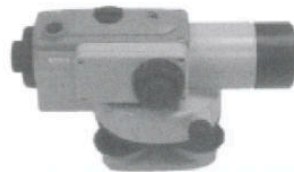


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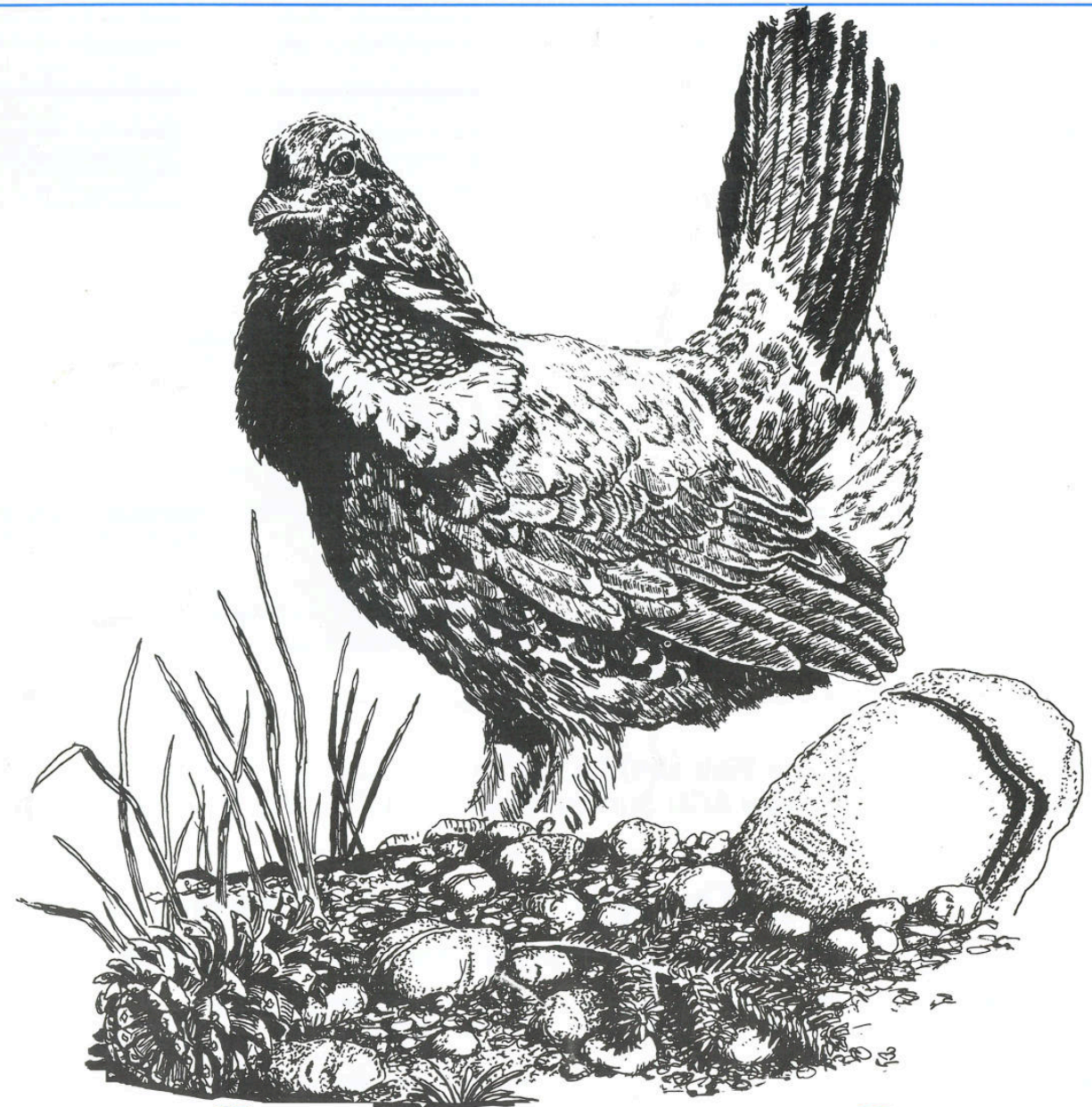
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VOLUME 16, NO. 1

APRIL 2004



**P.L.S.W.**





# A (Very) Short History of RTK GPS

by

Dr. Lon G. Toody, Geodesist

## October 1995 -

We were toting around an RTK rover backpack that weighed 36 pounds - not including the rover GPS antenna which weighed another three pounds.

The receiver consumed about 12 watts of power, and the lead-acid batteries weighed 6.5 pounds each.

There were enough cables in that rover backpack to wire a Las Vegas casino!



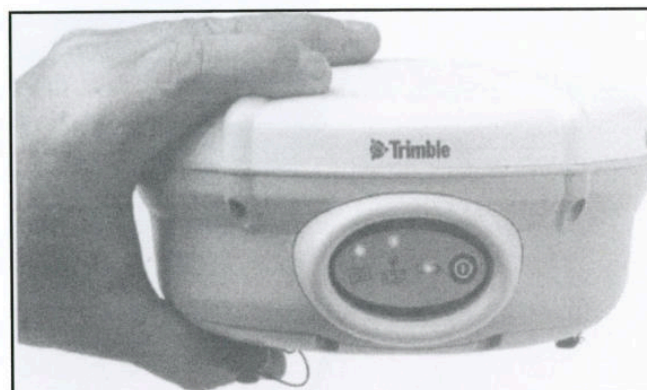
Remember when backpack meant backache?

## October 2002 -

Introducing the Trimble 5800 rover receiver - the first GPS receiver with Bluetooth cable-free wireless communication! No cables at the rover!

The Trimble 5800 combines the GPS receiver, Zephyr GPS antenna, internal radio modem, and battery into one compact, 2.7-pound unit. One internal battery powers the 5800 for over five hours.

You can use the Trimble 5800 rover with your existing Trimble 4000 / 4700 / 4800 / 5700 base receivers. Call Inland GPS for more information.



You asked for it - a cable-free, no-backpack GPS rover!

**Please call (or check our Web site) for more information on the Trimble 5800 RTK rover and the Trimble ACU Survey Controller with color graphical display**

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Street Address \_\_\_\_\_ DOB \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Current educational level \_\_\_\_\_

Career Plans \_\_\_\_\_

Marital Status \_\_\_\_\_ Children (how many) \_\_\_\_\_

College or University attending or planning to attend \_\_\_\_\_

Current or last available GPA \_\_\_\_\_

If receiving support from parents, please provide the following information:

Father's employer \_\_\_\_\_ Yearly Salary \_\_\_\_\_

Mother's employer \_\_\_\_\_ Yearly Salary \_\_\_\_\_

Other family members currently in college or university and receiving support from parents \_\_\_\_\_

Other scholarships, grants, loans, etc., that you are applying for or have received. Please note status of those applications ie, Received, expect to receive, applied for, haven't heard or other appropriate indication of status \_\_\_\_\_

The above information is true and complete to the best of my knowledge:

Applicant \_\_\_\_\_

Date \_\_\_\_\_

On another sheet of paper, please document your financial need, efforts you are making to earn the necessary funds, debts or other financial obligations, a budget of expected yearly educational costs, including housing, books, tuition, fees, transportation, entertainment, clothing, food, etc.

