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WRD INSTRUMENT NEWS

Issue No. 95

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In This Issue . . .

Sokkia Digital Level Used to Run Gaging-Station Levels

By Maine District Office Data Section

Augusta, Maine

The Philadelphia-type leveling rods used in running gaging-station levels often caused countless hours of frustration. These leveling rods also provided unreliable gaging-station level results due to errors between rod sections and the difficulty in finding quality rods. Year to year, additional errors resulted due to the many different people reading the rods. As a result, the Maine District sought other more reliable equipment to run its gaging-station levels. The search led to the purchase of a Sokkia SDL30 digital level with a fiberglass, *bar-coded* rod, called a RAB (RAndom Bidirectional) Code staff (fig. 1).

"The Sokkia works extremely well for us. We find that it is accurate, durable (peg tests show that it maintains its accuracy longer than the auto levels used in the past), and easy to use."

Figure 1. Digital level on standard tripod reading bar-coded rod.

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Digital Level. . . *(Continued from page 1)*

The Sokkia digital level weighs approximately 5 pounds. Although, its outer shell is made of hard, water-resistant plastic, use of an umbrella in wet conditions is highly recommended. The Sokkia easily screws on a tripod, like an auto level, and has a circular level with three adjusting screws for final leveling. Once leveled, the operator turns on the Sokkia and selects an option from the menu shown on the liquid crystal display (LCD). The Sokkia has a menu button, two scroll buttons, an enter button, and an escape button (fig. 2). For running gaging-station levels, the Elevation Measurement function is selected from the menu; the starting-point elevation is entered; the Sokkia is focused on the rod; and the backsight is obtained with the push of a button on the side of the instrument (fig. 3). The Sokkia can read the rod from as far away as ±330 feet (ft) and as close as 5.25 ft. The foresights are read by simply pushing the same button. All backsight and foresight readings are displayed and the elevations are computed and displayed on the screen. Turning-point elevations are saved by the Sokkia (upon command); the instrument can then be moved to the next station without having to re-enter an elevation. The height of the leveling instrument being used is not displayed, so it needs to be computed by the user in order to complete the level notes sheet. The notes sheet is a form used to record the level measurements obtained when running the levels. Another note-keeping option is to use a hand-held logger that is compatible with the Sokkia. The hand-held logger is also used with the Sokkia's Total Station instrument.

Figure 2. User end of level includes display screen, leveling mirror, battery compartment (on left), eyepiece, and user buttons.

The rods, which are lightweight, come in two, three, or four sections and are 9.0, 13.3, or 16.7 ft long, respectively. The sections slide together, one inside the other, and snap securely into place with a metal buckle on each side of the rod, so they do not move or wear (fig. 4). The Sokkia reads a bar code painted on one side of the rod. The Sokkia can be used as a standard auto-level by visually reading the other side

Figure 3. Side view of level displays focus and rotate knobs and measure button.

of the rod (figs. 5 and 6). This other side of the rod is in metric units and a conversion must be done to change meters to feet.

The Sokkia does have difficulty reading the rod if it is too dirty, wet, or scratched; thus, the rod needs to be kept in good condition. When using this equipment in light rain, wiping the rod with a cloth is all that is needed. The Sokkia is able to read through some moisture, but not heavy moisture; i.e., dense fog or humidity. Water does not cause the rod to warp or deteriorate over time.

Figure 4. Side view of buckle.

Prior to purchasing this equipment, there were some concerns about using fiberglass rods. As Techniques of Water-Resources Investigations (TWRI) of the United States Geological Survey, Book 3, Chapter A19, states,

> *scales painted on fiberglass rods (*as this one is*) expand and contract too much for gaging-station levels in most climates.*

Sokkia Corporation provided us with the following formula to compute thermal expansion and rod contraction:

change in temp. (^{O}C) x length (m) x (20.6 x 10^{-6}) = change in length

Note: The rod was originally calibrated at 20 ^{O}C, so change in temp. is change from 20 ^{O}C.

We typically use the rod in temperatures between 15 ^{O}C (60 ^{O}F) and 32 ^{O}C (90 ^{O}F). At temperature extremes, this would give an error based on thermal expansion of 0.00024 ft/ft of height difference between the starting-point elevation and all other elevations. As an example, a 30-ft height difference at the extremes of temperature use would yield an error of 0.007 ft. For us, this potential error is more than offset by the elimination of error based on the human eye.

Figure 5. Metric graduations on rod to be read by eye.

(Continued on page 4)

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Comments and contributions to the *Instrument News* are welcomed and should be sent to

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For publication information, please call (800) 382-0634, ext. 81521, or e-mail (jcjones@usgs.gov). Your comments, questions, and suggestions help us to improve our services to you.

Digital Level. . . *(Continued from page 3)*

The Sokkia works extremely well for us. We find that it is accurate, durable (peg tests show that it maintains its accuracy longer than the auto levels used in the past), and easy to use. If the Sokkia needs to be calibrated, it can be done in-house by following the instructions provided. This equipment saves us time during our busy maintenance season and eliminates questionable results when running gaging-station levels. We just completed our third year of using the Sokkia and find that it is one of the best, if not *the* best, investments we have made to help maintain accurate and reliable gage-height records.

