Chapter 3

Describing the Lands on the Lease

DESCRIBING THE LANDS ON AN OIL AND GAS LEASE

Placing a correct legal description in the oil and gas lease is perhaps the most critical element of the lease. This legal description identifies the assets your company is attempting to acquire. "To insert an erroneous description is to render the instrument virtually ineffective for all intents and purposes."[1] For instance, if the intent of your company was to lease the following tract of land:

> T2N, R7W, Section 7: SW/4, NW/4NW/4, your company's assets under lease would be a total of 200 gross acres.

However if the lease left the common out of the description and the lease read:

> T2N, R7W, Section 7: SW/4NW/4NW/4, your company's assets under lease would only total 10 gross acres.

Even a missing comma would cause the description to be incorrect. For this reason, a fair amount of time will be spent on understanding legal descriptions in the United States.

A Brief History of Legal Descriptions in the United States

When the first settlements sprang up in and along the original thirteen colonies, a system was devised to parcel out the land. This system was called the *Colonial Survey System* and was used by most of the Atlantic States during our nation's infancy. This system divided land into six-mile squares and called these squares a *Township*. These townships were located around a town site or a settlement. Each parcel of land was set out and surveyed as to the natural contour of the land; therefore, every lot was irregular in size and shape. The only consistency to this survey system was that there was little consistency.

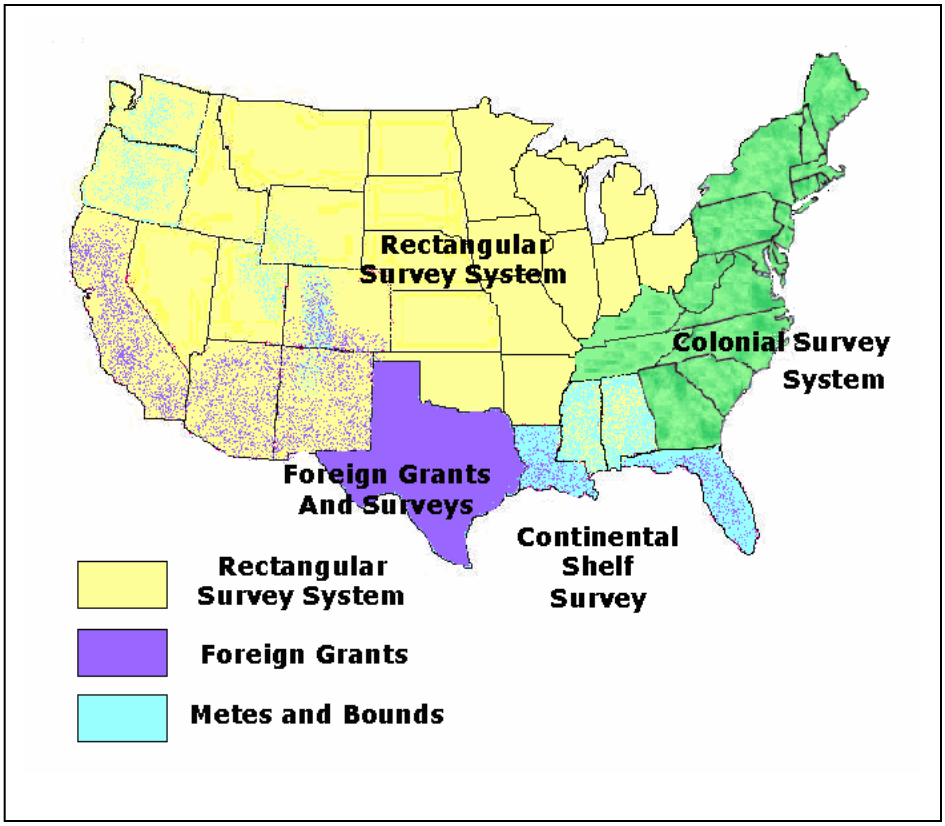
After the revolutionary war, our nation acquired millions of additional acres of land west of the original thirteen states. This land was considered vacant and unoccupied. Since the vast portion of these western frontier lands were unsettled, the government devised a plan in which to occupy and make this area productive. That plan can best be summed up in what is today known as "Land Grants". Most of the land in the United States was surveyed, developed and granted during this expansion period of the "Western Frontier".

In the late 1780's, Congress began to adopt policies that would oversee the creation of new states and set forth a course of action related to the granting of these vast lands. The General Land Ordinance of 1785 was the first to be passed. Two years later the Northwest Ordinance of 1787 was passed.

The survey system developed in order to facilitate this granting of lands was known as the Jeffersonian Survey System (designed by Thomas Jefferson), but is now know as the *Rectangular Survey System*.

Not all lands within the United States were surveyed under the rectangular survey system. There were several exceptions. The following is a brief description of some of these exceptions:

- "Colonial Survey System" involved the original 13 states, Kentucky, Maine, Tennessee, Vermont and West Virginia.
- Metes and Bounds – Metes and bounds descriptions can be found in any state of the union; however, the areas that predominately used this survey method were parts of the south, parts of Washington and Oregon and parts of the Rocky Mountain States.
- Foreign Grants – Portions of California, Florida, Louisiana and parts of the Rocky Mountain States were set out with foreign grants.
- Texas – Texas was based on foreign grants and different types of surveys by four different sovereigns (The Spanish Government, The Mexican Government, the Republic of Texas and the State of Texas).
- Continental Shelf Survey – The outer continental shelf is divided into "Areas" by the Bureau of Land Management. A map name and block number designates these tracts.