Please include a recommendation from a practicing, professional land surveyor or engineer. Their recommendation should include a reference to their being familiar with your plans to become a professional land



NSPS Awards Announced

The National Society of Professional Surveyors (NSPS) is happy to announce the 2004 winners of the following NSPS awards:

- Surveying Excellence Award  
Theodore D. Kemna, LS, Plymouth, MN
  - Student Project of the Year Award  
No Award Given in 2004
  - Excellence in Professional Journalism Award  
*Over 500 Member Category*  
David A. Berg  
Editor, Evergreen State Surveyor  
Tacoma, WA  
*Under 500 Member Category (Tie)*  
Richard S. Ladd  
Editor, The T B M  
Raymond, NH  
Ralph N. Jackson, Jr.  
Editor, The Benchmark  
North Conway, NH  
*Over 500 Member Category Honorable Mention*  
Burk Cornelius  
Editor, The Sooner Surveyor  
Oklahoma City, OK  
*Under 500 Member Category Honorable Mention*  
Jack Clark  
Editor, Gem State Surveyor  
Boise, ID
- A special thanks to all of you who were nominated or applied for the different NSPS awards.  
John R. Fenn, NSPS President

REPRINTED MAP  
SOURCES OF SNAKE RIVER

SNAKE RIVER EXPEDITION –  
JAMES STEVENSON, DIRECTOR

The Northwest Chapter has reprinted, from an old (perhaps first printing) lithograph found in a cabin west of Cody, the map of the Hayden-Stevenson expedition and survey of Jackson Hole, Yellowstone National Park and surrounding vicinity. The map shows the campsites of the expedition, from July 12th, 1872, at Fort Hall, Idaho Territory, up the Snake River, into Yellowstone, and returning to Fort Hall on October 11th.

The reprint measures approximately 28 inches by 29 inches overall, black printing on white background, and is printed on heavy photographic paper.

The map is representative of the cartographic style of the time and uses shading to depict mountain ranges, water lining on lakes and artistic profiles of various ranges including the Tetons.

A 39-page excerpt from "Great Surveys of the American West", by Richard A. Bartlett, published by University of Oklahoma Press, is to be included with the map (reprint permission pending) and details the progress of the expedition.

THE CHAPTER IS OFFERING PRINTS TO PLSW MEMBERS AT THE INTRODUCTORY PRICE OF \$40 PER PRINT, POSTPAID.

ORDER FROM:  
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P.O. Box 784  
Thermopolis, Wyoming 82443

EDITORIAL POTPOURRI

O NEW MEMBERS - At the Board of Directors meeting on 4 FEB 04, the following new members were approved:

|                 |                  |
|-----------------|------------------|
| Edward Beaver   | Member           |
| Ross Turner     | Member           |
| Gunnar Getchell | Member           |
| Charles Doman   | Associate Member |
| William Dolinar | Associate Member |
| Ryan Schilleman | Associate Member |
| Terry Waters    | Associate Member |
| Karen Schmitter | Associate Member |
| Dana Buchwald   | Associate Member |
| Jon Larsen      | Associate Member |
| Scott Bolduc    | Associate Member |

CONGRATULATIONS AND WELCOME

O BOARD OF DIRECTORS MEETING - The next Board of Directors meeting will be in May by teleconference. Contact your Director for additional information.

O LINES AND POINTS FAX AND E-MAIL - Our fax number is 307-235-5604 and our E-mail address are [dond@wlcwyo.com](mailto:dond@wlcwyo.com) or [johnhh@trib.com](mailto:johnhh@trib.com).

O PLSW KEY RINGS AND PINS - The South Central Chapter has key rings and pins for sale. Contact *Lines and Points*.

O FALL TECH SESSION - The fall Tech Session will be held on November 11 and 12. Dennis Mouland will conduct the sessions. More information later.

*Lines and Points* is published by the Professional Land Surveyors of Wyoming. *Lines and Points* is not copyrighted and permission is hereby granted to reprint articles with appropriate credit. The Professional Land Surveyors of Wyoming assumes no responsibility for statements made or opinions expressed in this publication.

PLSW (Professional Land Surveyors of Wyoming) is a statewide organization of Registered Land Surveyors licensed to practice in the Equality State of Wyoming. PLSW is dedicated to improving the technical, legal, and business aspects of surveying in the State of Wyoming. PLSW is affiliated with the American Congress on Surveying and Mapping and the Western Federation of Professional Land Surveyors.

Editorial Staff: John Hibsman, Steve Strang, Don Davis.

*Lines and Points* subscription \$50/year  
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Camera ready advertisements with payment should be mailed to *Lines & Points*, PLSW, Box 904, Casper, WY 82602

Advertising rates are as follows:

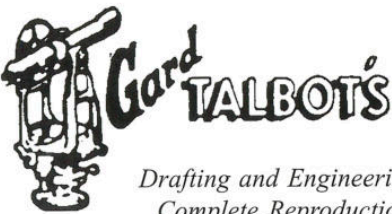
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| Full page     | \$350 | \$100 |
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| Quarter page  | \$150 | \$50  |
| Business card | \$ 40 | \$20  |
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Special Rates for PLSW Chapters  
Deadline for next issue — 15 JUNE 04

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Montana

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## President's Message

April 1, 2004

This April's Fools Day brings spring dreams high hopes for summer. The workload hasn't changed much and it seems we are all busy. The business of PLSW is nearly as important as making a living and sometimes does get neglected, but it is not on purpose.

Our general meeting could have been more successful and I felt that the accommodations and facilities could have been better. As general chair of WES, I should have insisted on one of the main meeting rooms. Several topics did however come out of the WES convention. The fact that PLSW has money and a fair amount of it, makes me nervous. The membership gave Jim Greer, Sec/Treas the authority to discuss accounting software and general accounting procedures with his accountant. He and I did meet with the accountant in Wheatland on March 11. Mr. Jarvis Windom of Wheatland said the statewide society of accountants is in about the same financial status as PLSW. They have opted to keep multiple checking accounts, hey they're accountants. We are not sure that is best for PLSW. We discussed fees and I asked Jim to proceed as the fees for council, account review, clerical assistance and software training would be minimal.

As part of this endeavor, I have had contact with Messrs. Kevin Jones, Scott Pierson, Rick Hudson and Herb Stoughton who have all agreed to act as what we will call our Scholarship Investment Trustee Committee. It is my hope that we can execute this committee at our May teleconference. We will discuss the status of the committee as ad hoc or standing committee at that time. All these gentlemen have been involved in PLSW and in my opinion, are a tribute to and are well respected within our organization and profession. We hope to have quarterly reports

## Survey Video Tapes Available

### TAPE ONE

1. *Professional Land Surveyors & GIS; Mapping the Future*; New Jersey Society of Professional Land Surveyors.
2. *Professional Land Surveying: A Career Without Boundaries*; New Jersey Society of Professional Land Surveyors.
3. *A Matter of Degrees*; American Congress on Surveying and Mapping, National Society of Professional Surveyors (1986).
4. *Surveyors of the Sixth Principal Meridian*; Bureau of Land Management

### TAPE TWO

1. Wyoming T2 Center: *Surveying Crew Orientation: Surveying Options, Part I.*
1. Wyoming T2 Center: *Surveying Crew Orientation: Surveying Options, Part II.*

### TAPE THREE

1. *Introduction to Legal Research*; by West Publishing (nine chapters).

