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LINES & POINTS

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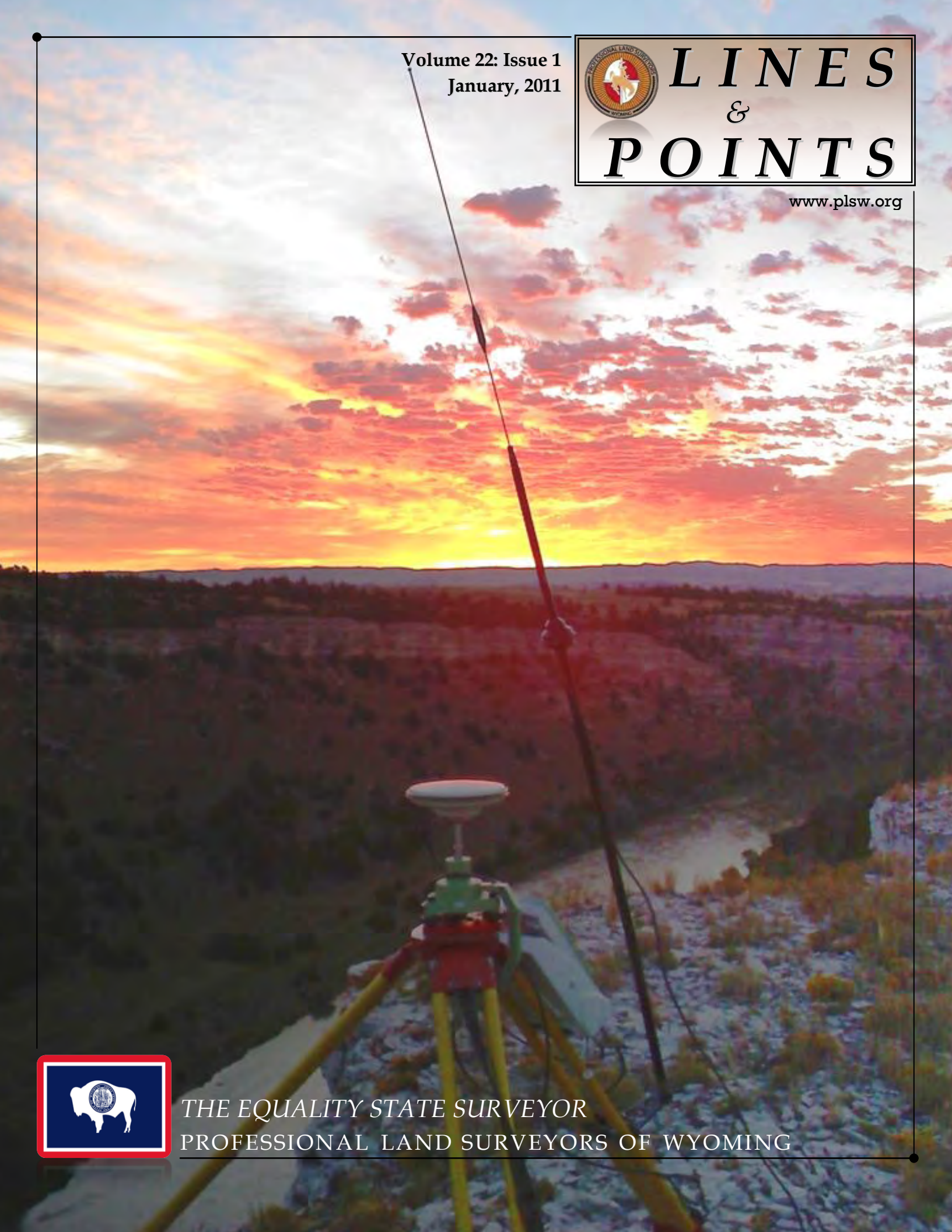

THE EQUALITY STATE SURVEYOR

PROFESSIONAL LAND SURVEYORS OF WYOMING

CONTENTS

PRESIDENT'S MESSAGE

Hello again. I would like to take this opportunity to promote communications between PLSW and the Wyoming Board of Registration for Professional Engineers and Professional Land Surveyors. The Board of Registration is proposing legislation to update their rules and regulations so that they can operate efficiently. Please review these proposed changes and return your comments to Mark Corbridge, the Legislative Committee Chair.

The Board of Registration is contemplating revisions to the Statutes governing the Wyoming State Planed Coordinate system. The Surveyors of PLSW have made the request to provide input to the revisions so the law will reflect current surveying practices. If this is something of interest to you or you would like to provide input, please contact Mark Corbridge. Mark's email is markc@wyocoffey.com.

Sincerely,
Mark Rehwaldt
President, PLSW

ANNOUNCEMENTS/MISC.

- The Wyoming Board of Registration is now offering Professional Land Surveyor candidates the opportunity to take the 2-hour State Specific Examination on a given day each month during the year. The upcoming examinations will be administered in Cheyenne at the Board Office on July 19th, August 16th, and September 20th, 2010.
- The University of Wyoming Land Surveying program is assembling an Advisory Board, and is looking for volunteer Board members. Interested parties should contact Mark Rehwaldt at (307) 766-1700.
- The Bureau of Land Management respectfully requests that readers of the Manual of Surveying Instructions (2009) report any errors found. Errors should be brought to the attention of the Bureau of Land Management Chief Cadastral Surveyor, by sending an email with the details to blmsurveymanual@blm.gov. For information on how to order your copy of the Manual and to view postings of reported errata visit the BLM Manual website at: www.blmsurveymanual.org.
- The winner of the signed copy of the 2009 Manual of Surveying Instructions was Stacy Imus. Stacy bid $650 for the Manual to give as a gift for her husband, Cevin, LS 9328. Stacy and Cevin are owners of Land Surveying Incorporated based in Gillette. Congratulations Stacy and Cevin! The money will be used as a donation towards the PLSW Scholarship Fund. We really appreciate all those that participated in making this a successful fundraiser; the bidders, the PLSW Scholarship Committee, our PLSW Secretary/Treasurer and the BLM
- Please email your scanned artwork or digital photos to mike.flaim@bresnan.net or send larger files on CD or DVD to Lines and Points, P.O. Box 8, Cheyenne, WY 82003.
- 2011 P.L.S.W. Annual Meeting: Thursday, February 3, 2011 at the Little America Hotel and Convention Center, Cheyenne, Wyoming. You should have received your election ballot and candidate information for President, Vice President, and Secretary/Treasurer. Space is provided for a Write-in candidate in each case and your marked ballot should be received by mail no later than January 28, 2011. (PLSW Teller: Don A. Davis, 3201 Hawthorne Ave., Casper, WY 82604) A ballot box will also be available at the beginning of the meeting and the installation of your new officers near the end.

From the Prexy Pasture Party Chief:

Don Polson, who is retiring at the end of this semester, walked by and commented, "Are you torturing your students?" I grinned and simply replied, "Yes!" The students were suffering through their Engineering Surveying final exam.