As of October 2, 2001, the cost of the Sokkia SDL30 digital level is $2,690; the 13.3-ft staff (BGS40) is $365; and the optional hand-held, electronic logger (SDR33) is $2,950. There is a new hand-held logger (SDR8100) that eventually will replace the SDR33 and the cost is $3,495. The new logger has expanded memory and other upgrades.

For further information, you may contact Tim Sargent in the Maine District Office Data Section (tcsargen@usgs.gov) at (207) 622-8201.

Figure 6. Bar-coded side of rod and buckles.

Meet the authors . . .

Maine District Data Section

Top row, left to right: Joe Nielsen, Greg Stewart, and Jason Cyr. Bottom row, left to right: Andy Cloutier, Tim Sargent, and Laura Flight.

Current Meter Spin-Testing, Repair, and Maintenance Stand

By Joseph L. Zanca

Northborough, MA

A spin test is performed on a current meter to ensure the meter's optimal performance. A full-timed spin test should be performed

a. As an office procedure between surface-water field trips,

b. When performance of a meter is suspect, and

c. Before and after repairs (OSW Technical Memo No. 89.07).

Note: A current discussion of vertical-axis current meter care and maintenance is found in OSW Technical Memo No. 99.06.

When performing spin tests, it is important to find both a proper area and a mounting platform for an AA or a pygmy vertical-axis current meter. The meters need to be level and plumb, and there should be no air currents in the area while the spin tests are being performed.

Pygmy current meters can be tested on the brass stands that were the original storage stands when pygmy meters were carried in wooden boxes (fig. 1). Spin testing, repair, and maintenance while using these older stands is very useful. The stands need to be placed on level surfaces and these older, brass pygmy stands are heavy and sturdy enough to use for spin-testing and maintenance purposes.

"The stand I use is versatile, since it can be used in the office or in the field."

When testing a standard AA current meter, the district and field offices use wading rods as stands or fabricate their own stands.

Recently, I devised a new stand system using a RAM-mount anti-vibration ball-and-socket (model number RAM-111), which allows me to perform spin tests and maintenance with ease, accuracy, and versatility (fig. 2).

The RAM mount is made up of two 1.5-inch rubber balls attached to aluminum mounting plates and an aluminum clamp. The bottom ball is attached firmly to a workbench. (I added two, stainless steel, No. 24 hose clamps to hold a sliding support for a top-setting wading rod on the top ball and plate.)

(Continued on page 6)

Figure 1. Pygmy meter on brass stand next to wooden storage box.

Current Meter. . . *(Continued from page 5)*

Figure 2. Spin-testing, repair, and maintenance stand.

The stand I use is versatile, since it can be used in the office or in the field. When you are miles, or even days, away from your office, you may have to perform spin testing and maintenance in the field. With this versatile stand option, a RAM ball can be mounted on a firm place in a vehicle. You can then mount the remainder of the stand temporarily where the meter can be worked on in a controlled environment (fig. 3). A portable stand can also be devised by attaching the bottom ball to a block of wood, which can then be clamped to any suitable surface in a gage house (fig. 4) or in your hotel room.

It is important to keep all your current meters in good working condition. It is certainly worth the cost (the RAM-111 can be purchased for around $40 and a sliding support for a top-setting wading rod, HIF Stock No. 2101003, can be purchased from the HIF for $10) and it will always be worth the time and effort you put into it.

For more information about the RAM mount, visit the www.ram-mount.com Web site. It can also be purchased from West Marine by telephone or Web.

If you need further information, contact Joe Zanca (jzanca@usgs.gov) at (508) 490-5043.

Figure 3. Stand temporarily mounted in field vehicle.

Figure 4. Stand mounted to pole in gage house.

Meet the author . . .

Joe Zanca

When Joe's not spin-testing current meters in the MA/RI District in Northborough, Mass., Joe can be found collecting surface-water data around Boston and the surrounding suburbs. For more information, questions, or comments, please e-mail Joe at jzanca@usgs.gov.

New HIF Stock Item . . .

Brass Pygmy Meter Stand

The HIF now offers a new, brass Pygmy meter stand (HIF Stock No. 1103030). This stand is similar to the old one in size and should fit into your old wooden Pygmy box. The stand measures 4-¼ inches long, 2-½ inches wide, and 2-5/16 inches high. The new stand is primarily intended for use when doing spin tests and meter repairs. Remember, wooden boxes, even with the stands, do not protect the meters from shock when dropped. For that protection, a foam-lined enclosure case is recommended and is available from the HIF (HIF Stock No. 1103027). (*Note*: The HIF is developing a Pelican case for the Pygmy meter. You will be notified when stock is available.)

Also, a spin test and repair stand for the AA Price meter is being considered. If you are interested in the proposed AA Price meter stand or want more information on the Pygmy meter stand, contact Joe Treadway (jbtread@usgs.gov) at (800) 382-0634, ext. 83573, or Scott Kimball (skimball@usgs.gov) at ext. 81589.