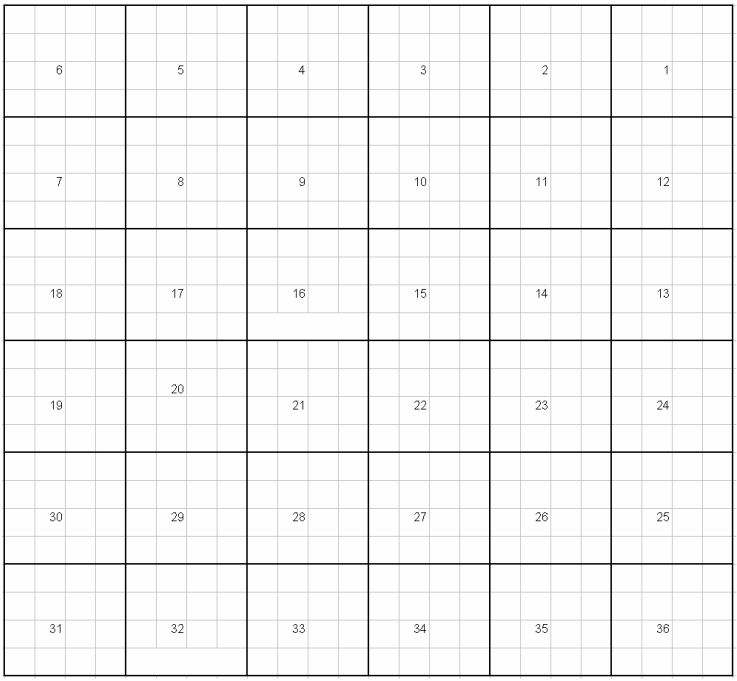
PROBLEMS RESULTING FROM PREVIOUS LAND GRANTS

In many cases, ownership and title problems resulted because of older land grants made by the Spanish or Mexican governments. In New Mexico, Arizona and Colorado, there was, left from the Mexican period of conquest, a tangle of land claims that would be fought over in the courts for years. The problems were compounded because title documents had been lost or destroyed over the course of time and courts had to interpret Mexican and Spanish laws.

In 1891, a law was passed that no previous claim to land could be confirmed if the land claim was in excess of the 11 leagues (a league was equal to a little more than 2.63 miles and the square league equal to 4,428 acres). One section of the act provided that titles up to 160 acres should be confirmed to persons who had been in continuous adverse possession of the land for 20 years.[2]

RECTANGULAR SURVEY SYSTEM

The *Rectangular Survey System* was established under the Land Ordinance Act of 1785 and is still used today and can be referred to as the *Public Land Survey System*. This system divides land into squares which are generally one mile on each side or one mile square. These squares are called "sections". Thirty-six sections are grouped together. Each of these sections are numbered beginning with Section 1 and ending with Section 36. Six sections run north to south and are called meridians and six running east to west are called baselines. This grouping is referred to as a "township and range".



Typical 36-Section Township and Range

This survey system, unlike the colonial surveys, utilized artificial boundaries based on lines of the compass, rather than natural ones. These were called *Township* lines and *Range* Lines. Most of our oil producing states were surveyed under this form of survey.

THE NAMING OF LAND UNDER THE RECTANGULAR SURVEY SYSTEM

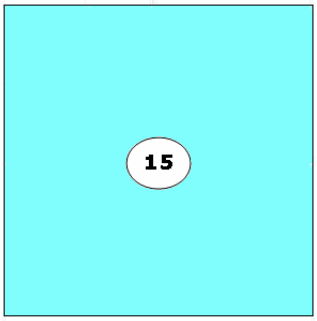
A land description is the name given to a tract of land that, in legally acceptable terms, will determine exactly where the land is located and will determine how many acres are within a particular tract of land. The rectangular survey system simplified the naming of lands in that it divided land into equal squares and devised a simplified method for naming each of those blocks of land. The method was to use sequential numbers and the four main compass headings (north, east, south and west) in naming each tract of land.

Just as every house has an address so that mail can be delivered or friends can visit, so legal descriptions have addresses. Each will typically have a *TOWNSHIP* number, a *RANGE* number, a *SECTION* number and a description of the portion of the section in question (NE/4). An example might read:

Township 162 North, Range 90 West, Section 24: NE/4

Section of Land

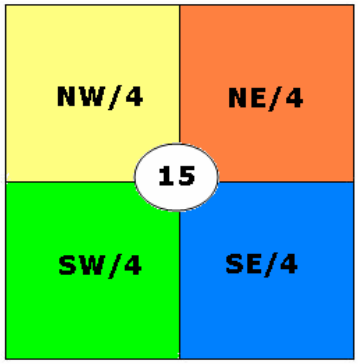
Much of the United States has been measured, surveyed and categorized into "sections" of land. Each section of land generally contains 640 acres. A section of land is usually square and is divided into quadrants such as the NE/4, NW/4, SW/4 and SE/4. A section of land is one mile in length on each of its sides or is one mile square (Illustrated as Section 15.)



1 MILE SQUARE
640 ACRES

Quarter Section

A quarter section is ¼ of a section of land. Generally, quarter sections contain 160 acres or ¼ of 640 acres. Quarter sections are named by where they lay in the section. If the quarter section lies in the North West quadrant of the section, it is referred to as the NW/4. The SW/4 lies in the South West quadrant. The NE/4

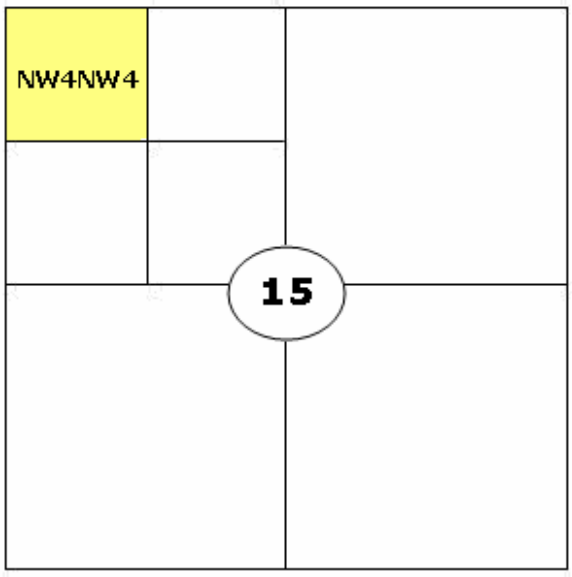


¼ of the Section
160 ACRES

lies in the North East quadrant. The SE/4 lies in the South East quadrant.

Quarter/Quarter Section

A quarter/quarter section is ¼ of a quarter section. Generally, quarter/quarter sections contain 40 acres or ¼ of ¼ of 640 acres. Quarter/quarter sections are named by where they lay in the quarter section. If the quarter/quarter section lies in the North West quadrant of the North West quadrant, it is referred to as NW/4NW/4. If the quarter/quarter section lies in the South East quadrant of the North West Quarter, it is referred to as the SE/4NW/4.