Prexy's Pasture is pretty well covered with snow and while the students are thinking about their final exams and then heading for home, I am thinking about a cartoon that I saw a long time ago and how it relates to the educational requirements for civil engineers and land surveyors. There are two babies that are just old enough to stand up. One is wearing a blue diaper and the other is wearing a pink diaper. They are standing just about nose-to-nose, and each baby is tugging on the others diaper, looking down, and inspecting the "plumbing." The caption at the bottom is: "There is a difference!"

A surgeon and a fashion designer both use a needle and thread to sew, but there is a clear difference there as well. Similarly, there is also a difference between the land surveyor and the civil engineer who both use GPS, total stations, and levels to gather the basic field data for their projects. Both the land surveyor and the civil engineer use the same calculations and the same software to reduce the raw field data prior to analyzing it. Then after the data has been analyzed and the design has been completed or the boundary has been determined in the office, both the civil engineer and the land surveyor go back to the field to take their completed jobs using the same equipment.

The difference is in what happens in the office. The engineer is governed by the physical laws of nature: gravity, energy, electricity, soil mechanics, structural mechanics, the physical properties of steel and concrete, and many more subjects too numerous to mention. These laws of nature are described using the language of calculus, differential equations, and linear algebra, the basic building blocks of an engineering education. The land surveyor is governed by boundary law, which is a small subset of real property law. Yes, the land surveyor performs algebra and trigonometric calculations in analyzing a boundary, or they may perform a site calibration that uses least-squares concepts to best match the field data to the data of record, but these calculations are only to assist in applying the boundary law principles used to establish the property boundary.

Yes, the surgeon and the fashion designer both use a needle and thread to sew. The engineer and the land surveyor both use the same equipment to gather data and stake their completed jobs in the field. Both babies are wearing diapers. But there is a difference.

Sincerely,
The Prexy Pasture Party Chief

Bureau of Indian Affairs announces policy regarding cadastral surveys on Federal trust lands:

"Only boundary surveys that are performed by Certified Federal Surveyors (CFedS) will be accepted by the Rocky Mountain Region of the Bureau of Indian Affairs."

The following letter explains the purpose of the policy.

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Rocky Mountain Regional Office
316 North 26th St.
Billings, Montana 59101

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Mr. Mark Rehwaldt, President
PLSWY
P. O. Box 725
Afton, Wyoming 83110

Dear Mr. Rehwaldt:

The Rocky Mountain Region, Bureau of Indian Affairs has implemented a policy regarding cadastral surveys on Federal trust lands. The purpose of the policy is to eliminate the number of unacceptable and or poorly executed survey work products. The Bureau of Indian Affairs (BIA) is responsible for the protection and conservation of lands held in trust for the beneficial use by individual Indians and or Tribal governments. The cadastral survey process is designed to ensure that all boundaries and related tract information are correct since they are recorded in the Land Titles and Records Office (LTRO) of the BIA.

Individual tribal members who seek to convey or to partition their trust property often retain the services of a private state licensed surveyor; they pay in advance for the survey and have no recourse when the survey contains errors that need corrections. Or the survey may only describe a portion of the tract and leaves the remainder acreage without a description. We have noted situations where the survey overlaps another tract or the description provided left a gap between two tracts with no way to determine the owner. This cadre of private licensed surveyors usually neglects to record their surveys at the county courthouse in which they completed the survey. There is no permanent record of the survey for anyone to review and rely upon in the future.

The Certified Federal Surveyor (CFedS) certification program is to meet the Secretary's trust responsibilities involving trust lands and resources. Even though the primary purpose of the CFedS program is to provide tribes, and tribal members with a roster of qualified surveyors specifically trained to provide boundary services in Indian Country, it also provides an additional method for accomplishing cadastral services involving Indian trust assets.

The goal of our Regional Policy is to assure that all cadastral services executed on reservations in our Region are performed in accordance with the BLM Manual of Surveying Instructions.

If you have any further questions, you may contact Ms. Brenda Schilf, Rights Protection Specialist or Tim Quincy, Bureau of Land Management Indian Lands Surveyor (BILS) at (406) 247-7935.

Sincerely,

Edward Parisian

Regional Director

cc: John Lee, Chief Cadastral Surveyor
Wyoming State Office

This policy has no effect on surveys that will not be submitted to B.I.A., nor any engineering type surveys (i.e. construction, topographical, etc.) - Tim Quincy, BLM Indian Land Surveyor.

Note: Tim Quincy, BILS, will be speaking at this year's WES Convention, to be held in Cheyenne on February 3 & 4, and will be available to answer questions regarding this policy. (For more information on the CFedS certification program visit the website WWW.cfeds.org)

NCEES
advancing licensure for engineers and surveyors
P.O. Box 1686 (280 Seneca Creek Rd.), Clemson, SC 29633 USA T: (864) 654-6824 F: (864) 654-6033 NCEES.ORG

NEWS RELEASE

October 30, 2010
Contact: Keri Anderson
Manager Corporate Communications

FE, FS EXAMS BEGIN GRADUAL MOVE TO COMPUTER-BASED FORMAT

NCEES approves conversion to increase flexibility, strengthen security

The state licensing boards that compose NCEES have voted to begin converting the Fundamentals of Engineering (FE) and Fundamentals of Surveying (FS) exams to a computer-based format.

The decision was made during the NCEES Annual Meeting, held August 18–21 in Denver. It followed a prolonged study by a special task force convened to consider the issue and share its findings with the organization.

The move from paper-and-pencil exams to computer-based exam delivery will not take place overnight, said NCEES Executive Director Jerry Carter.

"The language approved by the Council includes the phrase 'at the earliest feasible date,' which means that NCEES exam writers and staff will be involved in a process that includes adapting exam item banks, selecting vendors, and communicating with licensing boards and examinees before we can begin offering the exams via computer," said Carter. "We anticipate it will be a minimum of two years before FE and FS candidates begin taking the exams at computer-testing centers."Peter J. Hutchison, P.E., P.L.S., of Cheyenne, Wyoming, has been awarded the NCEES Distinguished Service Award for his dedicated service to the engineering and surveying professions. NCEES recognized the 2010 award winners at its Annual Meeting, held August 18–21 in Denver, Colorado.

Flexibility and security key factors in decision

Among the reasons given by the NCEES Computer-Based Testing Task Force for its recommendation to convert the exams to a computer-based format include greater scheduling flexibility for candidates, more uniformity in testing conditions, and enhanced security for exam content. The vote to move toward computer-based testing for the FE and FS exams was unanimous.

The FE exam is designed for college engineering seniors who intend to pursue a P.E. license. Nearly 50,000 examinees took the FE exam during the 2009–10 academic year, which included October and April administrations. The FS exam is a similar exam designed for those beginning the process toward professional surveying licensure.

The PE and PS exams, which engineering and surveying candidates are also required to take after completing work experience requirements, will continue to be paper-and-pencil exams for the foreseeable future.

ABOUT NCEES
NCEES is a national nonprofit organization composed of engineering and surveying licensing boards representing all U.S. states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands. An accredited standards developer with the American National Standards Institute, NCEES develops, scores, and administers the examinations used for engineering and surveying licensure throughout the United States. NCEES also provides services facilitating professional mobility for licensed engineers and surveyors. Its headquarters is located in Clemson, S.C.

