaulding	Office Assistant	269-7618
Tom Stock	Analyst Programmer	269-3082
Leticia Tadina	Env. Program Specialist	269-7517
Bill Tyrell, P.E.	Env. Engineer	269-6064
Daniel Weber	Regulations Specialist	269-7514
James Weise, Ph.D.	**Program Manager**	**269-7647**
Vanessa Wike, P.E.	**Statewide DW Engineer**	**269-7696**

JUNEAU FIELD OFFICE:

David Khan, P.E.	Env. Engineer	465-5317
Jessica "Jess" Parks	Env. Program Technician	465-5333

WASILLA FIELD OFFICE: (main #): 376-1850

Kellie Alvstad	Env. Program Technician	376-1859
Darryl Gillespie	Env. Program Specialist	376-1824
Tee Little	Env. Program Specialist	376-1860
Adam Pigg	Env. Engineer Assistant	376-1862
LeAnn Smith	Env. Program Specialist	376-1844
Jeff Warner	Program Coordinator	376-1861

SOLDOTNA FIELD OFFICE: (main #): 262-5210

Susan Bulkow	Program Coordinator	x227
Eric Burg	Env. Program Specialist	x246
Scott Forgue, P.E.	Env. Engineer	x243
Melanie Hollon	Office Assistant	x233
David Litchfield	Env. Program Specialist	x224
Jean Marie Merli, P.E.	Env. Engineer	x221
Lori Moiles	Env. Program Technician	x230

FAIRBANKS FIELD OFFICE:

Robin Anacker	Office Assistant	451-2108
Dawhn Bodyfelt	Env. Program Specialist	451-2170
Cindy Christian	**Comp & Monitoring Mgr**	**451-2138**
Linda Grantham	Env. Program Specialist	451-2137
Marci Irwin	Program Coordinator	451-2168
Mike Jaynes	Env. Engineer Assistant	451-2165
Lee Johnson, P.E.	Env. Engineer	451-2179
Shawna Laderach	Env. Engineer Associate	451-5032
Audrey Lammers	Env. Program Technician	451-3038
Johnny Mendez, P.E.	Env. Engineer	451-5193
Ellen Williams	Env. Program Specialist	451-2231