¼ of ¼ of the Section
40 ACRES

Acre

An acre of land is usually a tract of land that is square. It is measured as 43,500 square feet or 4,840 square yards or 160 square rods.

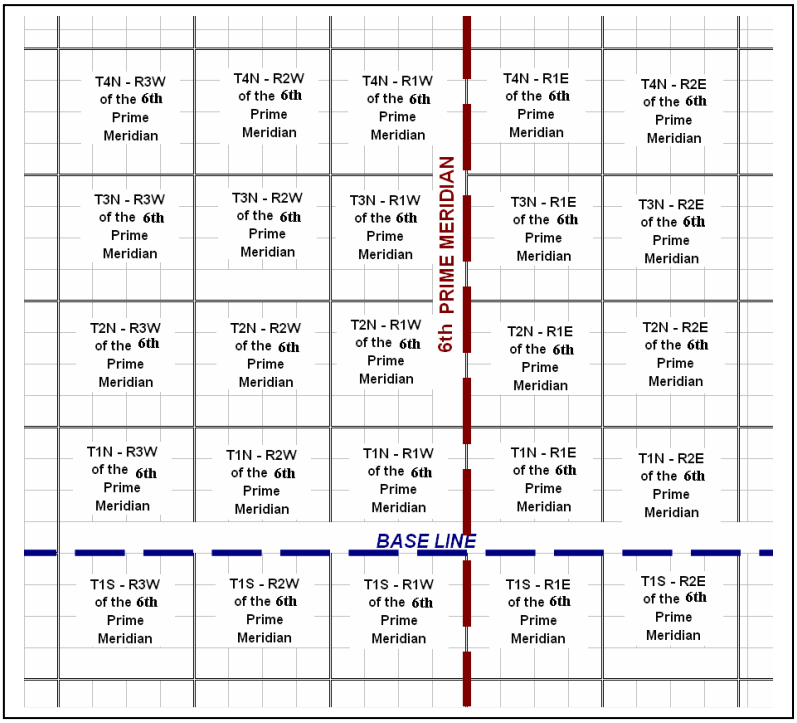
Township

Township lines run north and south and are usually placed every six miles, separating one township from the next.

Range

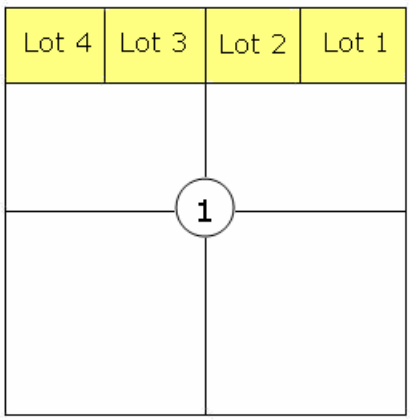
Range lines run east and west and a typically placed every six miles, separating one range from the next.

Generally, each township and range is 6 miles square. Therefore, a township and range contains 6 sections of land in each direction or 36 sections of land in all.



Lots

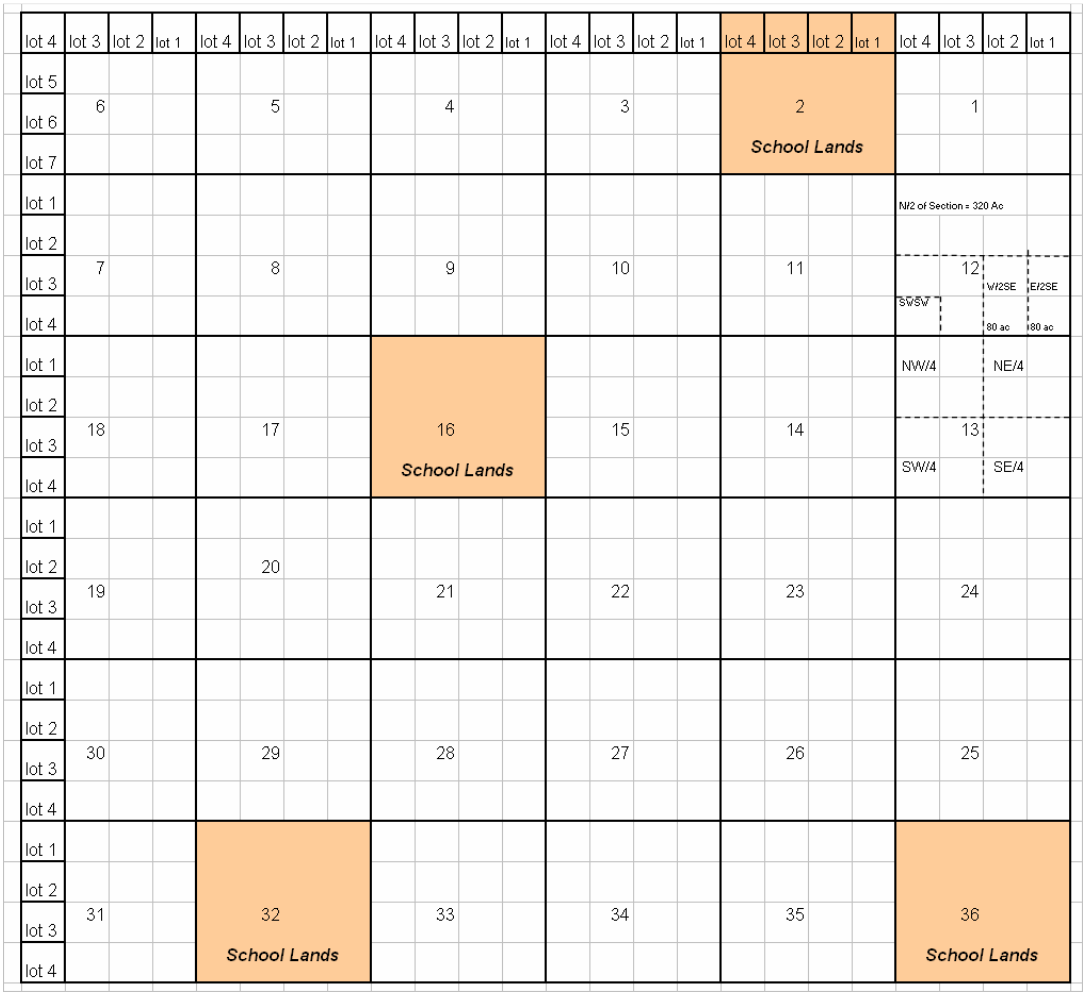
One problem plagued the *rectangular survey system.* Have you ever tried pasting a square piece of paper on a round ball? You start at the bottom, the square lays flat on the ball but by the time you work your way to the top of the ball, the paper has to bend to conform to the sphere. So it was with laying squares of land on a round ball called the earth. Due to the curvature of the earth and human error, not all 36 sections within a township and range contain 640 acres. The provision to account for this came in the form of *irregular lots* that lay along the north and west edge of most Township and Ranges.