New 2002-03 Gage-House Calendars Now Available

The new 2002-03 USGS gage-house calendars are currently available for distribution. The calendar displays Julian days, calendar days, and defines pay periods and holidays. The calendars are free, but your office will be required to pay shipping costs.

To request copies of the new calendar, place your order in HIF-CSS II, or the USGS One-Stop Shopping system on the Internet (http://1stop.usgs.gov), by requesting HIF Stock No.0000100. If you have any questions about placing an order, contact Brenda Burke (blburke@usgs.gov) at (800) 382-0634, ext. 83924.

Request for WRD *Instrument News* Articles

How about it? Surely you have some ideas for articles that would be of interest to your WRD colleagues—tales of your field exploits, instrumentation fabrications and applications, troubleshooting, challenging operations, or anything else you've learned that might solve a colleague's problem. We will gladly print your contributions and reward you with a Certificate of Appreciation at the end of the year. Let us hear from you. The deadline for submission of articles for the next issue is Wednesday, February 6, 2002.

Send your articles to Joanne C. Jones (jcjones@usgs.gov), U.S. Geological Survey, Hydrologic Instrumentation Facility, Building 2101, Stennis Space Center, Mississippi 39529-6000.

Corrosion-Proof Orifice Pipe

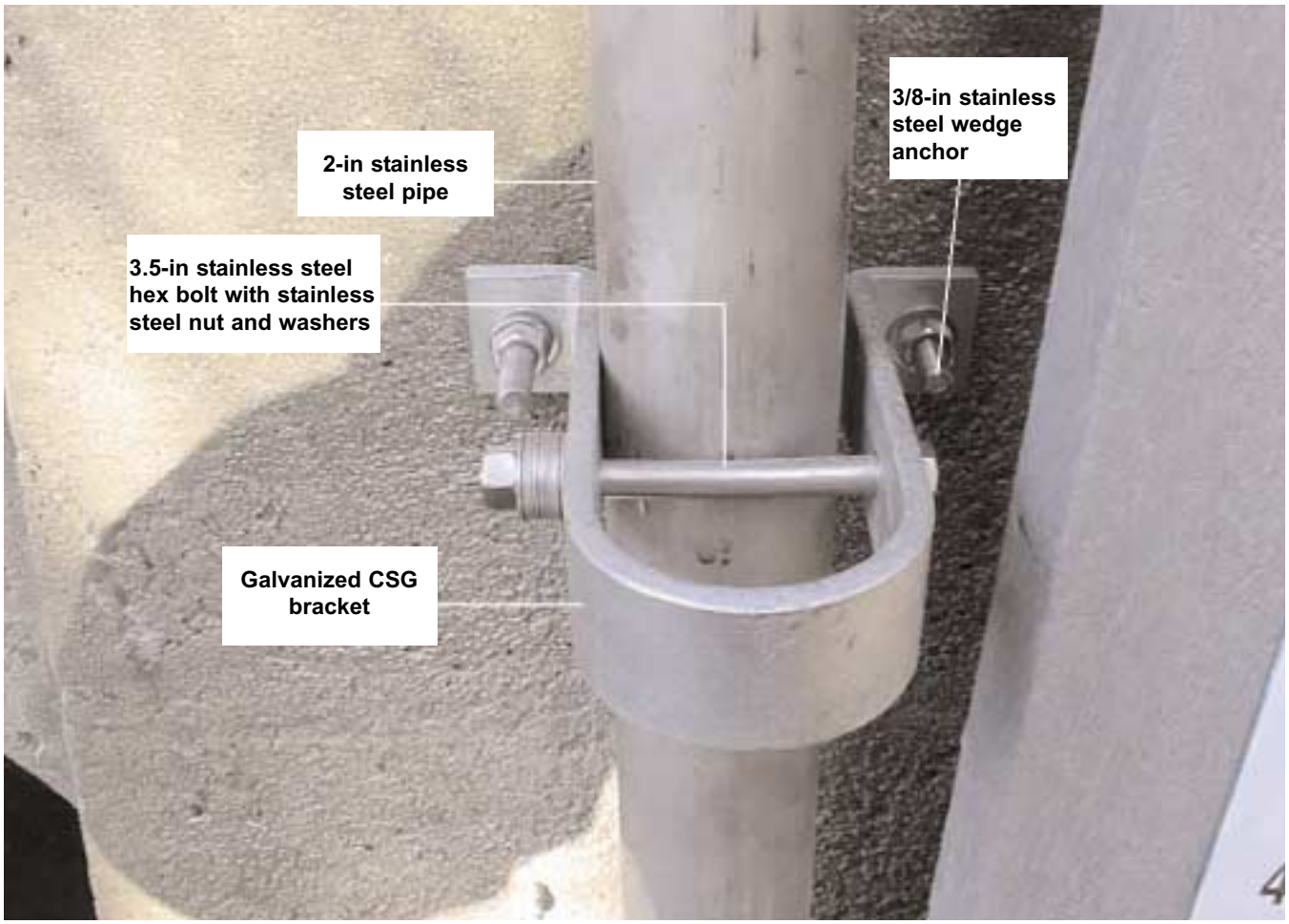
By Lance Ramsbey and Dennis Ventetuolo

Providence, Rhode Island

Are you having problems with rusty, corroded orifice piping that is literally disintegrating before your eyes? If you are, consider using stainless steel piping to protect your orifice line. A new gage site was constructed in 1986, the year before I began working at the USGS Rhode Island office. By November 2001, we replaced that gage site's orifice piping. Over the relatively short lifetime of the gage, the pipe supporting the orifice rotted and ultimately broke into pieces.