The Wyoming Board of Registration for Professional Engineers and Professional Land Surveyors

Message from David Whitman, Board President

The Wyoming Board of Registration for Professional Engineers and Professional Land Surveyors will be submitting a bill to the 2011 Wyoming legislature for modifications of our current statutes. Our statutes were last modified in 1987 and are, therefore, out of date. While the bill will look excessive in its changes, this is necessary because we are attempting to update language to match as closely as possible the National Council of Examiners for Engineering and Surveying (NCEES) *Model Law*. In most cases the change in language is not a change in requirements. The major modifications are as follows:

- Changing the Board size from seven (7) members to nine (9) members. We would be adding one (1) additional land surveyor position. This is necessary in order to have larger subcommittees for review of applications, review of complaints, etc. In other words, we want to be better positioned to protect the health, safety, and welfare of the Wyoming public.
- Moving the Board office from under the umbrella of the State Engineer's office and place it with the Dept. of Administration and Information where most other licensing boards reside. This should provide some additional efficiency in the office.
- Remove "discipline-specific" engineering licensure. Wyoming is one of a small handful of states that still licenses by discipline. That is, the area in which an applicant passed the PE exam is placed on their seal. Since PEs are already allowed to practice in any area where they have competence via education and experience, having discipline-specific licensure doesn't make much sense.
- Include additional educational paths for the licensure of surveyors. Particularly, a 4-year degree in surveying, a 4-year degree related to surveying (e.g. engineering), and a 4-year degree not related to surveying. In each case, the last two degrees would need to contain at least 30 semester credit hours of surveying.
- The 2-year degree for surveying licensure will be maintained as currently written.
- Add size AAA maps as an acceptable map size, which is 11 inch by 17 inch.
- Ability to adopt Rules to allow for engineering or surveying licensure of:
  - International candidates
  - Comity applicants who have at least twenty (20) years of discipline free practice
  - Candidates who have an earned doctorate degree in engineering or land surveying

A current copy of the proposed legislation can be found at http://engineersandsurveyors.wy.gov/

2010 P.L.S.W. Technical Session

This year's technical session was held at the Best Western Ramkota Hotel in Casper, on November 4th and 5th. It was very successful, with around 125 attendees from Wyoming, Colorado, Utah and Idaho. Approximately $13,000 was generated, before expenses. Wendy Lathrop's presentations were very well received.

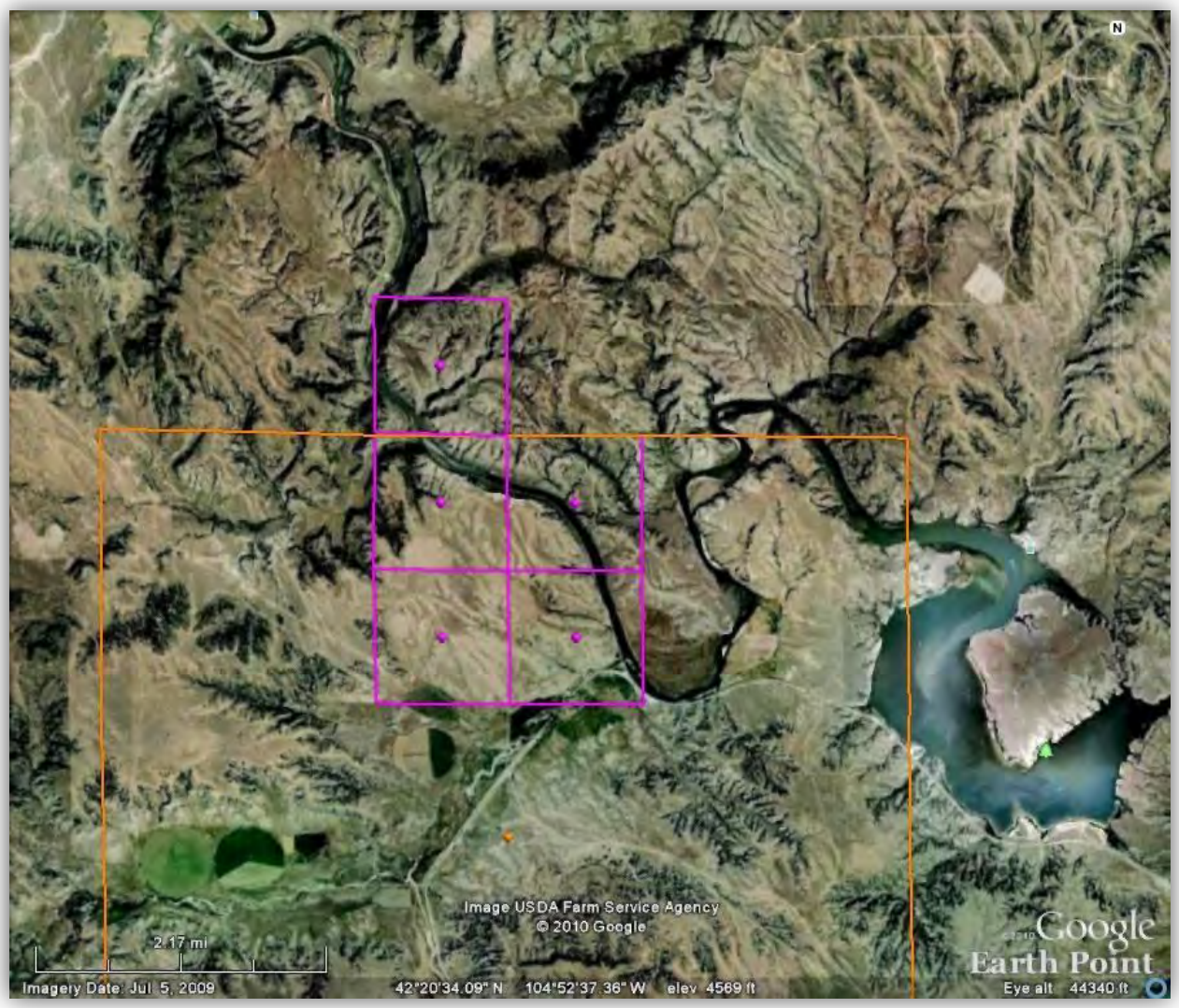
Next year's session will again be held in Casper at the Ramkota. The dates are November 3rd and 4th - So mark your calendars.

A big thanks goes to Bill Fehringer! We all appreciate the time and effort you put into making this an event we look forward to attending every year.

THE CUNDALL EXCLUSION SURVEY

By S.D. "Dennis" Dawson, PLS

What do you do when you have to make a survey of about 1500 acres of land that has a hostile landowner on the Westside, the Platte River Canyon on the North Side with the Burlington Northern Rail Road on the South of the River, in the Canyon, with the River at flood stage? The matter is complicated by several problems that are fixing to make this a very complex, and difficult survey.



The Setting:

The Cundall exclusion is a portion of the Wyoming Army National Guard Camp Guernsey property that lies eight miles Northwest of the town of Guernsey, Wyoming, and about 3 miles West of Guernsey Reservoir. The Camp Guernsey boundary currently runs from 3 miles South of the Platte River and its canyon approximately ten miles North, and from Wyoming State Highway No. 59 West about eight miles to the Platte River and its Canyon. The Platte River Canyon averages about 250 feet deep with rim rock along the edges of the top of the canyon. The rim rock is interrupted by occasional side canyons draining down into the river. Access is generally only by foot due to the steep canyon walls and the Platte River courses through the canyon with its breadth running from toe to toe of the steep side slopes.