Lots running along the north edge of Section 1

SCHOOL LANDS

In several of the western states, the Federal Government designated sections 16 and 36 as school lands. In a hand full of others, they designated sections 2, 16, 32 and 36 as school lands. These lands along with the minerals under these lands were, in most cases, granted to the state.



Colorado	Received Sections 16 & 36
Nebraska	Received Sections 16 & 36
Idaho	Received Sections 16 & 36
Oklahoma	Received Sections 16 & 36
Wyoming	Received Sections 16 & 36
Utah	Received Sections 2, 16, 32 & 36
Arizona	Received Sections 2, 16, 32 & 36
New Mexico	Received Sections 2, 16, 32 & 36
Nevada	Received 2,000,000 acres in lieu of specified sections.

METES AND BOUNDS SURVEY SYSTEM

For the most part, the *Rectangular Survey System* was used for lands starting at the eastern edge of the Ohio River, west to the Pacific Ocean and from the southern borders of New Mexico, Arizona and California, north to the Canadian border. In many parts of the country; however, the township and range system was not implemented.

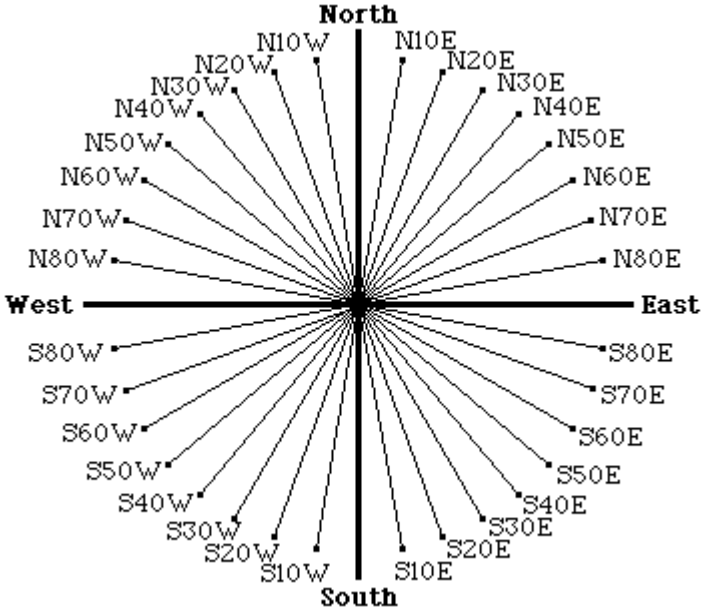
In the southern states, the Pacific Northwest and many other parts of our country, land is surveyed with the metes and bounds system. This survey system uses survey lines; natural land features such as trees, streams, wagon wheels, rocks; distances such as rods, links, chains, feet, yards and compass degree settings to describe plots of land.

SURVEY LINES

Survey lines will always contain the *point of beginning* and might be described as: "beginning at a large oak tree ……" Then using a compass, a surveyor or abstractor will proceed around the tract of land using directions, units of measurement and landmarks.

COMPASS DEGREE HEADINGS

Below, are the compass degree headings showing the direction (north, south, east, or west) then the degree number, and finally another compass point. An example would read, N70E.

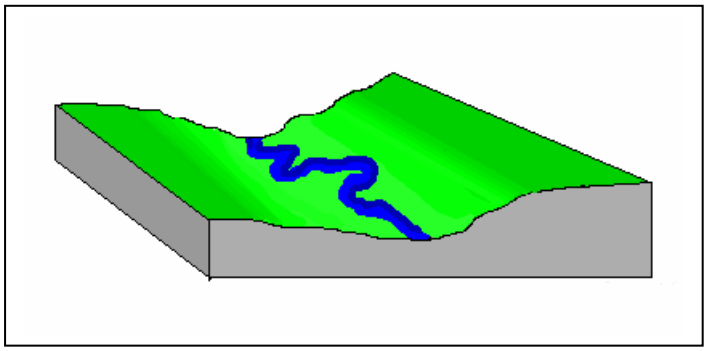


DISTANCES

Distances are measured in a variety of units, the most popular of which are chains, poles, perchs, and rods. Distances are often measured in 16 1/2 foot lengths which are interchangeably known as poles, rods, or perches. Note that 320 poles = 1 mile.

MEANDERS

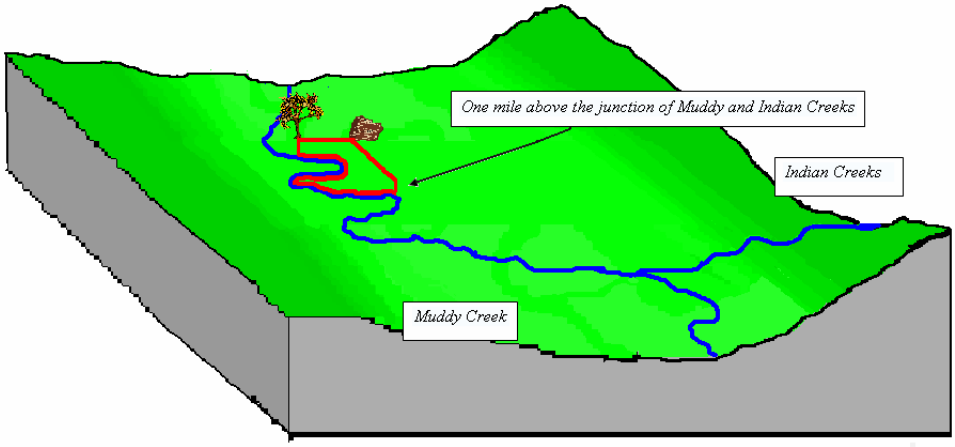
Land bordering on streams or rivers is often described with special language that included the word *meander*. If you come across this term in a deed, one of several things may be implied:



The surveyor made no survey of the stream, and simply noted that the property had the meanderings of the stream as a boundary ("to an oak on the bank of said creek, thence up same with the meanders thereof to a double pine on the bank, corner of Adams, thence with Adams line..."). Note that no heading or distance is given. Basically, the surveyor is saying "go up the creek for a while".