We realized that the only part of the orifice-line pipe that needs to be stainless steel is the portion that is submerged for most of the year. The majority of corrosion takes place at the air-water interface.

We worked with 2-inch-(in-) diameter pipe, because of its thickness, rigidity, and ease of use in attaching it when using standard HIF crest-stage gage (CSG) brackets. Our 2-in pipe was purchased from the F.W. Webb Co.



Top view of orifice pipe attached (using standard HIF crest-stage gage bracket) to wing wall

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Orifice Pipe . . . *(Continued from page 9)*

in Cranston, Rhode Island, (401) 463-3741. The cost was $16.83 per foot (ft) for the 316-grade, schedule 40 (thickness), stainless steel pipe. Thinner pipe and lower grade (304) stainless are available at a slightly lower cost. The differences in costs to use stainless steel, rather than galvanized piping, are listed below.

Galvanized Orifice Setup

[in, inches; ft, feet, ^{o}, degrees]

Item	Qty.	Price ($)
2-in x 10-ft pipe	3	29.00
90^{o} elbow	4	13.20
2-in x 5-ft pipe	2	39.80
2-in flange	1	3.00
2-in union	1	5.00
2-in coupling	1	2.50
2-in nipple	1	1.93
Orifice fitting	1	15.00
Polyethylene tubing (ft)	50	4.60
TOTAL		**$114.03**

Stainless Steel Orifice Setup

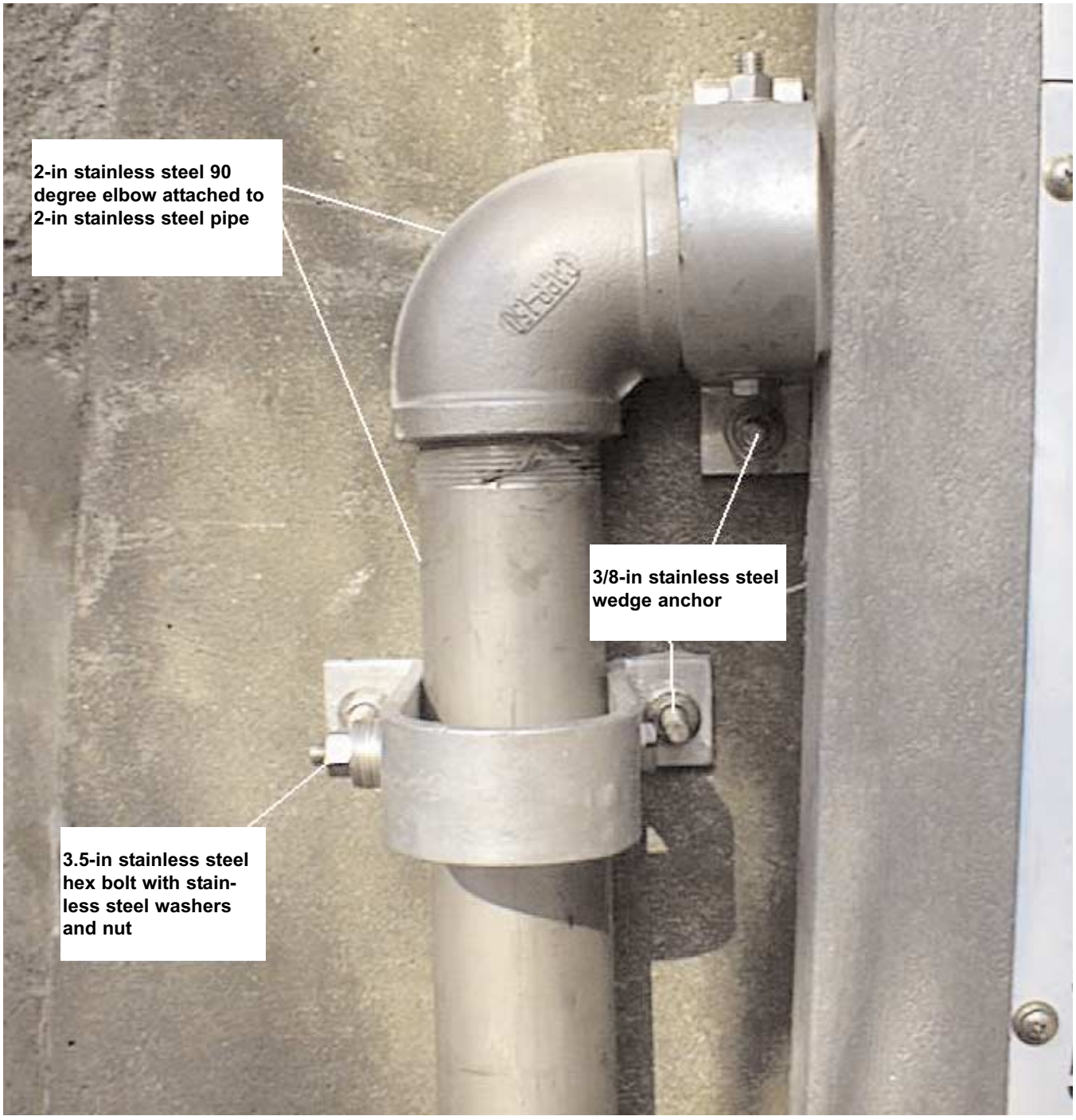
[in, inches; ft, feet; ^{o}, degrees; SS, stainless steel]