To complicate things the Burlington Northern Railroad (BNSF) runs along the South Side of the Canyon next to the Platte River; and there is no access road along the railroad.

The railroad tracks are the only means of access for a length of almost three miles. The Army National Guard wanted to establish a boundary along the South Right of Way line of the BNSF.

Due to Homeland Security requirements, the BNSF, as with all railroads, had tightened access requirements to the railroad's property. The tightening resulted in the railroad establishing a contact point for the purpose of obtaining an access permit, and for scheduling the proposed survey.

The access permit application fee was $600.00 to be provided at the time of application, and the processing of the permit could result in additional charges being assessed before the issuance of the access permit. Since the survey to locate the BNSF track alignment would require being physically on the railroad tracks for a distance of almost three miles and since there was no practical access to the alignment other than on the tracks, Federal Law would require a BNSF flagman accompany the surveyor at all times when the surveyor was within 25 feet of the centerline of the railroad tracks. Due to dense vegetation and otherwise difficult access for entire distance to be surveyed, a flagman would be required for the duration of the railroad survey. The client was the Wyoming

Army National Guard, so "sneaking"on and off the railroad alignment was not an option. Further, the project had limited funds available,

so the uncertain cost of obtaining a permit and flagman was a major concern.

As one might guess, to determine the location of the section lines defining the lands to be described, it was also necessary to survey the lands north of the Platte River. Since the river was at flood stage, crossing the river was not an option. The Wyoming Army National Guard controlled the land north of the river; so theoretically, access to that area was not a problem. Guess again!

The western boundary of the survey was bordered by the manager of the land that was reportedly hostile to the Wyoming Army National Guard, the BNSF, and generally all his neighbors. Multiple attempts were made to contact the landowner and land manager to no avail. Given the reputation of the adjacent landowner and his manager, it was determined to be wisest to not attempt to access the land for the purpose of the survey.

The Army National Guard was in the process of selling this parcel of land north of the river to consolidate the agency's land and create a more manageable and useful operational area for troop training. The purpose of the survey was to determine the acreage of the land south of the BNSF right of way line for the purpose of the sale of the subject land.

The Survey:

The area of the survey was accessible from Wyoming State Highway 26 near Guernsey, via Wendover Road, which also provides access to the BNSF Railroad and the ending point of the proposed survey at the BNSF wye called Wendover. From Wendover, the survey extends about three miles to the west, and two miles to the south.

Research on corner recordation forms and surveys were accomplished, and yielded some information on section corners along Wendover Road; with some surveys having taken place north of the Platte River. The survey was begun by establishing a GPS base station on a high point along the bluff edge of the Platte River (where the cover photo was shot). It was anticipated that radio communication between that GPS base and rover would not be consistent, and that it would likely be necessary to record data in both units and post process after the survey completion. As it turns out, that was about the only thing that was easy about the survey; communications were amazingly good thru the whole survey. The next job in the survey was to locate and survey all of the known corners on the South side of the river. Geographic Coordinate Data Base (GCDB) coordinates were loaded into the rover to use for the basis of defining a search area for corners. The survey equipment was loaded on an ATV and the search began. Most of the corners recorded in the corner recordation forms were found and were reasonably close to the position predicted by the GCDB coordinate values. Subsequent to exhausting the search for found corners, the corners needed for the legal description were searched for, with about three unmarked stones being found.

The found stones were in a good proximity to the GCDB coordinates, but lacked other identifying features which would identify them as an original cornerstone.

One corner that was of particular interest was the northwest corner of Section 33 T28N R67W. This corner controlled the west line of the survey area. According to the original survey notes, this corner was established three and a half chains west of the west bank of the Platte River. This put the corner about half way up the slope of the canyon wall. The only route was to walk the side hill of the Platte River canyon above the railroad, and below the top of the canyon bluffs. Due to the way the notes were written (describing an offset line in the correct position), it is likely that the corner was faithfully set. However, due to the restriction of access to the area of the section corner, it was not possible to even search for the corner.

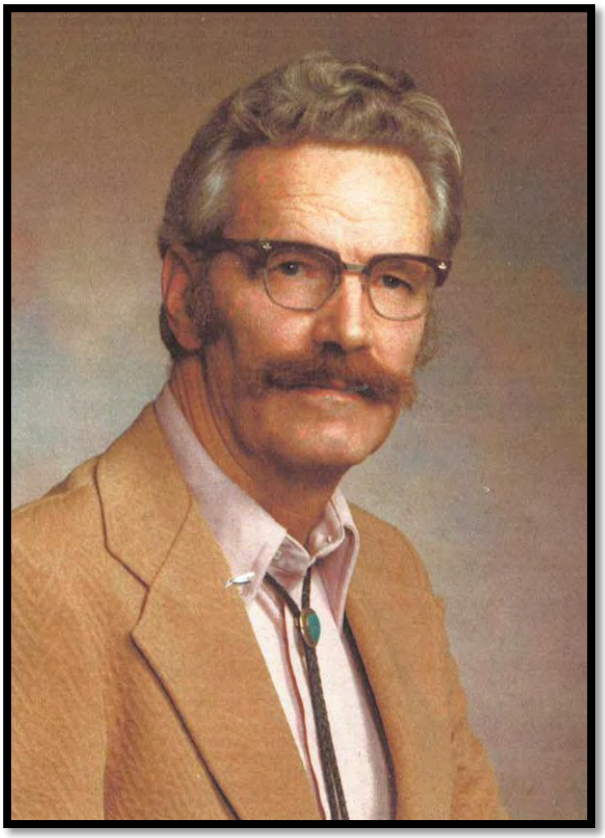
Once the survey on the South was completed as far as the access restrictions would allow, it was necessary to turn to the North side of the River to find and survey controlling corners. On the surface of the matter, it would seem that all you do is drive around to the North side of the River and perform the survey. Think again! To survey on the north side of the River, it was necessary to drive out to the Base station site, set up the GPS Base station, then drive about 15 miles to Guernsey and then another ten miles to Hartville, and another three miles to the point where you leave Highway 270. From there, you drive about six miles to west before you turn south and into the Guernsey training field area artillery range impact area. From there, the path was to turn to south and drive through the artillery range impact area about three miles south to the north side of the river to begin the survey.

Access is restricted into the impact area because of the possibility of "unexploded ordinance" on the path leading to the area of the survey. Because of the impact area restrictions, it was decided that it would wisest to survey on Sunday when artillery is not being fired into the impact area. Access to the impact area was arranged with access control for the next weekend with the regular weekday staff.

Sunday arrived and Guernsey access control was visited to obtain gate keys and a bases radio for communications with access control. The weekend access control had not heard anything about the survey, the need for access, nor clearing of the access road of unexploded ordinance. In keeping with the difficulties surrounding the survey, that day's "mission" was scrubbed.

On the following Sunday access was arranged and the Army National Guard provide an escort across the impact area. Given the difficulties with gaining access to the area north of the river, it was decided that finding and surveying the location of as many section controlling corners as possible in the area north of the River would have to suffice for the purpose of the survey.