All PLSW chapters should have copies available.

on the status of the committee and the health of the investment. These reports will be reported in this newsletter and through your director. We would hope that an accounting software and the professional support would be in place this year and open to all.

I know there is more to the presidency than the finances, but it is important to Jim and I to hand off a sound and secure package to the next administration. I have not done a good job of attending the Board of Registration meetings, informing new licensees of PLSW or even presiding at meetings, but this is a tremendous job, which I do take very seriously.

The SouthCentral Chapter has voted to chair the Education (Fall Tech Session) committee. It makes sense and Bill Fehringer has volunteered to be the chairman. His initial business was to contact Dennis Mouland and sign him up as our speaker. Dennis is well known to many of us and we believe this will be a great FTS. Mark your calendars for November 11 and 12, 2004 here in Casper. The session will take place at the Parkway Plaza, unless you hear otherwise. Our thanks to Joel Ebner for five excellent years of conferences and topics. He and his committee need our thanks and appreciation.

We will discuss several items of old business at the next meeting, including the Southwest Chapter Safety manual and the fundraiser "Surveying the Gangplank". I have no data on the status of the fundraiser and have heard little from the membership on the Safety Manual. It may be that we need to put just a small disclaimer within the document to allow for the use of our logo. If you have any thoughts on this issue, please share them with your director or email me at [dond@wlcwyo.com](mailto:dond@wlcwyo.com).

All for now!

Don A. Davis, President

## BLM Glossaries

The new edition of *Glossaries of BLM Surveying and Mapping Terms* can be downloaded from <http://www.blm.gov/cadastral/Glossary/glossary.htm>, using Adobe Reader 5.0.

Previous versions of this document were primarily intended for use by trainee cadastral surveyors. The current, revised edition is targeted to all BLM personnel and should be of particular value to newly hired cadastral and cartographic personnel.

Those familiar with the earlier editions will notice that many definitions have been modified. The BLM glossaries are not meant to conflict with other surveying and mapping definitions; however, the document does contain terminology that may be particular relevance to BLM cadastral surveys. 130 pages.

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## Writing: An Important Tool In Business

By Jane Watson

Reprinted From *The Empire State Surveyor*, September 2003

Peter Drucker, father of the science of office management, says, "As soon as you take one step up the career ladder, your effectiveness depends on your ability to communicate your thoughts in writing and in speaking." In other words, if you want to be noticed within or outside your organizations, you have to be able to express yourself clearly and concisely. However, many companies don't realize that this advice is as true today as it was ten or twenty years ago. For example, a senior executive recently told me, "No one in my company writes anymore. We just send emails." interesting thought. But totally naive. Emails have reduced the need for paper, snail mail and limbo time (the time a message spends in transit), but they still require the sender to convert his or her thoughts clearly and concisely, using the rules for good business writing.

In addition, emails are not as easy to write as some would think. In a recent consulting job, I found that the employees were sending such sloppy emails that they frequently had to send two or three messages to interpret and clarify their first transmission a complete waste of time.

And writing short email messages is often harder than writing long documents. As Rudyard Kipling once wrote, "Sorry this is such a long letter, but I didn't have time to write a short one."

### YOUR WRITING CREATES AN IMAGE

The company's and the writer's image are two more reasons for good writing skills. When a reader scans a document, he

subconsciously builds a picture of the writer. The writer can project the image of a conscientious, energetic professional, or the image of a bored bureaucrat making time with an antiquated company. Quite recently, a manager asked me to work with one of her new salespeople. After reading copies of the correspondence the salesman was sending to his customers, I pictured a man in his late fifties, probably with gray hair and blessed with old-world good manners. In actual fact, the salesman was just out of the university.

It turned out the young man had been taking home all his correspondence to write under the guidance of his father. The cheerful, straightforward and almost flip manner the salesman used on the phone and in face-to-face situations was in direct contrast to the old-fashioned, stilted correspondence he was submitting. Both customers and colleagues were confused by the opposing communication styles.

### GOOD WRITING ATTRACTS CUSTOMERS

Good writing is a way of combating today's high cost of face-to-face sales calls. The president of a plumbing supply company recently told me that it doesn't pay to send his sales staff out on the road visiting smaller customers or to have them spend a day on the phone making long distance calls. He has found it more profitable for his staff to build relationships with customers by fax or by mailing them well crafted letters and flyers.

And a salesman's correspondence doesn't always have to be of a sales nature. Smart salespeople use the writing process to keep their names in front of a customer on a regular basis. George Rummage, former director of Direct Mail Advertising, said, "A good letter can be you calling on a customer again and again."

Every person within an organization is in customer relations, but this message has not yet gotten through to all employees. I have seen situations where salespeople do back flips to get an account and then lose it because of the poor correspondence sent out by other departments within their companies.

### CHECK YOUR OWN BUSINESS WRITING

I have heard people say, "I don't need help with my writing, I've never had any complaints." Well, if you are a manager, chances are your staff is not going to tell you that your memos require time and energy to interpret.

Business writing has changed dramatically, as have readers. Years ago, to be able to write was a sign of nobility and wealth. And to receive a letter was something special. 'Even up to the 1970's, writers sought to impress readers with their literary skills, and readers still took the time to thoroughly read their mail. In today's workplace, readers are too busy to spend vast amounts of time deciphering messages from long-winded letters and reports. Today's writer must write to inform, seek immediate action, and create goodwill - in as short a space possible.

Progressive companies carry on regular analysis of the correspondence and reports produced by their employees to ensure that the image and service level projected is consistent with the one they wish to convey. The analysis includes an examination of randomly chosen letters, memos, reports, proposal form letters, and boiler-plate material and may also involve interviews with staff and clients.

Originally printed in the *Evergreen State Surveyor*, Spring, 2002.

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## Calculators banned from use during NCEES exams

According to a news release dated January 5, 2004, NCEES has specified an additional list of calculators banned from use during NCEES exams.

That list includes the following:

Casio - CFX9850+

Texas Instruments - TI-83, TI-85, TI-86

Hewlett Packard - HP 41 series, HP 42S

The latest memo restates that the following calculators had been banned by an August 2003 news release:

Hewlett Packard - HP 48GX, HP 49G

Texas Instruments - TI-83 Plus, TI-83 Plus Silver Edition, TI-89, TI-92 and Voyage 200

The recent memo restates that these lists are not all-inclusive, and that NCEES Exam Policy 15 provides that any calculator that has communicating or text-editing capabilities or other features that may compromise the security of NCEES exams is prohibited in the exam room.

The news release states that additional information on this matter can be found by accessing the NCEES website, [www.ncees.org/exams/calculators](http://www.ncees.org/exams/calculators). Many questions are posed and answered at this website. Questions may also be addressed by calling NCEES at 864-654-6824.