Item	Qty.	Price ($)
2-in x 10-ft pipe	3	29.00
90^{o} elbow	2	6.60
2-in x 5-ft pipe	1	19.90
2-in flange	1	3.00
2-in union	1	5.00
2-in coupling	1	2.50
2-in nipple (SS)	1	7.67
Orifice fitting	1	15.00
Polyethylene tubing (ft)	50	4.60
90^{o} elbow (SS)	2	21.62
2-in cap (SS), with labor	1	31.60
2-in x 5-ft pipe (SS)	1	84.15
TOTAL		**$230.64**

Help Out by Taking a Break! Visit the HIF Field POST

In the September 2001 issue of the WRD *Instrument News*, we announced our new feature—the Field POST, which is on the HIF Web page. Since the Field POST is still in its beginning stages, we would like your help to get it rolling. The purpose of the Field POST is to share with and gain knowledge from our field techs.

We are asking you to please take a break from your hectic schedule and respond to the Field POST postings that are already there. If you have a **P**roduct, **O**pinion, **S**uggestion, or **T**echnique to share with others, Post it. If you are new to the USGS, or to your current position, and you would like to ask a question, Post it. It's simple to do. Just visit the HIF home page at: **wwwhif.er.usgs.gov/uo/**, Click on *Field POST*, then *VIEW Field Post by Category Type*; Click on *ALL Postings*, then *View Report*. Your input will help the Field POST become a worthwhile medium in which to exchange information. Thanks for helping us make this new feature a success for you.



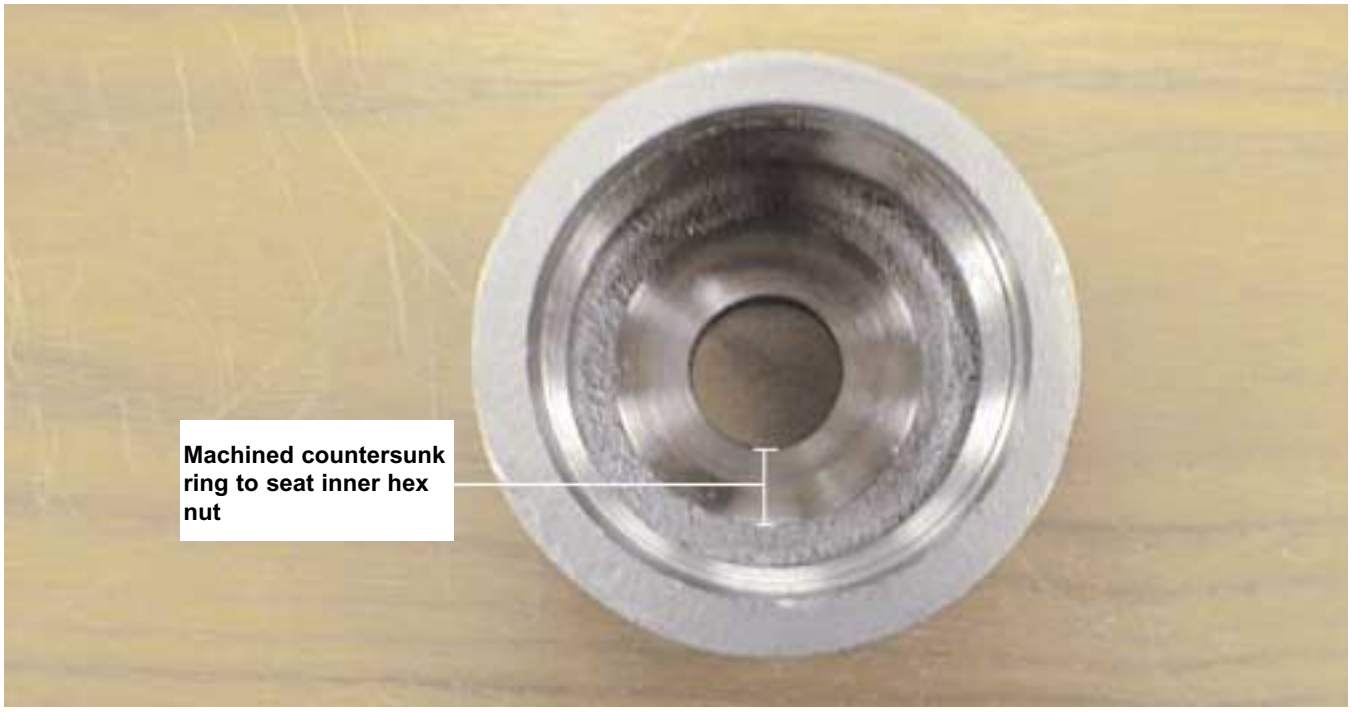
Front view of orifice pipe connected to elbow pipe