(Continued on Page 17)



Dell Cazier

A Remembrance

By Lola Cazier

Dell Cazier was born in Afton, Wyoming, on January 6, 1925. Afton is in Star Valley, a high-mountain valley on the western edge of Wyoming, south of Jackson Hole. It is beautiful, but it can get cold there.

I don't have access to weather records, but it is a safe bet that it was a cold day. Forty degrees below zero is not uncommon. When Dell was a kid, he went to school by horse-drawn sleigh during the winter months.

Dell's family left the valley when he was about fourteen. His older half brother, Allen, joined the Civilian Conservation Corps and sent what money he could home.

The rest of the family moved to Bakersfield, California. Dell worked along with his father to help out with family finances. He enlisted in the Navy just after his eighteenth birthday and served in the South Pacific during World War II.

After the death of a younger sister, Thelda, Dell volunteered for amphibious training with the thought that he would become a U.S. Navy frogman. The Navy, however, had a different idea.

Dell was assigned to a joint, forward communication group—half Navy and half Army. His ship arrived at the island of le Shima just six days after a sniper's bullet killed famed Scripps-Howard correspondent Ernie Pyle there. Ie Shima is an island in the Ryukues and is only a few miles from Japan. The le Shima installation was bombed on a fairly regular basis. Dell Cazier found himself one of a unique group of young Navy men—sailors in foxholes.

After the war, Dell went back to Star Valley, got married and started both a business and a family. He decided he needed an education and enrolled in the University of Utah under the G.I. Bill. He said that he had to take a lot of "bonehead" courses, since he had finished only the ninth grade before going to work.

The G.I. Bill was an astonishingly successful bit of legislation. It put getting an education within the reach of a great many young men. However, Dell found that the assistance was not enough to support a growing family.

He approached the problem as he did virtually everything in his life–by setting a goal and moving toward it one step at a time. Dell got a job. He worked the entire time he was in college. It took awhile, and a lot of determination, but Dell graduated from the University of Utah with a Bachelor of Science degree in Geography.

Dell began his career as a Cadastral Surveyor with the Bureau of Land Management after his graduation in 1956. His first cadastral surveying experience as a party chief was in the primitive wilderness of northern San Juan County, Utah. It was also the first time helicopters were used in a government survey. Vern Lane was the crew chief. Lane's assistant was George D. (Don) Voorhees.

Almost from the beginning, the most remote, rugged and inaccessible of all the rugged and inaccessible jobs were invariably assigned to Dell's party. He was beginning to get a complex about it until one day he overheard a conversation between Vern Lane and Don Voorhees. They were talking about a really bad area that was soon coming up for survey.

Vern just shook his head and said, "I'll have to send Cazier. He and his whole party only weigh about as much as a bundle of lath."

The pioneering use of helicopters did make the work possible. It remained both difficult and dangerous. The helicopter pilots learned to use the strong updrafts in the canyons to assist them. They would taxi right to the edge of a rim or mesa and literally fall off to gain flying speed as the updrafts kept them airborne. The surveyors shut their eyes, held on, and hoped the pilots knew what they were doing. They were excellent pilots and, for the most part, all went well. One day, however, Dell Cazier and Don Voorhees were in a helicopter that crashed.

The accident happened at about four o'clock on a clear Monday afternoon. The helicopter took off on the last flight following completion of their survey work in the Beef Basin area. It is one of the most isolated and least inhabited areas of the West. The helicopter was flying just above the tree tops when it suddenly dropped. The rotor blade hit a tree and the nose was slammed down hard, but the tail caught and was hung up in a split-top pinon tree.

Cazier and Voorhees were badly shaken but not injured beyond bruises and a scratch or two. The pilot, Charles Dunifer, had both a broken shoulder blade and a broken collar bone. Cazier and Voorhees gently lifted and carried him out of the helicopter. They tried to make him as comfortable as the conditions permitted. Unfortunately, there was little they could do to ease his pain.

The accident happened about 14 miles

northwest of Monticello, Utah. When asked what had gone wrong, the injured pilot said, "We just ran out of air."

The surveyors said that, for them, the worst of the ordeal was time. It was several hours before another helicopter and pilot were available to go out and get them and the injured pilot off the remote mesa.

Charles Dunifer had to be moved by stretcher and was treated at San Juan County Hospital, in Monticello. Both Dell Cazier and Don Voorhees reported for work as usual the next morning.

Dell always considered himself to have been a lucky man. At the start of his career, while he was in Utah, he worked with men who had already become almost legendary. These included Arthur W. Brown and Andy Nelson. Later, in Idaho, he also worked with long-time surveyor Walt Good.

From the example of surveyors such as these men, Dell learned, among other things, the value of actually constructing a corner—not just piling a few rocks together. Surveyors appreciate this skill. Belle Craig, working in Idaho, is justly proud of her corners. She says she learned how to build them the Dell Cazier way from Dell's son, Ted.

While he was still working in Idaho, Dell now and then ran into ranchers and others who said things like, "You government surveyors—you don't even have to be registered."

Dell said it gave him great satisfaction to be able to respond to such comments by saying, "That's right. I am a Registered Professional Land Surveyor in the State of Idaho, but I don't have to be."

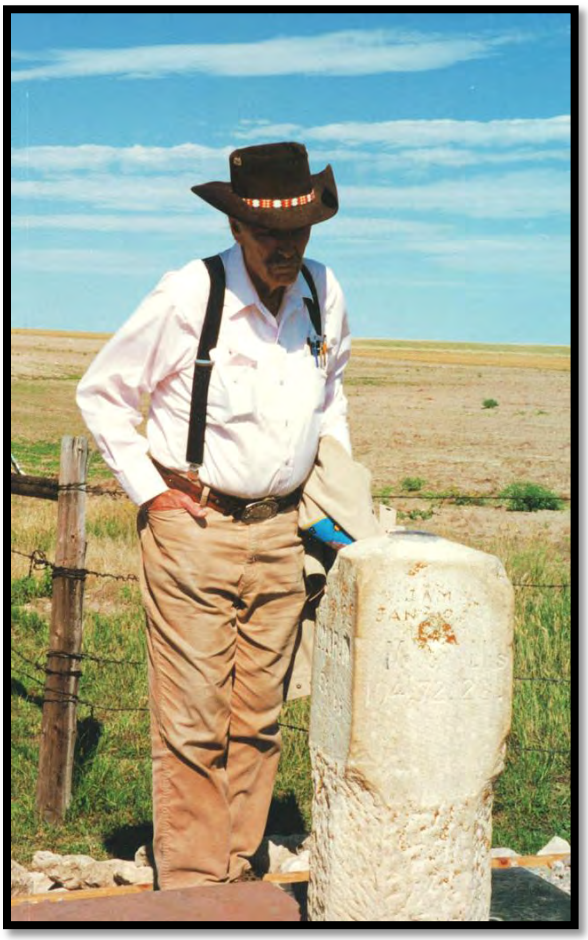
Dell and his wife were legally separated in 1969. Dell left Idaho and went to California. They were divorced in 1973.