The following calculators are identified on the NCEES website as permissible for use during NCEES exams:

Casio - FX-115 MS Plus, FX-250 HC

Hewlett Packard - HP-9 series (includes HP-9g and HP-9s), HP-30s, HP-32s, HP-33s (pre-order at walmart.com)

Sharp - EL-506 VB, EL-520 VB

Texas Instruments - TI-30 series (includes TI-30Xa, TI-30X IIB, TI-30X IIS, TI-34 II, TI-36X Solar, TI-36X II)

Interested parties are urged to contact their state licensing board for confirmation of the board's policies with regard to calculator use during exams.

When NSPS President John Fenn and I visited with NCEES in December, we were shown a prototype of the calculator that Hewlett Packard has developed to comply with NCEES Exam Policy 15. I do not know if the HP-33 shown above as one that can be pre-ordered from Wal-Mart is the finished version of that prototype. We were also told that Exam Policy 15 is not a new policy. It has been in place for some time, but apparently not enforced until recent incidents of exam security breaches.

NSPS President Fenn and I were assured that NCEES is sensitive to the inconvenience created by the situation, and that they are continuing to work toward a solution that is equitable.

Many comments and suggestions have been sent to NCEES on this issue expressing dismay, disappointment, and anger due to the enforcement of Exam Policy 15. We need to continue to press for resolution of the issue through the state licensing boards and the NCEES administration. I am confident that the state surveying societies are resolute in their pursuit of a solution, as is ACSM/NSPS.

## Corner Record Forms on the Web

The corner record files appearing on this web site have been prepared from documents authored by various *members* and committees of Professional Land Surveyors of Wyoming. They are offered to those registrants who desire to utilize same for the preparation of State of Wyoming Corner Records.

Diligent effort has been expended by numerous prudent (and reasonably intelligent) professional land surveyors to proofread the contents of each file; however, none of us lay claim to perfection. With that thought in mind, you are respectfully advised to review the files BEFORE using them for your preparation of State of Wyoming Corner Record reports.

The form was revised in December 1997 by members of the Corner Record Committee. Those revisions pertained to the renumbering of the statute (recited at the beginning of the form) as well as some graphic and text corrections to the versions distributed on the previous diskette. NO OTHER CHANGES WERE MADE TO THE CONTENT OR FORMAT OF THE FORM APPROVED BY THE SBRPEPLS AND PLSW IN MARCH 1994.

The files of the actual form "Corner97v2k.dwg" and "PLSW CORREC 1998.doc" were last updated and placed on this "PLSW.org" web site in March 2004. The remaining files contain the cross index plat, the check list and the guide for preparation.



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ROBERT C. SHOOK

## Professional Land Surveyors of Wyoming, Inc. 2004 Annual Meeting Minutes, February 4, 2004

1. The Annual Meeting of the Professional Land Surveyors of Wyoming, Inc.

a. Location: Parkway Plaza Hotel, Casper, Wyoming.

b. Date & Time: Wednesday, February 4, 2004 at 1:30 P.M.

c. Presiding Officer: President Don A. Davis.

2. Agenda: The final agenda is appended [Enclosure No. 1].

3. Introductions:

a. President Davis introduced the 2003-2004 PLSW officers.

b. The President, Vice President and Secretary/Treasurer agreed to continue in office for the 2004 term.

4. In Memoriam:

a. President Davis asked for a moment of silence in memory of Carol T. Steil, LuAnn Schramm, Bernard F. Cronin and Jack Clويد Fitch (Published in *Lines and Points*).

5. Minutes of the Annual and Board of Directors' Meetings in 2003:

a. It was moved and seconded to approve the minutes of the annual meeting held on February 6, 2003 at the Cheyenne Holiday Inn.

b. Minutes of the Board of Directors' meetings held in February, May, August and November 2003 were presented as enclosures 3 through 6 with the 2004 Annual Meeting Agenda. No action required.

6. President's Report: Published in Lines and Points.

7. Secretary/Treasurer's Report: The financial reports and budget were distributed. The Secretary requested discussion of Budget and approval to be held over to next meeting. Approved secretary's request to check with accountant to organize Budget and obtain Public Domain accounting software to prepare budget

and keep records.

7. Committee Reports:

a. Audit-Finance Committee: Secretary has not completed making copies to submit to committee as of this date..

b. Bylaws Committee: No report.

c. Convention Committee: No report.

d. Education Committee: Discussion of Joel Ebner resignation from chairmanship [Enclosure No. 2]

e. History Committee: No report.

f. Legislative Committee: Presented at the Annual Meeting [Enclosure No. 3].

g. Lines & Points: Presented at the Annual Meeting.

h. Manual of Professional Practice: Presented at the Annual Meeting. George Dale reported that the Manual is available on CD.

i. Membership Committee: Application for various grades of membership presented to Board for approval: Full Members - Edward Y. Beaver, Jr. Wyoming PLS 2921, Ross M. Turner, Wyoming PE/LS 3514; Gunnar B. Getchell, Wyoming PLS 9785; Associate Members - Charles I Doman, Colorado PLS 24947, William H. Dolinar, Ryan J. Schilleman, EIT, Terry L. Waters, Karen Schmitter, Idaho LS, Dana Buchwald, Jon Larsen, Scott C. Bolduc, LSIT

j. Nominations & Elections Committee - All Officers stayed on for next term.

k. Professional Awards Committee - no report.

l. Public Relations Committee - no report.

m. S.O.S. Committee - presented at the Annual Meeting [Enclosure No. 3]

n. Scholarship Committee - presented at the Annual Meeting. Discussion of funding (2 \$500 scholarships to be funded out of 2003 allocation, if money is available) Report by Scott Scherbel [Enclosure no. 4]. New Scholarship form to be approved/disapproved at May meeting.

o. Standards, Ethics & Professional Practice Committee - Report by Don Schram - Request to use PLSW logo on Safety Manual tabled until May meeting.

p. Trig Star Competition - No report.

9. Delegate Reports.

a. ACSM-NSPS Board of Governors - Jeff Jones published report in Lines and Points.

b. WestFED - Paul A. Reid written report [Enclosure No. 5]

10. State Board of Registration for Professional Engineers and Professional Land Surveyors. No report.

11. Old Business:

a. PLSW investment policy. No report.

b. Retired/Deceased Surveyors Directory. No report

12. New Business: Jeff Jones announced that NSPS wants members to pay instate fees for Technical and other Educational conferences. President directed FTS Committee to provide wording.

13. Miscellaneous:

a. John Lee announced that a new BLM Manual would be out in Fall of 2004. Also BLM and GLO plats for SE Wyoming are on the internet.

14. The next Board of Directors meeting will be held in May by teleconference at a time to be announced.

15. Adjournment: 5:14 p.m.

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## BOD MEETING, FEBRUARY 4, 2004

1. The Board of Directors' Meeting of the Professional Land Surveyors of Wyoming.

- a. Location: Parkway Plaza Hotel, Casper, Wyoming.
- b. Date & Time: Wednesday, February 4, 2004 at 4:15 P.M.
- c. Presiding Officer: President Don A. Davis.

2. Agenda: The final agenda is appended [Enclosure No. 1].

3. Board of Directors Minutes: 2/6/03, 5/10/03, 8/23/03 Presented in Annual Meeting booklet as approved. Minutes of the last Board of Directors meeting held at the Parkway Plaza Hotel in Casper, at the Fall Technical Session, on November 13, 2003, approved as amended.