(Continued on page 12)

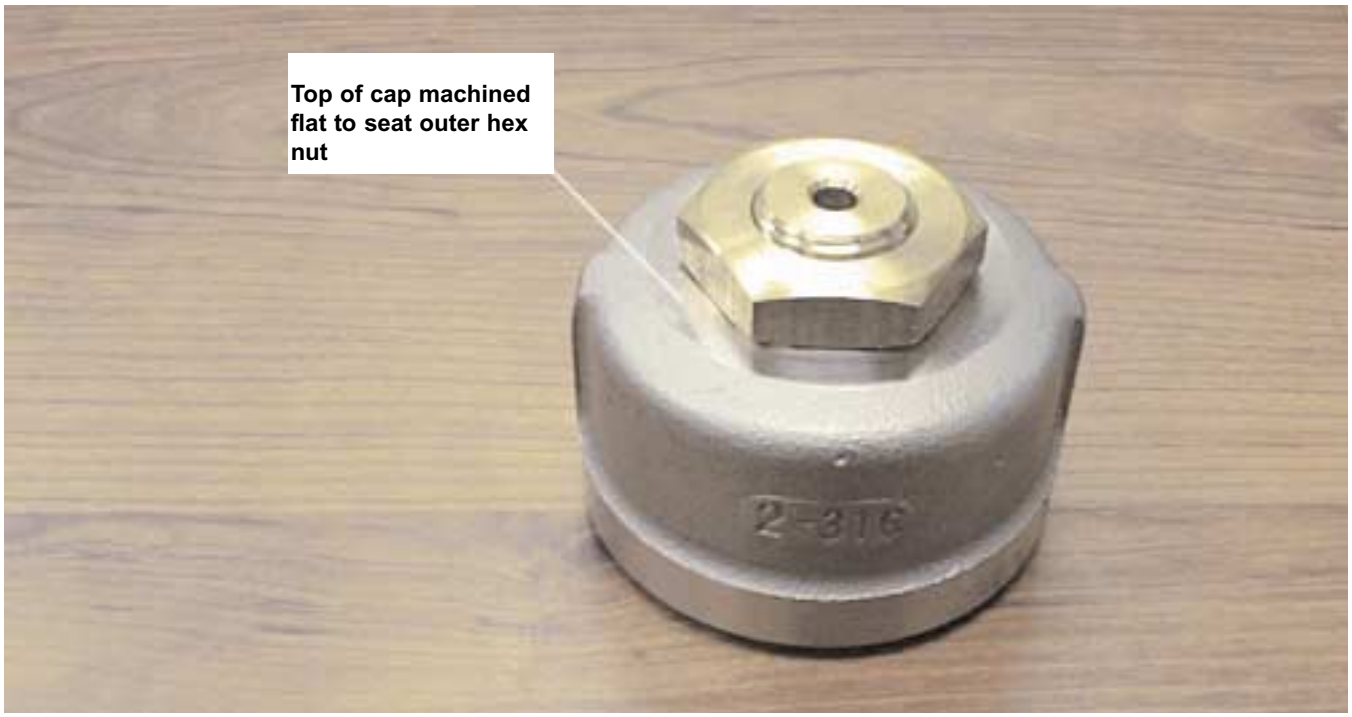
Orifice Pipe . . . *(Continued from page 11)*

The difference in costs for parts alone is $116.61. However, this does not include the per-hour labor rates for two workers for 2 days. Two day's labor, based on GS-7 and GS-9 pay rates, was $717.60. This cost is incurred twice in a 15-year period; first when galvanized metal is originally used, and then again when the metal has to be replaced. When these costs are factored in, it is much more cost-effective to use a permanent, noncorrosive, stainless steel setup during original construction of the orifice-line setup, rather than having to replace the orifice line piping one or more times during the lifetime of the gage.

Orifice setup at Station 01109403 (Ten Mile River at East Providence, RI)



Due to orifice pipe's coarse exterior texture, the cap face needs a flat surface to securely seat outer hex nut (HIF cost for spot-facing each cap was $24)



Cap requires drilling 7/8-inch hole and interior cap needs spot-facing to securely seat inner hex nut (*Note:* Insert rubber gasket between inner hex nut and cap before tightening outer hex nut)

(Continued on page 14)

Orifice Pipe . . . *(Continued from page 13)*

If you have any questions or comments, feel free to call Lance (lramsbey@usgs.gov) or Dennis (dventet@usgs.gov) at (401) 331-9050, ext.14. *Note:* We would like to give special thanks to Jerry Gardner at the HIF who custom-machined and drilled our stainless steel caps to accommodate the brass orifice fittings.

Meet the authors . . .