In 1974, Dell became part of the staff of the Cadastral Survey Training Unit in the Portland Service Center. That is where I met him.

In Oregon, Dell worked with James A. Simpson who was, later, the United States Government's first Riparian Boundary specialist. Jim Simpson literally wrote the book on riparian boundary matters. Simpson is one of the men Dell worked with who became his lifelong friends.

The Cadastral Survey Training Unit was transferred to the Denver Service Center in 1975. Dell and I were married in Golden, Colorado, on the seventh of November that year.

While the Training Unit work was winding down, Dell also taught an evening class in Cadastral Surveying at Metropolitan State College, in Denver. Even



though he liked teaching, it just wasn't the same as doing. By the end of the school year, Dell knew that he was a true field man at heart. He missed surveying and what he wanted to do was go back to the field.

Dell accepted a position in Wyoming and transferred there. First, however, he was required to write a letter for the record assuring anyone who might be interested that such a transfer, even though it involved a downgrade, was not an adverse action. Dell really did want to go back to the field.

We moved to Cheyenne and Dell's first assignment there was to survey the boundaries of Fort Riley, Kansas. So he went to Kansas while I unpacked and got us settled in.

During the late 1970s, Dell was surveying in the Thunder Basin National Grasslands in Wyoming. As was his usual method, Dell called on ranchers in the area. One of them was an old timer named Collins. Dell introduced himself and asked Mr. Collins if he knew about the government surveys going on in the area.

Collins said, "Sure, I know about government surveys. I've been here in this part of Wyoming almost all my life. I remember way back, when some deputy surveyors came through here. It must have been about 1910. They used iron pipe to mark their corners—only we didn't know the government had added something new to iron pipe. We thought it was what it looked like; iron pipe driven part way into the ground with a brass cap on the part that was left sticking out. We'd seen iron stakes used by private surveyors before. We boys had a good time using it for roping practice—you know, riding by and throwing a loop on a stake. One good jerk and it would pop right out of the ground."

Mr. Collins continued, "Well, we were just kids, so we tried it after the deputies left. I rode by and got a loop on one the first toss I made. Only the damn thing didn't come out of the ground—instead, I landed on my ass in the dirt. That's how we found out that the Government used iron posts that were flanged at the bottom."

Dell said he also learned something about asking the right question—or asking the question right—from Mr. Collins.

There was a good, straight fence on the Collins ranch. It looked as though it might be on a surveyed line—possibly the quarter-section line. Dell asked Mr. Collins if the fence had any significance. And Mr. Collins answered,

"It surely does; it's the east fence of my horse pasture."

Dale Wilson was one of Dell's party chiefs in the Thunder Basin National Grasslands. Dale and his party were trying to follow the footsteps of a surveyor named George M. Carson. They were having some problems. Carson, whose contract date was October 27, 1881, was not a believer in topography calls. If it didn't have water in it, Carson said nothing about it in his field notes.

For example, Carson left Antelope Creek, which he mentioned. From there he went about five hundred feet up to the top of a high, narrow mesa. The mesa was only about five chains across. Carson set a quarter-corner on the top and went down the other side without saying anything about either ascending or descending the slope.

The lack of topography calls was not the only problem. At first, Wilson's party just wasn't having any luck recovering Carson's corners.

Finally, Dale Wilson found a Carson corner. It was a beautiful little marked stone. It was not as big a stone as the Manual required. It was not as big a stone as Carson's field notes said he set. Nevertheless, it was a lovely little stone marked so clearly and well that it looked as if it had been done with an engraving tool.

With that to go on, Wilson's party began finding Carson corners. All of them were smaller than called for in the 1881 field notes. Smaller or not, those corners had been set. Carson was there almost a century earlier, and his corners could be found.

There was a lot of mining activity in the area in 1977. Officials of one of the coal companies near Gillette were anxious to know about the results of the BLM resurvey. It seemed that their own surveyors had failed to find any original corners in the vicinity of the Eagle Butte Mine.

Wilson found one. Dell made arrangements for Wilson to show it to the mining officials at seven o'clock the next morning. Wilson and his survey party were on time—it was their usual time to go to work. Mining officials in their three-piece business suits were also there.

Wilson gestured toward the corner. It was not only near the mine, it was situated between the mine office and the silo. Unbelieving, and more that a little embarrassed, the officials wanted to know how Wilson had decided that particular little bunch of rocks was the corner. Wilson started to show them, but one of the mine employees beat him to it. The mine employee picked up the stone. He looked at it, almost with reverence, and held it out to show the deeply engraved 1/4 to the president of Amax Coal.

There was also a problem north of Gillette that had Dell tearing his hair out. There was an error in the original survey. The Manual says, in no uncertain terms, that if there is found to be an error, its location must be placed where the error occurred. Dell and Dale Wilson and their survey parties searched long and hard to establish just where the error had occurred.

The problem was, they just were not finding it. They were convinced that it was a huge "bust"–twenty chains or more. One crew worked northward and the other southward in the area they were sure the bust had occurred. This went on for several days…nothing.

Finally one morning, one of Dale Wilson's temporary summer crew members stumbled backward into a slight depression. Dale helped him up. Due to long habit, Wilson used his digging bar to probe into the depression. The digging bar hit a rock. It was an original stone. It proved that the error was huge–about twenty two chains. Wilson assures me that anyone currently surveying in the area knows about it.

In 1979, Dell and his crew worked on a resurvey of T.15 N., R. 113 W., Sixth Principle Meridian. This was in an area near Fort Bridger, Wyoming. Half of the township had been originally surveyed in 1874 by a man named Thomas. Thomas was a competent surveyor whose corners could readily be found, partly because of their distinctive shape. He preferred to mark his corners with large, light-colored stones that were shaped like a shark's tooth. Dell and his crew called him Sharktooth Thomas.

During his long career, Dell Cazier worked on a great many interesting surveying projects. His various surveys in Idaho included one that pioneered the use of photogrammetry. Another involved public land in the Coeur d'Alene area that had been granted for a specific use. The grant had a reversion clause and, under its terms, ownership had reverted to the people of the United States.

There were trespass cases and challenging resurveys in California. California resurveys were made more difficult by the fact that, occasionally, the original surveys proved to be at least partially fraudulent.

Dell also worked on surveys of national significance such as California's Redwood National Park, Utah's Canyonlands and Wyoming's Thunder Basin National Grasslands.

Over the years, a number of people who remained with the BLM had some of their early experience working on Dell's crews. These include Alaska's Rick Maron and long-time cadastral surveyors Max Sevy, Neil Forsyth, Jim Werdel, Dale Wilson, Doug Kimmel, Steve Kaiser and Kevin DeRossett.

Dell Cazier's last BLM assignment was in January, 1983. He became the first official project leader for the cadastral surveys of the Navajo lands. Dell liked and respected the Navajo men with whom he worked. He also felt privileged to meet some of the World War II Navajo Code Talkers.

Dell retired from the Bureau of Land Management in 1985. He then worked for the Navajo Nation until he became ill and we returned to Cheyenne.

Back in Cheyenne one day Dell ran across a somewhat cryptic advertisement. Someone was looking for a surveyor with long and varied field experience.