One thing to be sure you keep track of with meander lines is whether they went up or down the stream. The direction of water flow was an important descriptor for surveyors. If they recorded something as "and thence down the river with the different meanders N25W 23 rods..." you can bet that the line went down the river rather than up.

"From the point on the north bank of Muddy Creek, meandering one mile above the junction of Muddy and Indian Creek, north for 150 yards, then northwest to the large standing rock, west to the large oak tree, south to Muddy Creek, then up the center of the creek by going south to the starting point."



A typical Metes and Bounds description for a small parcel of land might read:

CORNERS AND SHARED LINES

The term *corner* was used to describe any point on a survey. Thus, when a point is described as "a corner of John Smith", don't take it to mean that it is anything like a square corner; a plot can have any number of corners.

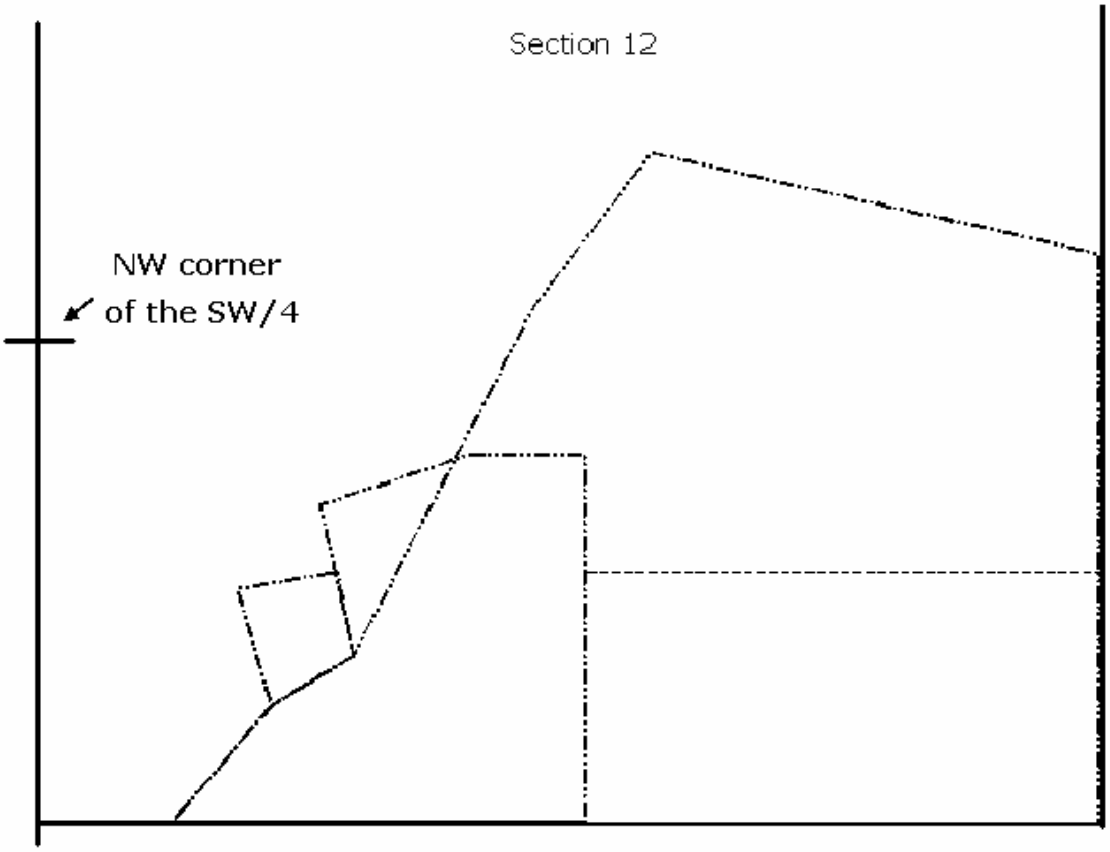
Sometimes you'll see descriptions such as "two white oaks on a line of John Smith." This means that the trees are somewhere in the middle of a survey line of John Smith. In other words, the trees are not on a corner. If you're lucky, there will be language such as "with said Smith's line 240 perches passing Smith's corner at 165 perches" included. This will allow you to accurately place the plot with respect to Smith's plot.

UNITS OF MEASURE

- **Acre** - a unit of area equal to 43,560 square feet, or 10 square chains, or 160 square poles. It derives from a plowing area that is 4 poles wide and a furlong (40 poles) long. A square mile is 640 acres.
- **Arpent** - Unit of length used in Louisiana and Canada. Approximately 191.8 feet.
- **Chain** - equal to 66 feet, or 4 poles. The name comes from the heavy metal chain of 100 links.
- **Furlong** - equal to 40 poles (220 yards). Its name derives from "furrow long", the length of a furrow that oxen can plow before they are rested and turned.
- **Labor** - used in Texas and equals 177.14 acres (or 1 million square varas).
- **Link** - equal to 1/100 chain (7.92 inches).
- **Out** - An 'out' was ten chains.
- **Pole** - Also known as a *perch* or *rod,* equal to 16.5 feet.
- **Pueblo** - A Spanish grant of less than 1000 acres.
- **Rancho** - A Spanish grant of more than 1000 acres.
- **Rod** - Also known as a *perch* or *rod,* equal to 16.5 feet.
- **Vara** - (the *"Spanish yard" or "the stride of a mule"*) used in the U.S. southwest. The vara has values around 33 inches, depending on locale. The legal value in Texas was set to 33 1/3 inches early in the 1900's.

Practice Metes and Bounds

Read the description below and then shade in the tract of land being described.