Lance and Dennis

Left, Lance Ramsbey; right, Dennis Ventetuolo.

Lance Ramsbey is a Hydrologic Technician and has worked at the Rhode Island Office for 14 years. His personal pet peeve is "The spending of time and money replacing something that would be perfectly serviceable and useable should be avoided, except for the fact that it rusted, rotted, or fell apart." Any suggestions or questions, contact Lance at lramsbey@usgs.gov.

Dennis Ventetuolo is a Hydrologic Technician and has worked at the Rhode Island Office for 3 years. At the end of a long week of making discharge measurements and tinkering with office computers, Dennis enjoys playing the drums and cruising in his Volkswagen. For questions or comments, contact Dennis at dventet@usgs.gov.

Just a reminder! IT'S FREE AND IT'S EASY

If you would like to receive your own personal copy [electronic (pdf) or hard copy] of the WRD *Instrument News*, visit the HIF homepage (wwwhif.er.usgs.gov/uo). Click on *Publications*, then *Instrument News Subscription*. Enter your information and the next issue will arrive addressed to YOU! If you have any questions, contact Joanne Jones (jcjones@usgs.gov) at (800) 382-0634, ext. 81521.

FREE!

Antique Water-Level Recorders Available

FREE!

The HIF warehouse has eight, non-operational, antique water-level recorders for Survey offices that collect and/or display antique USGS equipment. The long-term, multi-scale, water-level recorders were manufactured by Julien P. Friez & Sons of Baltimore, presumably around 1940-50. The recorders are available *as is*—just for the price of shipping—on a first-come, first-serve basis. Contact Joe Treadway, (jbtread@usgs.gov) at (800) 382-0634, ext. 83573, for additional information. This offer is in effect until April 1, 2002.

Top: view of closed recorder
Right: view of opened recorder
Bottom: nameplate found on top of recorder lid

Introducing . . .

Bill Davies
HIF's *SPECIAL MAN*

Bill started at the HIF in February 1999 as a member of the Testing Section. His job includes countless responsibilities that cannot all be listed here due to lack of available space. It seems he always has a hand in what's going on at the HIF. Hence the name, the *special man*. Some of Bill's tasks involve testing and evaluation of new equipment, industry liaison, and technical coordination of the HIF's sections. He assumed many of **Ed Ford**'s duties after Ed retired. Bill has extensive experience with Campbell Scientific equipment, meteorology instruments, unsaturated zone instrumentation and measurements, and laboratory automation with National Instrument's Labview programming language.

Bill started with the USGS in 1989 on the **Yucca Mountain Project**. He spent 15 years at Yucca Mountain, first as a contractor, then as a USGS employee. Prior to that, he was a geologist contracted to **Los Alamos National Laboratory** working on the underground nuclear weapons testing program at the **Nevada Test Site**.

Bill received his education at North Carolina State University in Raleigh. After college, he served for 4 years in the Navy as a bombardier/navigator on a carrier-based spy plane, the EA3B.

Bill lives in Diamondhead, Mississippi, with his wife Dixie and their two pug dogs. During time away from work, Bill and Dixie enjoy art, jazz, cooking, finish carpentry, fishing, canoeing, kite flying, and amateur astronomy. According to Bill, "southern Mississippi is an awesome place for seafood, water sports, and fine beaches." He feels that living within an hour of New Orleans affords a wonderful opportunity to experience one of the most unique and culturally significant cities in the United States. Again, according to Bill, "I lived in Las Vegas for 20 years, but didn't know what a party town was until I went to New Orleans during Mardi Gras."

(*Editor's Note:* I regretfully overlooked running an article to introduce one of our new HIF employees, Bill Davies. I sincerely apologize Bill.—jj)

New HIF Stock Item . . .

USGS CEREMONIAL (RIBBON-CUTTING) TAPE

In response to a request from the field, the HIF now stocks a USGS ceremonial (ribbon-cutting) tape. It was suggested that the appearance of the USGS visual identifier would make an effective impression during official ceremonies (ground-breaking, establishing a new station, or other newsworthy/media events).

The tape is green (Pantone 348) with the USGS visual identifier in white repeated every 7.5 inches. The tape is 3 mils thick and 3 inches high on a 1,000-foot roll. The size of the visual identifier is 6.25 inches wide by 2.25 inches high.

Other uses for the tape may be to mark or secure an area, or to group items together for identification purposes (non-USGS conferences, seminars, and meetings). Even though the size and strength is similar to barricade tape, please note that in hazardous circumstances this USGS ceremonial tape is not a substitute for the standard bright yellow and black safety-barricade tape.

The tape can be ordered through USGS One-Stop Shopping (http://1stop.usgs.gov), or by calling the HIF directly at (800) 382-0634. The USGS ceremonial tape is listed under HIF stock number 7101051, and the cost is $25.00 per roll, plus shipping.

Soon to be Available . . .