Dell called the number in the ad and was told that what they were really looking for was someone who had about thirty years experience surveying the public lands and also had a degree in Geography.

Dell said, "I guess I'm your man."

He was hired by Infotec and worked for them three or four days a week until his chronic obstructive pulmonary disease, COPD, became too severe for him to continue. Dell died in Cheyenne, Wyoming, on September 16, 1999.

State of Wyoming Corner Record

(In compliance with the *CORNER PERPETUATION AND FILING ACT*, Wyoming Statutes, 1997, Section 33-29-140, et seq., and the Rules and Regulations of the Board of Registration for Professional Engineers and Professional Land Surveyors)
Reverse side of this form may be used if more space is needed.

Record of original survey and citation of source of historical information (if corner is lost or obliterated). Description of corner monumentation evidence found and/or monument and accessories established to perpetuate the location of this corner. Sketch of relative location of monument, accessories, and reference points with course and distance to adjacent corner(s) (if determined in this survey). Method and rationale for reestablishment of lost or obliterated corner.

COMMITTEE REPORT

To
Professional Land Surveyors of Wyoming
By
"Save our Surveyor" (SOS) Corner Recordation Committee

Dated: November 8, 2010

2010 SOS Competition

The 2010 SOS competition was conducted during the 2010 PLSW Fall Technical Session in Casper, November 4 and 5, 2010. The winners are as follows:

1st Place: Rick Hudson for the meander corner, on the left bank of Owl Creek, common to Sections 15 and 16, Township 43 North, Range 96 West of the Sixth Principal Meridian, Hot Springs County, Wyoming.

2nd Place: Karl Scherbel for Corner No. 5 of the Homestead Entry Survey 170, Township 34 North, Range 118 West of the Sixth Principal Meridian, Lincoln County, Wyoming.

3rd Place: Ross Turner for the NE corner of Section 36 of Township 35 North, Range 119 West of the Sixth Principal Meridian, Lincoln County, Wyoming.

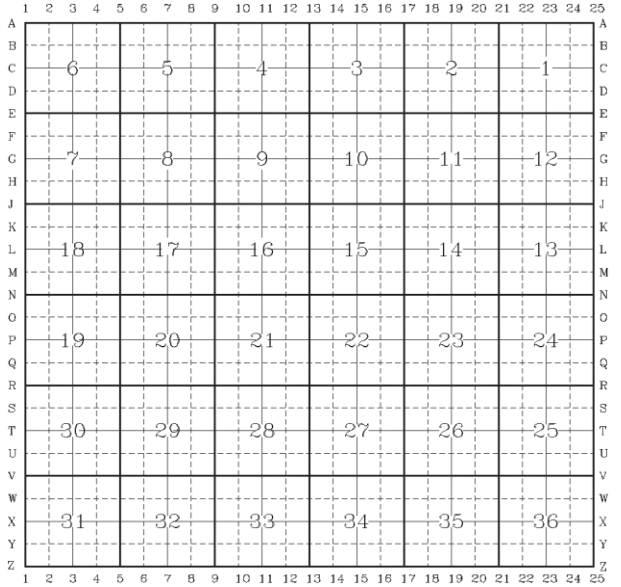
2011 SOS Competition:
The 2011 competition will be conducted in conjunction with the 2011 PLSW Fall Technical Session.

Thank you.
Respectfully submitted,

Paul Reid, PLS
SOS Committee Chairman

Date of Field Work: _____ Office Reference: _____

CROSS INDEX DIAGRAM



Land Surveyor / Firm / Address

_____

_____

_____

_____

Telephone: _____

This corner record was prepared by me or under my direction and supervision.
SEAL & SIGNATURE

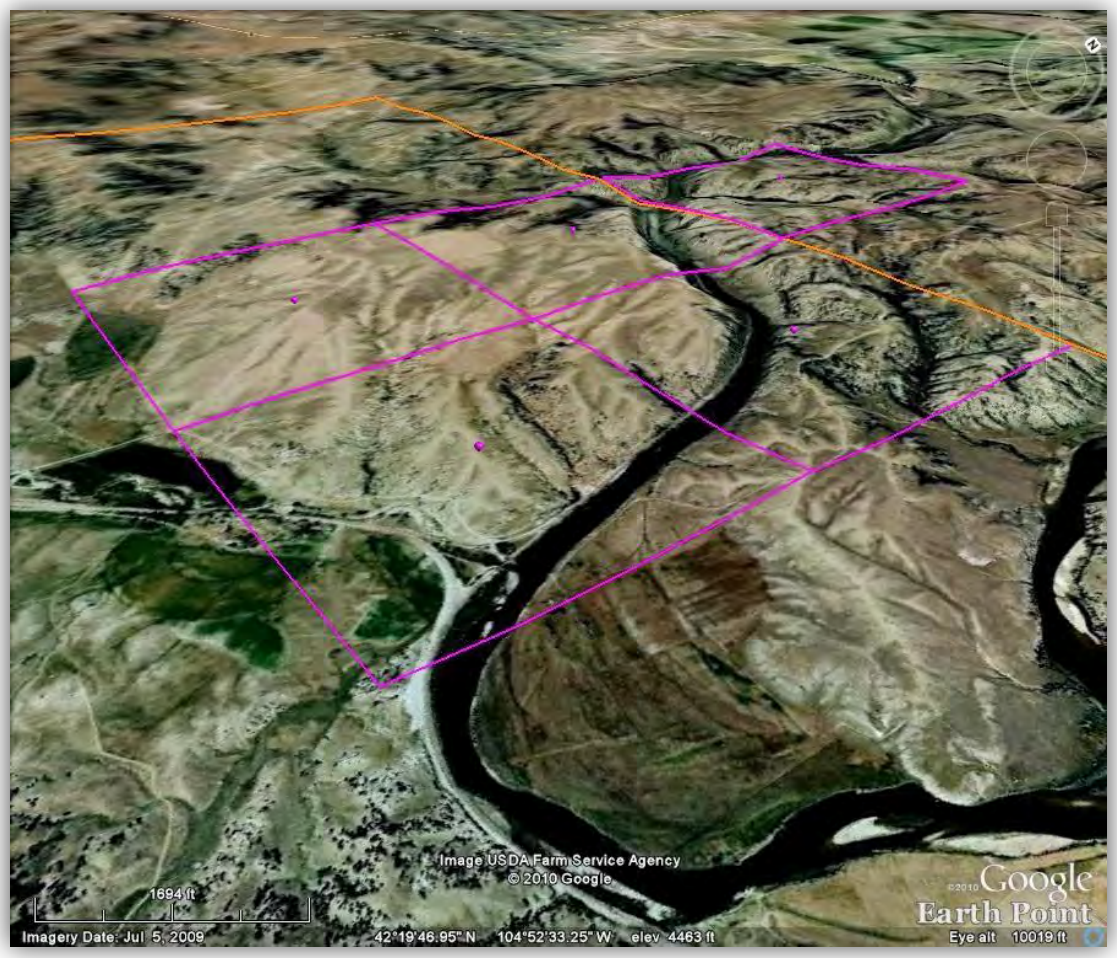
Corner Name: _____ Section: _____ T _____ R _____; _____ P.M. Cross-Index No.:_____
SBRPEPLS/PLSW: March 1994; PLSW January 1998

Again, an ATV was towed into the area of the survey, and used to expedite travel between search areas. The actual survey of the area was uneventful except for having to take shelter for about an hour during an intense thunderstorm filled with lightening. While there was free access to the area south of the impact area, the physical features of the terrain made travel to the section corner locations difficult because the canyons and all had rim rock and were trending north-south and draining to the river. Of course, the section corner search area was all oriented east-west. Needless to say, with the need for expediency and the difficult terrain, the use of the ATV was invaluable. But even with the ATV, getting to the search area was a challenge and made for one long day!