That part of the SW4 of Section 12, T13N, R23W, described as follows: Commencing at a stone monument at the NW corner of the SE/4SE/4; thence S 0 degrees 1320 feet; thence S 90 degrees W 1320 feet to a 1" iron pipe at the point of beginning of this description; thence S 90 degrees W 1980 feet; thence N 44 degrees E 660 feet; thence N 66 degrees E 200 feet; thence N 24 degrees E 1300'; thence N 89 degrees E 300 feet; thence S 1 degrees W 1800 to the point of beginning.

A section line =	5,280 feet
One half of the section line =	2,640 feet
A quarter of the section line =	1,320 feet
An eighth of the section line =	660 feet

TEXAS LAND GRANTS, SURVEYS AND ABSTRACTS

To understand the Texas land description system, one should first take a look at the state's history often referred to as the "Six Flags" history. Prior to 1821, this large land area was a Spanish possession. Large chunks of land were surveyed under the Spanish rule and granted to individuals and described through a metes and bounds description. The largest tract of land conveyed this way contained 939 square miles or 600,960 acres and was conveyed to San Juan de Caricitas in Cameron County.

In 1821, the Mexican government overthrew the Spanish government. This new regime recognized the previous grants and continued to survey lands under a Mexican system. The lands again were conveyed under a metes and bounds method. It is important to note that this granting of land was not done in any specific methodical order. The location of the lands had little structure in relation to a bigger picture; therefore, one grant might exist with gaps of un-granted land lying between the nearest conveyed tract of land. Since the descriptions were based on metes and bounds rather than squares, parts of Texas appear to be a collogue of land grants.

Under the Spanish and Mexican governments, over 26 million acres were granted through this method.[3]

Prior to 1835, the Republic of Texas formed a strategy in which to overthrow the Mexican government. A part of that strategy was to offer large tracts of land to any man who wished to enlist in the Texan militia, in order to fight the Mexican government.

It is said that Davy Crockett enlisted with a promise of receiving 10,000 acres of land. Now, travel back in time to the year 1835 and try to image the difficulty in *accurately* surveying a 10,000 acre tract. Mistakes were often made and resurveying the land revealed many errors.

In 1835, the Mexican government was overthrown by the Republic of Texas and existed that way until 1846. After the war, the new Republic began selling land certificates for 50 cents an acre. Normally, those buying land could pick and choose which parcels of land they wanted. They could also choose the shape of the tract of land. Again, metes and bounds became a big part of these lands and again the individual conveyances had little structure as they related to other tracts of land.

This newly formed Republic provided in its Constitution that "all persons except Africans and Indians living in Texas on Declaration of Independence are entitled to a headright Grant…heads of families one league and one labor, single men seventeen years or older, one third league."

A League = 5000 square varas or about 4,430 acres
A Labor = 1000 square varas or about 177 acres
A vara = 2.77 feet

The vara (Spanish for yard and defined as three feet - is sometimes referred to as the *stride of a mule*) became one of the standard measurements in describing these tracts of land. The reason a vara referred to the stride of mule, rather than the stride of a man, was based on practical logic. While measuring large tracts of land a man's stride would become shorter in length as he became tired. The stride of a mule would stay consistent throughout the day. The length of a vara; however, in East Texas, differed from the length of a vara in West Texas and differed from some of the older Spanish land grants. Today, the original length of a vara is unknown and remains a measurement of some uncertainty. Because of this issue, in 1919 the Texas legislature adopted the length of 33.3333 feet per vera.[4]

Instead of using the full metes and bounds description, it became common to reference other items such as a block number, survey name, abstract number, section number the particular deed in which the land was first described or the original patentee. Texas legal descriptions might contain several of the items mentioned. The following is an example of a Texas land description:

> *The north 102.34 acres of the west 277 acres of Block A-2, Section 77, Abstract #75, Southern Union Railway Company Survey, in Van Zandt County.*

BLOCK NAME OR NUMBER

A block is the larger tract of land that consists of a group of surveyed tracts, each having a section number. Blocks were usually named after the party who surveyed the land (this was often a land agent or railroad) or were given an identifying number. Surveys within the block were usually consecutively numbered. The block/section method was done primarily in west Texas and the panhandle and one block of land can exist in more than one county.[5]

SECTION

In Texas, the term section is often used to describe the surveys done within a particular block. A section of land does not necessarily contain 640 acres nor is it necessarily square in size. A section can be named Section 325, contain 1,000 acres and resemble an octagon.

STAND ALONE SURVEY

East Texas contains what is known as "stand alone surveys". These were surveys that were not intended to become a part of a block. These surveys are generally named after the original grantee.

ABSTRACT NUMBER

An abstract may be either all or a part of a section or may contain the entire stand alone survey. Each original land grant was assigned an abstract number, at the time of the original conveyance, in order to keep track of subsequent conveyances within the original grant. The term abstract refers to an original land survey. The number for each abstract is unique within each county.

In order to locate the tract of land in our example,

> *The north 102.34 acres of the west 277 acres of, Block A-2, Section 77, Abstract #75, Southern Union Railway Company Survey, in Van Zandt County.*

one must first locate the county, find the area surveyed by the Southern Union Railway Company, locate Block A-2, locate Section 77, locate Abstract #75, and then locate the north 102.34 acres in the west 277 acres.

Furthermore, a legal description might be shown as:

> *29.05 acres, more or less, Franklin A-181 survey, located in Johnson County, Texas. The same tract of land conveyed to Jim Johnson in a particular deed found Book 37 Page 125 in the county clerk and recorder's office in Johnson County, TX.*

Rather than describing the tract of land in detail, the description simply refers back to the description found in a certain book and page of the county records. The following is an example of what the above description may look like on a plat:

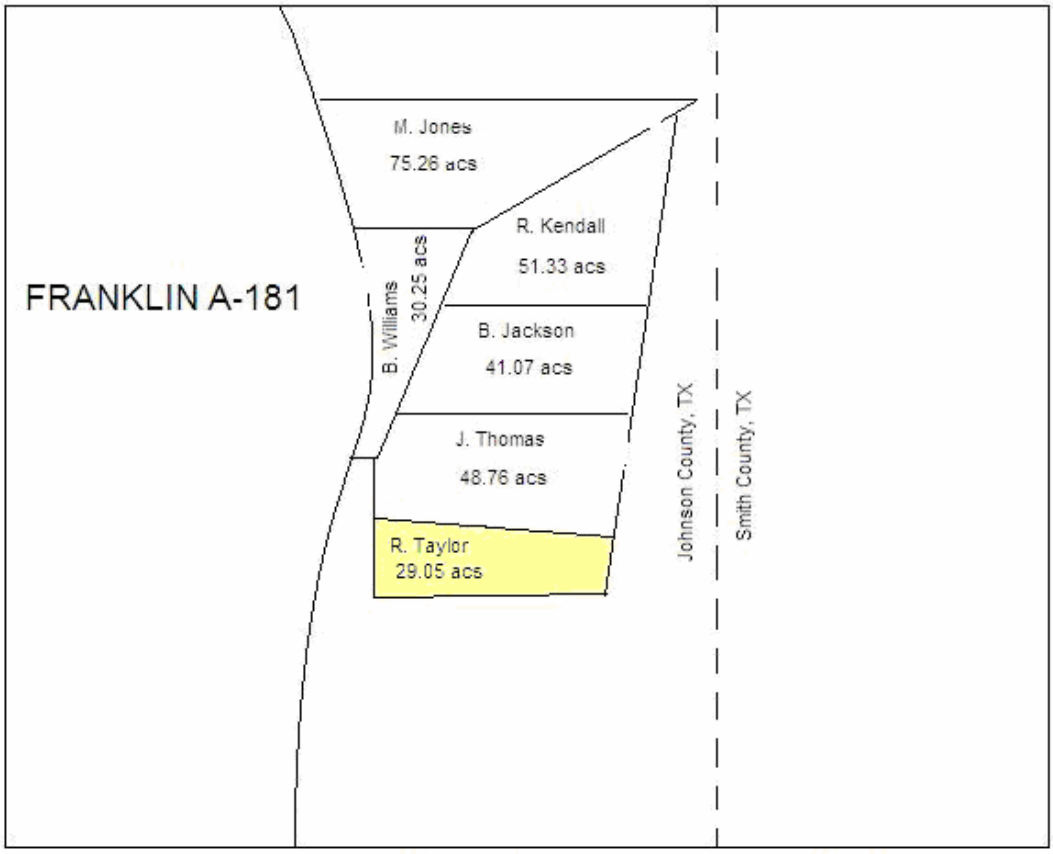
It is useful to keep track of these plats in order to distinguish the difference between tracts of land.

When legal descriptions are referenced it is very important to pay attention to the book, page and county in which the deeds were recorded. For example, two deeds might contain the exact amount of acreage, reference

the same abstract name and number and have been recorded in the same county and yet be describing two separate tracts of land:

> *29.05 acres, more or less, Franklin A-181 survey, located in Johnson County, Texas.*

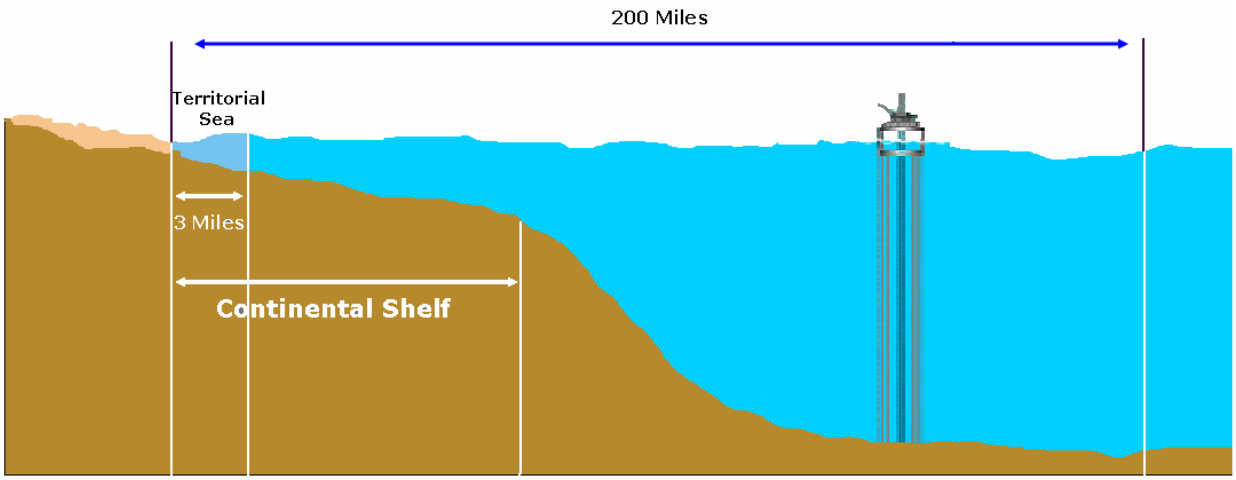
Without a book and page reference, determining if these two deeds are referencing the same tract of land or two different tracts of land can be very difficult. This is why recording information in a legal description is imperative. It allows an examiner to pinpoint a particular tract of land in a county and state.



M. Franklin Abstract Survey, Johnson County, TX. - 01/07/1994

OUTER CONTINENTAL SHELF

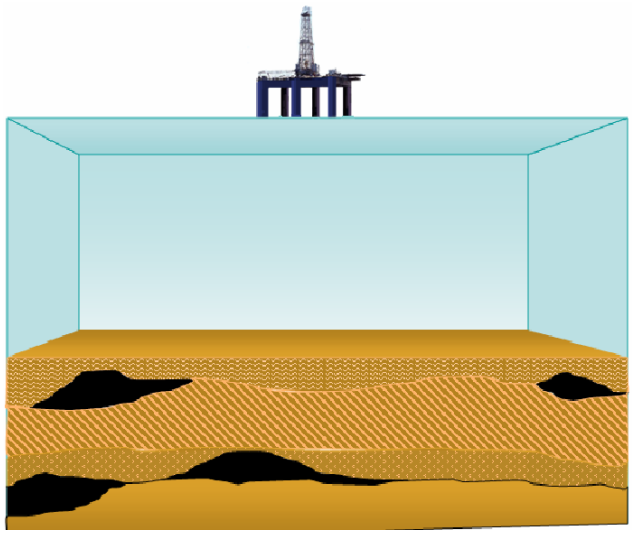
Outer continental shelf is a term that refers to "all submerged lands lying seaward and outside of the area of lands beneath navigable waters of each of the respective States subject to the jurisdiction and control of the United States." In 1958, the definition was expanded to include "areas lying seaward of the territorial sea to a depth of 200 meters (656 feet) and beyond".[6]



[7] US Department of the Interior

Those outer continental shelf lands leased by the Federal Government are lands, generally, 3 geographical miles from a state's coast and extend to a line approximately 200-300 miles offshore.