New Tagline Reel

By Scott Kimball

Hydrologic Instrumentation Facility

New HIF stainless steel tagline reel currently in production (Stock number and price still to be determined)

In 1986, the Pflueger Company ceased production of its Pakron No. 3178, aluminum, downrigger fishing reel. For many years, this reel was the wading tagline reel used by the USGS field hydrographers. The HIF attempted to obtain the Pakron reel molds in order to continue production of the fishing reel, but was unsuccessful. In cooperation with a mold-maker, the HIF did design and develop a yellow, high-impact plastic reel with Kevlar tagline that is still used today. The new reel was offered as a replacement for the out-of-production Pakron reel and its brass-beaded steel line. Some field personnel, however, were unsatisfied with the new reel and continued to use the Pakron aluminum reels by rebuilding them with parts from other Pakron reels.

". . . for those of you still using your Pakron, this new tagline reel is a good replacement."

For those of you in the field who are using the old Pakron reel and wish you had a new Pakron reel, we now have the next best thing. A new, stainless steel tagline reel is being introduced by the HIF and will soon be available for purchase (stock number and price are not yet assigned.) The new tagline reel features stainless steel and brass construction, adjustable drag, and a mount for a ½-inch (in) diameter rod (not supplied with the reel) to support the reel on the stream bank. The new reel holds 300 feet (ft) of brass-beaded-steel tagline (HIF Stock No. 1307001). Kevlar will not fit. There is very little reel maintenance and disassembly is simple. You will need to order a tagline, refill to complete the new reel. Also, there is no protective outer *cage* around the new reel like the Pakron reel had. A Pelican case for the stainless tagline reel may be offered eventu-

ally by the HIF to help protect the reel during transport. By not having a reel *cage*, however, it should be easier to untangle any backlash or kinks in the tagline.

We understand that many of you are accustomed to the yellow plastic reel and will not want to change reels, but for those of you who are still using your old Pakron, the new tagline reel is a good replacement.

The HIF would like to know how many field techs are interested in the new, stainless steel tagline reel. Please visit the HIF Homepage (wwwhif.er.usgs.gov/uo) and vote your interest in the new reel with a "Yes" or "No." You are under no obligation to purchase the new reel. If you have any questions, contact the HIF's newest employee, Scott Kimball (skimball@ usgs.gov), at (800) 382-0634, ext. 81589.

Introducing . . .

Scott Kimball

HIF's Newest Employee

Scott Kimball, Hydrologic Technician in the HIF's Field Services Section, transferred to the HIF in October 2001 from the **New Mexico District Office**. He provides field support by taking calls from the field and assists the HIF by giving his *field* perspective to the various projects currently being worked on.

Scott began his career with the Geological Survey as a volunteer in the **Spokane, Washington, Sub-district Office** while attending Spokane Community College's Water Resources Program in 1987. In 1988, when Scott was finishing up his associates degree, one of his professors announced that the USGS office in Albany, New York, was interested in hiring a graduate as a Hydrologic Technician. Scott called the **Albany Office** and in 1988 he and **Deanne**, his wife of 9 months, both went to work for the USGS in Albany. Scott worked in the Data Section under **Gary Firda** and under Gary's instruction Scott learned how to construct, maintain, and operate surface-water gaging stations. Scott recalls spending his first summer with **Bob Martin**, a Senior Technician, who taught Scott the techniques involved in performing gaging-station levels and constructing slope and staff gages. Scott learned quickly that he enjoyed tinkering with the various mechanical and electronic instruments that were part of his everyday work. At one point, Gary had Scott rebuild several mercury manometers from parts so they could be installed in some new gages being constructed. Scott also learned how to program and troubleshoot data collection platforms. Scott's initial contact with the HIF was conferring with **Frank Henry** by phone and working with **Russ Wagner** on an aeration project to try to reduce the effect of ice on a gaging station's control.

After 3 years in New York, Scott and his wife transferred to Albuquerque, New Mexico, to be closer to Scott's family. A year and a half later, Scott's wife gave birth to their first child and Deanne resigned from the USGS to be a stay-at-home mom. Scott continued to work in the Data Section and became a Lead Hydrologic Technician in the **Albuquerque Field Office**. Scott operated several gaging stations and helped update many gages with satellite telemetry and pressure transducers.

Scott and Deanne live in Pass Christian, Mississippi, with their three children, Andrew, Aubrey, and Braedon. Scott's hobbies include sporting clays, fishing, gardening, woodworking, and reading about days gone by.

Certificates of Recognition

USGS
science for a changing world

The United States Geological Survey, Water Resources Division, Hydrologic Instrumentation Facility wishes to commend Survey employees for reporting and sharing information with their colleagues and making the WRD *Instrument News* a superior communications tool.

Certificates of Recognition were awarded and delivered to the District Chiefs for distribution to the following contributors:

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Joshua Manzer—Ithaca, New York
Joe Nielsen—Augusta, Maine
Lansen Ramsbey*—Providence, Rhode Island
Tim Sargent—Augusta, Maine
Greg Stewart—Augusta, Maine
Roy I. Taogoshi—Lihue, Hawaii
Dennis Ventetuolo*—Providence, Rhode Island
Joseph L. Zanca—Northborough, Massachusetts

Eugene C. Hayes

Eugene C. Hayes
Chief, Hydrologic Instrumentation Facility

*Three articles