4. Secretary's Report: List of names on new membership applications submitted.

5. Treasurer's Report: The financial reports and budget were distributed. The Secretary requested discussion of Budget and approval to be held over to next meeting. Approved secretary's request to check with accountant to organize Budget and obtain Public Domain accounting software to prepare budget and keep records.

6. President's Report: Published in Lines and Points.

7. Committee Reports:

- a. Audit-Finance Committee: No report.
- b. Bylaws Committee: No report.
- c. Convention Committee: No report.

d. Education Committee: Discussion of Joel Ebner resignation from chairmanship

e. History Committee: No report.

f. Legislative Committee: Presented at the Annual Meeting [Enclosure No. 2].

g. Lines & Points: Presented at the Annual Meeting.

h. Manual of Professional Practice: Presented at the Annual Meeting. George Dale reported that the Manual is available on CD.

i. Membership Committee: Application for various grades of membership presented to Board for approval: Full Members - Edward Y. Beaver, Jr. Wyoming PLS 2921, Ross M. Turner, Wyoming PE/LS 3514; Gunnar B. Getchell, Wyoming PLS 9785; Associate Members - Charles I Doman, Colorado PLS 24947, William H. Dolinar, Ryan J. Schilleman, EIT, Terry L. Waters, Karen Schmitter, Idaho LS, Dana Buchwald, Jon Larsen, Scott C. Bolduc, LSIT

j. Nominations & Elections Committee - All Officers stayed on for next term.

k. Professional Awards Committee - no report.

l. Public Relations Committee - no report.

m. S.O.S. Committee - presented at the Annual Meeting

[Enclosure No. 3]

n. Scholarship Committee - presented at the Annual Meeting. Discussion of funding (2 \$500 scholarships to be funded out of 2003 allocation, if money is available) Report by Scott Scherbel [Enclosure no. 4]. New Scholarship form to be approved/disapproved at May meeting.

o. Standards, Ethics & Professional Practice Committee - Report by Don Schram - Request to use PLSW logo on Safety Manual tabled until May meeting.

p. Trig Star Competition - No report.

9. Delegate Reports.

a. ACSM-NSPS Board of Governors - Jeff Jones published report in Lines and Points.

b. WestFED - Paul A. Reid written report [Enclosure No. 5]

10. State Board of Registration for Professional Engineers and Professional Land Surveyors. No report.

11. Old Business:

12. New Business: Jeff Jones announced that NSPS wants members to pay instate fees for Technical and other Educational conferences. President directed FTS Committee to provide wording.

13. Miscellaneous:

a. John Lee announced that a new BLM Manual would be out in Fall of 2004. Also BLM and GLO plats for SE Wyoming are on the internet.

14. The next Board of Directors meeting will be held in May by teleconference at a time to be announced.

15. Adjournment: 5:14 p.m.

Respectfully submitted, James E. Greer, Secretary/Treasurer

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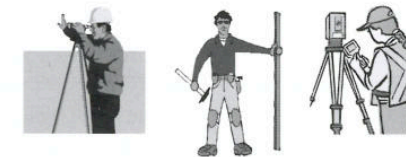
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## Nad 83 Readjustment Statement

*Submitted by Ronnie L. Taylor*

NOAA, National Geodetic Survey (NGS) is preparing for the National Readjustment of the Horizontal Positions and Ellipsoid Height of all GPS stations in the National Spatial Reference System (NSRS). Kathy Milbert, Geodesist, NGS is the Project Manager for the National Readjustment and has put together the following plan.

### THE NATIONAL READJUSTMENT

The series of Global Positioning System (GPS) surveys called High Accuracy Reference Networks (HARNs) were completed in 1998. These surveys were carried out on a state by state basis, leading to some inconsistencies at the borders between states. With the advent of the CORS network in the mid-1990's additional inconsistencies were discovered between the Continuously Operating Reference Stations (CORS) and HARN coordinates. From September 1997 through July 2003 National Geodetic Survey (NGS) re-observed the Federal Base Network (FBN). During this time several states have also re-observed the Cooperative Base Network (CBN). The purpose of this project was to complete the horizontal and ellipsoid height component of FBN stations. Accuracy requirements for these surveys were set to ensure 2-centimeter local accuracy in the horizontal component, as well as 2-centimeter accuracy in the ellipsoid heights. In each FBN/CBN survey, ties were made between the CORS and HARN stations, and the latest PAGES software was used to reduce the data. The availability of all this high accuracy data suggests that the time is right for a new National Readjustment.

On September 24, 2003, NGS's Executive Steering Committee approved a plan for the readjustment of horizontal positions and ellipsoid heights for GPS stations in the contiguous United States. Some of the key points are:

- Only GPS will be adjusted. Classical observations will not be included.
- The CORS stations will serve as control.
- ADJUST software will be used.
- The FBN/CBN surveys are a key element since these are high accuracy (2 cm) surveys that tie the HARN to the CORS throughout the contiguous United States.
- A layered approach will be taken. The National Readjustment will be divided into national layers (higher order projects) and regional layers (User Densification Networks (UDN) projects). County wide horizontal densification projects are an example of a UDN.
- Coordinates will be produced and published for both North America Datum 83 [NAD 83 (NSRS)] and the International Terrestrial Reference Frame (ITRF).
- User densification projects will be included.
- Network and local accuracies will be implemented with the National Readjustment.
- In the event of a delay in software development, testing, and implementation of the new network and local accuracies, a contingency option was adopted. This option endorses immediate statewide GPS readjustments of both horizontal positions and ellipsoid heights.

The National Readjustment is scheduled to commence in June 2005. Adjustment of the national layers will proceed sequentially and are scheduled for completion in October 2006. The regional

layers will be adjusted from November 2006 through September 2007.

### FAQSHEET

*When will the new adjustment be finished?*

The master plan has initiation of the first layer of the adjustment in June 2005, and completion of the airport layer in October 2006. The regional layers will be adjusted from November 2006 through September 2007.

*Could it be completed sooner?*

The upper layers proceed sequentially and require set amounts of analysis. The regional layers could be processed simultaneously. It is conceivable that if additional personnel were available, the regional layers could be completed no sooner than April 2007.

*When will I see new coordinates in my area?*

One will immediately see some new coordinates when National Layer 1 is completed in December 2005. The NGS Integrated Data Base will be updated as each layer is completed. In the event of software development delays, statewide contingency adjustments (without accuracies) will be initiated to insure updated coordinates are delivered as soon as possible to our users.

*When will I know if the contingency adjustment is executed for my area?*

The National Readjustment Web Page will contain a link showing if the contingency adjustments have begun, and the current contingency schedule. We anticipate a decision on the contingency adjustments in February 2004.

*When will I see these new network and local accuracies?*

One will begin to see these fields populated in our data sheets at the same time the new coordinates also appear — for example, National Layer 1 will be completed in December 2005, and the last region will be completed in September 2007. However, if contingency adjustments are performed, these will not provide the new accuracy values.

*What is the deadline for submission of a GPS UDN project for the readjustment?*

The National Readjustment Web Page will contain a link showing the current schedule for the regional layers, which will be initiated November 2006 through August 2007. In general, UDN projects must be submitted at least 6 weeks prior to the start of a given region to allow for review and possible reprocessing.