The final remaining challenge was how to survey the BNSF railway alignment along the bottom of the canyon. The BNSF area engineer graciously offered to flag for the survey to simplify the access to the railroad. However, he had no influence on how the local railroad personnel were allocated for projects such as this. The problem with having the engineer provide flagging was that he was only available for a period of about four hours for one day. As was mentioned before, the entire three mile alignment needed to be surveyed to identify tangent alignments and features such as culverts and bridges to help establish the railroad stationing. The entire walk and survey would have taken at least a day to accomplish, and that was not an option for the engineer. So we scratched the idea.

However, the engineer did provide a solution. Since application for access was not a viable option, it was decided to attempt to work directly with the local BNSF staff. The engineer provided the name and phone number for the BNSF Roadmaster for the section of railroad that traversed the Platte River Canyon. A meeting was setup with the Roadmaster, and a proposal for using a BNSF "highrail" for performing the survey was proposed. The proposal consisted of placing a GPS rover antenna on the center of the highrail and then to drive the tracks to the Western end of the survey using an auto point logging feature. It was anticipated that this procedure would provide the data needs to establish the BNSF railway alignment for the purpose of a preparing a legal description. Miraculously, the Roadmaster agreed to the proposal and a date was set for the survey.

The survey began by setting up the GPS base station at about 5:30 AM. (That is the picture of the location on the front cover of this issue). The rover was then set up and checked to assure that everything was working properly. At this same time, both the GPS base station and rover were set to record the raw data in the event of a loss of radio signal. We met with the BNSF track inspector at the Wendover wye, and the GPS rover antenna was set in the middle of the highrail cab. The survey was begun by driving on the tracks west to the limits prescribed by the survey needs. It was



hoped that a search for the Northwest corner of Section 33 could be performed at the west end of the survey, however, by the time the area was reached, two BNSF coal trains and a track maintenance unit were waiting to pass through the canyon. It was decided that the hunt for the section corner was not a viable option for this part of the survey. From the west end the highrail was backed through the canyon to the to the Wendover wye, stopping at bridges and culverts to survey their location.

After the survey, the preparation of the legal descriptions and acreages was relatively simple. While not all of the needed corners were found, the evidence found demonstrated that the original PLSS survey was generally accurate and complied the constraints of the original survey instructions. Sufficient evidence was found to determine a reasonably reliable definition of boundary and section lines for the purpose of the determining acreages with one exception; the northwest corner of Section 33, T238N R67W. There were numerous discussions about how to gain legal access to the search area, even to the extent of helicopter drop to the search area, which was also not possible because of a prohibition of civilian personnel aboard Army Guard helicopters. Another suggestion was made to have Army Guard personnel make the search, and locate the subject corner. That was not deemed to be a viable alternative due to fact that inexperienced personnel would be searching and measuring the location of anything found. Therefore, the results would be highly questionable.

In the end, it was determined to use the GCDB coordinates for establishing a position for the northwest corner of Section 33. While this was not an optimal solution by any means, GCDB results have successfully predicted the location of a number of found corners to a relatively high level of accuracy. A side benefit of this level of prediction was that it could be demonstrated that the original survey was reasonably accurate, and because the GCDB was based in part on the original survey data, the coordinates were of a sufficient accuracy to be used for the purpose of preparation of land descriptions and determination of acreages for the purpose of the sale of the land.

The original railroad survey never tied to the subject northwest corner of Section 33, however, comparing the GCDB location of the corner compared favorably with the original ties to this corner from the south and from the east using the previously mentioned random line notes and ties from the west bank of the Platte River.

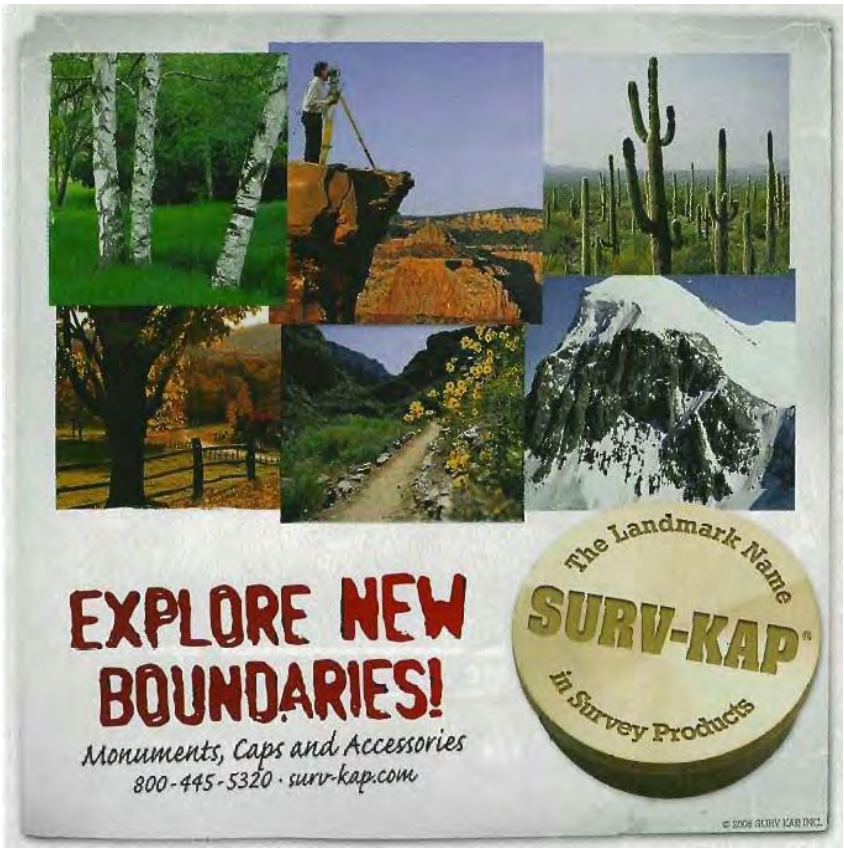
From all of the data obtained from the foregoing procedures, the legal descriptions and sale acreages were prepared using boundary calls, and boundary data in a manner that was acceptable to the client.

And so ends another day in the life of a surveyor……..

The Wyoming State Office of the Bureau of Land Management (BLM) is in the process of scanning all field notes of General Land Office (GLO) and BLM surveys, including the historic field notes that are in bound volumes. The resulting images are linked to the township plat to which they pertain. The images are being added periodically as the field notes are scanned and time allows.

Please check:
www.wy.blm.gov/cadastral/surveydocs.php

for updates prior to ordering hard copies of the field notes from the Cheyenne BLM Office.



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