*What about classical horizontal control surveys?*

The National Readjustment only contains GPS projects. At the completion of the project, datum transformation grids will be developed to support those legacy data.

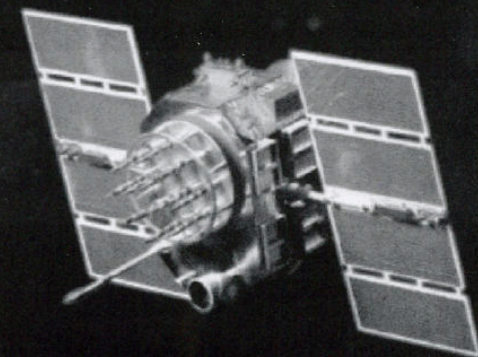
*What happens afterwards?*

First, a report on the project will be written in October 2007 through December 2007. Then work will proceed on building datum transformation grids (horizontal and vertical) between the newer and older coordinates. Plans will be developed and executed for adjustment of Hawaiian and Alaskan GPS networks. We continue reference frame maintenance work for both NAD 83 and ITRF coordinate sets. And, of course, we will be training our users on the network and local accuracies.

*Why not abandon NAD 83 and use ITRF instead?*

The legislation of many states specifies NAD 83. A burden would be imposed on the states if they were requested to change their laws. Instead, final coordinates will be published in both the NAD 83 and ITRF reference frames. By maintaining both reference frames, the greatest number of users will be served.

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## How Close is “Close Enough”?

by Donald A. Wilson, LLS, PLS, RPF

Land Boundary Consultant, Newfields, New Hampshire

I have been reading, with great interest I might add, Bob Todd's recent articles in The TBM. One of them, Appreciation For a Rewarding Vocation, was especially interesting for a couple of reasons. Bob spoke of his association with Gerry Hyde, a treasured one indeed and a man for whom I too have great admiration. Gerry was a true leader in the profession in this state, one of a very few at that time who were active in the national organization to the point of presenting professional papers, and who authored several valuable pieces of work. The other comment in this article that I was particularly taken with was Gerry's take on some work being “close enough.” I have heard it said that “close only counts in horseshoes,” and with atomic bombs, of course. In today's practice with satellite technology, land records improvement (well, at least some of it is an improvement, but not always what we would like to think it is), and high powered instrumentation for measuring, computing, and drafting, it might be well to revisit the perspective that we have so often referred to as precision vs. accuracy. Perhaps that can give us some insight into when something might be “close enough,” and still be acceptable when it comes to land measurement.

I remember talking with, and many times listening to, those surveyors we tend to call “old-timers,” and hearing their philosophies on how land surveying should be done. People like Heman Chase, Henry Sipe, and others from most of the eastern states way too numerous to mention, frequently talked about (even presented papers and wrote books on) compass surveying, all the while emphasizing accuracy being the important consideration as opposed to the precision. Perhaps the often-quoted A.C. Mulford (1912) said it best in his Boundaries and Landmarks:

... when it comes to a question of the stability of property and the peace of the community, it is far more important to have a somewhat faulty measurement of the spot where the line truly exists than it is to have an extremely accurate measurement of the place where the line does not exist at all.

The courts have the final say in matters such as these, and the courts have laid down succinct directions and guidelines as to how a survey, or a resurvey, should be preformed. Most of it is not lengthy, or complex; perhaps we believe it is not detailed enough or technical enough to do the job in today's world. If we read it once gain, only this time think about it a little, perhaps we can decide when “close enough” is in fact, acceptable. Sufficiency of a description. The definition of a legally sufficient real-property description is one that can be located on the ground by a surveyor [from Rivers v. Lozeau, Fla. App. 5 Distr., 539 So.2d 1147 (Florida, 1989)]. Where problems arise is in the interpretation of the descriptions; sometimes they are just “close,” or at least they seem to be only close by our analysis. Our analysis tends to consist of several questions: Does it fit? Does it close? Does it make sense? Do I understand the words? The only test that needs to be applied for legal sufficiency is whether it is possible for a competent surveyor to locate the description on the ground. The chief difference between those surveyors who are expert at boundary determination and those individuals who are not (including some surveyors and most engineers) is that in evaluating descriptions of land, the nonexperts pay most attention to the numbers, while the experts pay most attention to the words [from Joel Leininger,

Institutes of Boundary Retracement, Part IV]. Part of the problem arises, I am certain, because the reader sometimes forgets, or ignores, the basic rule: documents are to be construed by gathering all parts of the instrument giving each word its due force, read in the light of existing conditions and circumstances [from Perryv. Buswell, 113 Me.399 (1915)]. Ancient deeds, upon which many of our current descriptions are based, are to be construed in light of the then use of properties conveyed and adjacent land, and cannot be cut down by vagueness in subsequent conveyances [from Harvey v. Inhabitants of Sandwich, 256 Mass. 379 (1926)]. Perhaps another contributing factor by some is attempting to fit the land to the deed rather than applying the deed to land [from Smart v. Huckins, 82 N.H. 342 (1926)]. And by the way, deeds aren't necessarily supposed to locate the land anyway, they are only supposed to furnish the means for identification [from City of North Mankato v. Carlstrom, 212 Minn. 32 (1942)]. That tells me that for a description to be adequate, it only needs to be “close”.

### PURPOSE OF A RESURVEY

The purpose of a survey of land is to locate and mark upon the ground the boundaries of the parcel of land evidenced by the description in a particular deed. The purpose of a resurvey is to determine where the footsteps of the original surveyor were located, that is, to restore the original surveyor's lines in the same position as they were originally marked. The concept of “footsteps” is one of determining where the evidence of the original survey is located [from Brown, Robillard & Wilson, (1995)].

### COURT DISCUSSION ON HOW A SURVEY SHOULD BE DONE

A surveyor can be retained to locate on the ground a boundary line which has theretofore been established. When he does this, he “traces the footsteps” of the “original surveyor” in locating existing boundaries. Correctly stated, this is a “retracement” survey, not a resurvey, and in performing this function, the second and each succeeding surveyor is a “following” or “tracing” surveyor and his sole duty, function and power is to locate on the ground the boundaries' corners and boundary line or lines established by the original survey; he cannot establish a new corner or new line terminal point, nor may he correct errors of the original surveyor. The following surveyor, rather than being the creator of the boundary line, is only its discoverer and is only that when he correctly locates it (emphasis added) [from Rivers v. Lozeau 539 So.2d 1147 (1989)].

Courses and distances are among the most unreliable calls, yet we put so much emphasis on the precision, pride in our equipment and our measurements, only to find out they are “unreliable.” Before courses and distances can determine a boundary, all means for ascertaining the location of lost monuments must be first exhausted [from Myrick v. Peet 180 P.574 (1919)].

### WHEN TO RELY ON MEASUREMENTS

It is only in the absence of all monuments and marks upon the ground and in total failure of evidence to supply them that recourse can be had to calls for courses and distances as authoritative [from 12Am Jur 2d Boundaries, §73, citing M'Iver v. Walker, 17 US (4 Wheat) 444 (Tenn. 1819), 4 L.Ed 611; M'Iver v. Walker, 13 US (9 Cranch) 173, (Tenn. 1815), 3 L.Ed 694; Bryan V. Beckley, 16 Ky (Lift Sel Cas) 91 (1809); Budd v. Brooke, 3 Gill (Md) 198 (1845); Collins v. Clough, 222 Pa 472, 71 A. 1077 (1909)].

(Continued on Page 9)

time and input

- 6) Cadastral Chiefs comments incorporated; followed by:
  - a. Send draft of whole book to Department of the Interior Washington Office Solicitor (3 Divisions - Public Lands; Minerals; and Indian)
  - b. Work with Solicitor's Office(s) to help them organize and focus their review
- 7) Solicitors comments incorporated; followed by:
  - a. Send draft of whole book to Other Federal Land Management Agencies
  - b. Send draft of whole book to Tribal Governments
  - c. Identify agencies and tribes that wish to comment, identify a contact person in each agency and tribe and agree to a comment process
- 8) Other Federal Land Management Agencies and Tribal Governments comments incorporated; followed by sending the draft whole book:
  - a. To State Attorneys General and Land Surveyor Registration Boards
  - b. To Land Surveyors Professional Societies
  - c. To Other Stakeholders
  - d. To Public
  - e. Prepare a comment process and procedure
- 9) State Attorneys General and Land Surveyor Registration Boards, Professional Societies, Other Stakeholders and Public comments incorporated; followed by - *opportunity for research assistant*
  - a. Send draft whole book to professional Technical Editor for Readability
  - b. Send draft whole book to professional technical indexer to prepare the index
  - c. Work with illustrator to prepare diagrams, figures and plates
  - d. Work with compact disc expert to prepare CD of Manual
  - e. Work with web site master to prepare and present web based electronic version of Manual
- 10) Procedure - Manual Approval:
  - a. Chief Cadastral Surveyor - Accepted
  - b. Director BLM — Prepared and Published under the Supervision of
  - c. DOI Assistant Secretary for Land and Minerals Management — Approved
- 11) Printing Process and Approvals:
  - a. BLM Printer
  - b. DOI Printer
  - c. Government Printing Office
  - i. Decide printing process
  - d. Final Product: Hardback Book, with CD in back jacket, and electronic version posted on BLM Cadastral web site
  - i. A separate BLM Internal Working Document: the above CD with hot links to cited statutes, case laws, IBLA decisions, IMs/IBs and other Manual cited authorities
- 12) Distribution; decide distribution process and plan:
  - a. Superintendent of Documents
  - b. BLM Printed Materials Distribution Services
  - c. Private Mail Order, Book Stores, and other competitive sources
- 13) Develop Outreach and Education Plan:
  - a. Work with BLM Cadastral Chiefs Education Committee and Training Coordinator

- b. Coordinate with other federal agencies and tribal governments
- c. Coordinate with National Council of Examiners for Engineering and Surveying (NCEES)
- d. Coordinate with professional societies
- e. Outreach to U.S. Mineral Surveyors
- f. Outreach with Universities and Colleges with Survey Curriculum
- g. Work with States on Model Law
- 14) Develop Errata and Reprint Process
- 15) Create Plan to bring Related Documents into Compliance with Manual:
  - a. Make adjustments to Code of Federal Register if necessary
  - b. Make linkage to Federal Managers Financial Integrity Act (FMFIA) of 1982, if necessary.
  - c. Make linkage to Office of Management and Budget Circular A-123, Management Accountability and Control, if necessary.
  - d. Make linkage to the Department of the Interior's Management Control Program, if necessary.
  - e. Make necessary updates to DOI and Agencies Administrative Manuals and Handbooks
  - f. Prepare next edition of the Restoration of Lost or Obliterated Corners and Subdivision of Sections Guide
  - g. Update Mineral Survey Procedures Guide
  - h. Update BLM Glossary of Terms
  - i. Prepare next edition of Specifications for Descriptions of Tracts of Lands for Use in Land Orders and Proclamations

## Letter to the Editor

Thursday, 18 March 2004

Skylar V. Wilson

PLSW.org Chairman

P.O. Box 938

Pinedale, Wyoming 82941

(307) 367-6417 (o) 367-6786 (f) wilsonsls@wyoming.com

(e)

Dear Skylar:

As was discussed at the Annual State Meeting, I have updated the various documents pertaining to the State of Wyoming Corner Record for placement on our web site.

The enclosed CD contains the electronic files of those documents and I have enclosed a paper copy of each just in case something goes haywire. Vickie will e-mail them to you later via the web site.

I did not include the WordPerfect version since I do not use that software and cannot check the final result but did include the AutoCAD version prepared by Stan Abell. The remaining documents are in Microsoft Word 2000 (either .doc or .rtf extensions).

The most efficient method of contacting me is through the office telephone at 864-9389 or cellular at 272-5130. Vickie checks e-mail nearly every day and keeps me informed (rlhpls@tritl.net) since my internetting abilities are minimal.

Thank you Skylar.

R.L. Hudson,

PLSW Corner Record Committee



## NCEES specifies additional calculators prohibited in exam room

Based on additional research, the National Council of Examiners for Engineering and Surveying (NCEES) has determined that the following calculators are prohibited inside NCEES exam rooms. These calculators have communicating or text-editing capabilities or other features with the potential to compromise the security of NCEES exams. They join a list of calculators specified by NCEES in its August 2003 news release as prohibited inside NCEES exam rooms.

### CALCULATORS SPECIFIED IN THIS NEWS RELEASE:

Casio, CFX9850+  
Texas Instruments, TI-83  
Texas Instruments, TI-85  
Texas Instruments, TI-86  
Hewlett Packard, HP 41 series  
Hewlett Packard, HP 42S

### CALCULATORS SPECIFIED IN AUGUST 2003 NEWS RELEASE:

Hewlett Packard, HP 48GX  
Hewlett Packard, HP 49G  
Texas Instruments, TI-83 Plus and TI-83 Plus Silver Edition  
Texas Instruments, TI-89  
Texas Instruments, TI-92 and Voyage 200

The above calculators do not compose an all-inclusive list of calculators banned from the NCEES examinations. Based on NCEES

Exam Policy 15, any calculator that has communicating or text-editing capabilities or other features that may compromise the security of NCEES exams is prohibited in the exam room. The above list specifies various models that NCEES has been requested to evaluate for appropriateness in the exam room.

Please distribute the above list accordingly. Additional information to assist proctors in the enforcement of Exam Policy 15 will be provided to each Member Board and testing agency with testing materials for the April 2004 exam administration.

For further information, please see the Calculator Policy FAQs at <http://www.ncees.org/exams/calculators>. Contact NCEES at 864-654-6824 if you have questions.

The National Council of Examiners for Engineering and Surveying (NCEES) is a national nonprofit organization composed of engineering and land surveying licensing boards representing all U.S. states and territories. NCEES provides leadership in professional licensure of engineers and land surveyors by assisting Member Boards in the promotion and promulgation of regulatory processes for engineering and land surveying which demonstrate high standards of knowledge, competence, professional development, and ethics. NCEES also provides services to Member Boards that promote uniform licensing procedures that emphasize quality education, examination, experience, and continuing professional competency.

(See Page 16 for additional information)

## Process and a Procedure for Developing the Next Edition of the Manual of Surveying Instructions.

### Goal:

Outline a process and a procedure for developing the next edition of the Manual.

### Observation:

Although this outline is presented sequentially, it should be understood that actions will occur concurrently.

### Definitions:

Process — a series of actions, motions, or occurrences; progressive act or transaction; continuous operation; method, mode or operation, whereby a result or effect is produced; the machinery, as distinguished from its product.

Procedure — that which regulates the steps in an action or other administrative proceeding; a form, manner, and order of conducting reviews and inspections.

### Process and Procedure

- 1) Identify content of current Manual; what to keep; what to eliminate; what to modify; what to correct; what to add.
- 2) Identify scope of next edition of Manual — for example, Land Status; Administrative Practices; Technical Content; Legal Content.
- 3) Research of materials bearing upon the content of the Next Edition; generally occurring after 1970:
  - a. Federal court cases
  - b. Interior Board of Land Appeal decisions — *opportunity for research assistant*
  - c. Statutes at Large
  - d. Code of Federal Register — *opportunity for research*

- e. Departmental and Agency Administrative Manuals and Handbooks - *opportunity for research assistant*
- f. BLM Washington Office Instruction Memorandums and Information Bulletins
- g. BLM State Office Written Policies
- h. Other federal agencies written policies
- i. State court cases - *opportunity for research assistant*
- j. Profession Standards of Practice
- 4) First draft of next edition prepared by Dahi, whole book; followed by:
  - a. Distribute Specific Chapters To Specific Sounding Boards Organized by Chapters
    - i. Sounding Board Members Nominated by Dahl with Buhier's approval and State Office Cadastral Chief concurrence when applicable; potential membership:
      1. Federal Surveyors
      2. Private Surveyors
      3. Riparian Boundary Specialists
      4. Mineral Survey Specialists
      5. Solicitors
      6. Attorneys
    - ii. Reach agreement with each member of the Sounding Boards of their role and time constraints
  - b. Finalize a Sounding Board comment process
- 5) Sounding Board comments incorporated; followed by:
  - a. Send draft of whole book to Cadastral Chiefs for comments
  - b. Work with Chiefs to help them organize and focus their

### HOW LOST IS "LOST"?

For corners to be lost, they must be so completely lost that they cannot be replaced by reference to any existing data or other sources of information, and before courses and distances can determine boundary, all means for ascertaining location of the lost monuments must first be exhausted [from U.S. v. Doyle, 468 F2d6339C.A. Cob., 1972].

While there is no question that precision and precise measurements are important, it should be clear that precision must not get in the way of accuracy, nor is precision a substitute for accuracy. Parcel location is paramount; precision of measurement needs to be as adequate as necessary for the use intended. I think it goes without saying that surveyors, in particular, need to guard against putting all the emphasis on refinement of measurement and closure at the expense of misidentifying corners, lines, and property location.

Thanks, Bob, for your insight. Perhaps our visions of the future were not clear, but they are consistent. And they are consistent with our courts and in agreement with the previous generation, composed of the Gerry Hydes, the Henry Sipes, and the Heman Chases. Maybe you and I are now considered by some to be among the "oldtimers." With that, I would like to think that we've gained respect for property location, and when "close enough" is indeed "close enough."

This article originally appeared in *The Benchmark* (New Hampshire) Summer, 2002.

## Idaho State University College of Technology



Idaho State University, College of Technology, Geomatics Technology Program Student Senior Surveying Project Presentations to Faculty and Evaluation Committee, December 17, 2003 Standing from left to right, first row: Maher Wissa (Assistant Professor), Gary Guerrero (Student), Scott Bishop (Student), Karl Scherbel (Student), second row: Rajendra Bajracharya (Assistant Professor), Ronald Baugh (BLM, UT), Frank Profaizer (BLM, UT), Douglas Welman (BLM, ID), Richard Green (Surveyor, City of Pocatello), Daniel Webb (BLM, UT), Tim Quincy (BLM, ID), Tim Shurtliff (Bannock County Engineer), and Scott Scherbel (Surveyor Scherbel Ltd.) Missing from picture are Rodney Burch (Instructor),

## Joseph W. Popp

Joseph W. Popp of Glenrock died peacefully Tuesday, February 3, 2004, at the Hospice Home in Casper. He was born in Manville, Wyoming on November 21, 1919 to Mary E. (Kaufman) and Frank J. Popp, and moved with them to Glenrock in 1923.



He attended grade school in Glenrock and graduated from St. Patrick's Academy, Sidney, Nebraska in 1937. He began his career in engineering with Wylie & Quinn in Cheyenne, worked with Inland Airlines, and was attached to the Air Transport Command during the war years.

After the war, he worked at the Wyoming Highway Department in charge of the Reproduction Department. While at the Highway Department, he met draftsman Helen Johnston. They were married September 17, 1949 in the Cathedral of St. Mary in Cheyenne.

They moved to Glenrock in the spring of 1951, when Joe became the agent with Continental Oil Company. While he was the Conoco agent, he also pursued and built a land surveying business and became licensed as a Professional Land Surveyor in 1956.

He dedicated his personal and professional life to the betterment of his community. He was a lifelong member of St. Louis Parish. He was on the Glenrock City Council, Planning Commission, Glenrock Hospital Board, Chamber of Commerce, and was a founding member of the Glenrock Paleon Foundation. He was instrumental in the creation of the Converse County Park at Boxelder Canyon. He worked with the Glenrock Senior Center, Cemetery District, and everyone else who knew his phone number.

He was a member of the American Consulting Engineers Council, WACES, PLSW and the Wyoming Engineering Society.

He loved playing the violin, playing bridge, drinking coffee, telling stories, taking and printing pictures, visiting the Big Horn Mountains and coaching his children and grandchildren in their many endeavors from math to music.

He is survived by Helen, his wife of fifty-four years, and five children: daughter Marilyn Ingram and her partner Craig Newman of Casper, daughter Loretta Popp and her partner Cheryl Hetherington of Iowa City, Iowa, daughter Nancy Popp and her husband Chris Cullen of Ipswich, Massachusetts, son Jerome and his wife Brandy Popp of Glenrock, and daughter Janet Williams of Denver, Colorado. He has twelve grandchildren and one great-grandson: Christie Ingram, Mathew Ingram, Leslie Popp, Stephanie Popp, Bradley Popp, Benjamin Wffliams, Brycen Williams, Courtney Williams, Brittany Gore, Seth Gore, Max Cullen, Jesse Cullen-Popp, and Nicholas Marques.

In addition, he leaves four sisters and one brother: Theresa (Terry) Murray of Cheyenne, Elizabeth (Bettie) Briney of Ojai, California, Rita Thompson of Sunnyvale, California, Jeanne Hall of Tucson, Arizona, and Thomas Popp of Littleton, Colorado; and numerous nieces and nephews. He is loved and will be greatly missed by all his family and his many, many friends and colleagues.

Funeral services were held 11:00 a.m. Saturday, February 7 at the St. Louis Catholic Church in Glenrock, Fr. Ralph Talkin officiating. Memorials may be made to the Central Wyoming Hospice Home in Casper or to the Glenrock Senior Center.