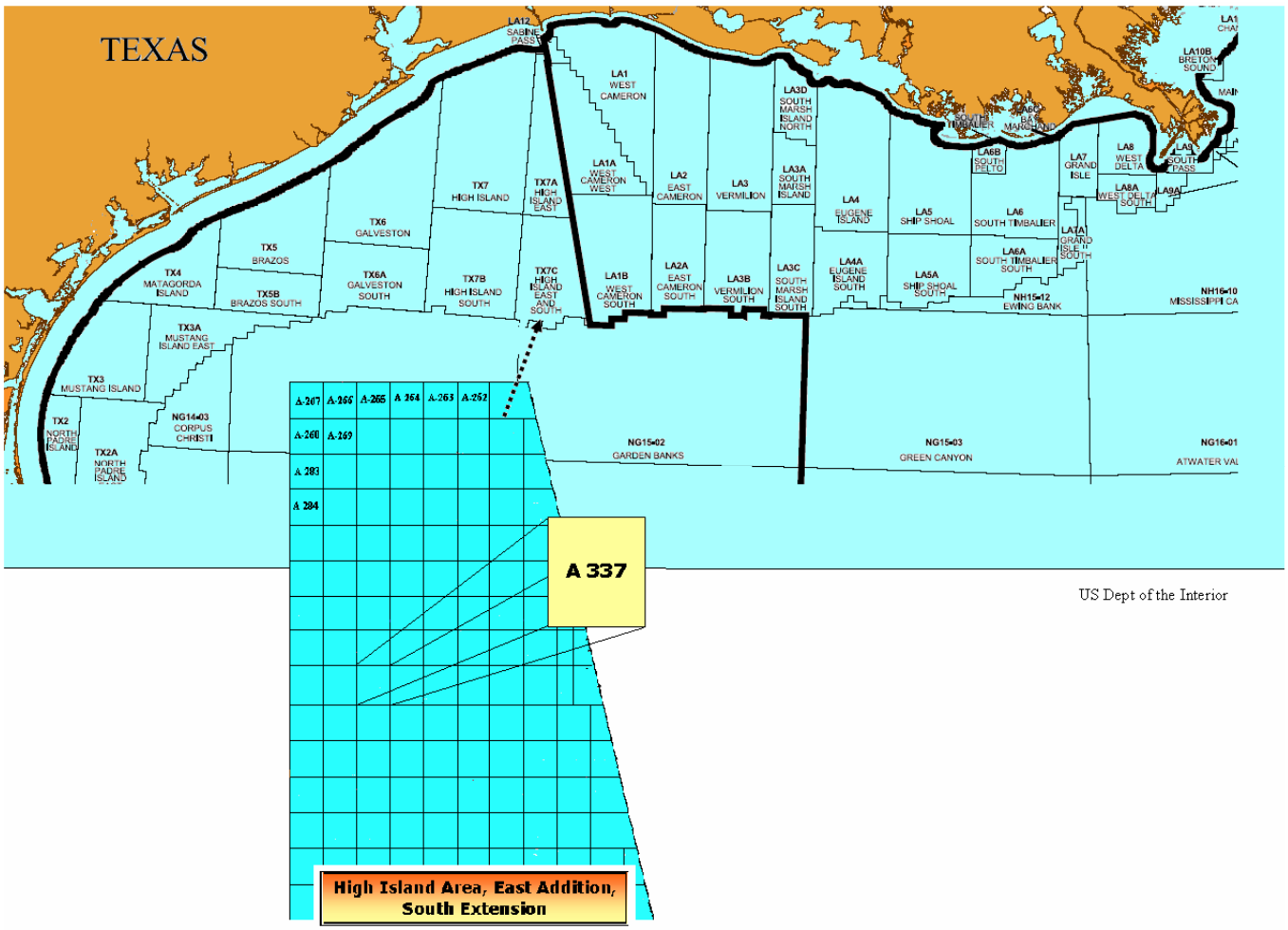
Although the outer continental shelf runs along the Atlantic coast, the Pacific coast, the Gulf of Alaska and the Gulf of Mexico, most of the oil and gas leases granted by the government are located in the Gulf of Mexico. These leases account for approximately 30 percent of the oil and over 20 percent of the natural gas produced domestically. The department which oversees these 1.76 billion acres of outer continental shelf lands is Minerals Management Service (MMS).



A grid system, similar to the rectangular survey system is used

to describe the areas of the OCS. These areas are identified by area names and block numbers. The area names are based on onshore landmarks or nearby cities. The blocks are identified with a distinct alphanumeric numbering system (as seen in the illustration as High Island Area, East Addition, South Extension, Block A333).

A true section of land, in the rectangular survey system, is a perfect square and contains exactly 640 acres. For OCS lands, a block may or may not be in the shape of a square and can contain approximately nine square miles (between 5,000 to 5,769 acres).



FOOTNOTES:

[1]Landman's Legal Handbook, A Practical Guide to Mineral Leasing, third edition, Rocky Mountain Mineral Law Foundation, F.H. Gower, 1977.

[2]Mineral Title Examination II. Genesis and Evolution of Land and Mineral Ownership in the Western United States. April, 1982, Roscoe Walker, Jr., and Janet Harris, Rocky Mountain Mineral Law Foundation.

[3]Land Ownership in Texas, Jack Lyle, University of Texas at Dallas. www.utdallas.edu/~briggs/poec5319/owner.

[4]The Evolution of Texas Land Surveys, TOBIN International. Ltd, AM/FM/GIS Conference, Dallas, Texas, Pauline Jacobson, Oct. 1992.

[5]Definition of Terms Pertaining to the TOBIN Original Texas land Survey Data, www.tobin.com/documents/TechWhitePaper1., Oct, 1996.

[6]Leasing Oil and Gas Natural Resources, Outer Continental Shelf, U.S. Department of the Interior, Minerals Management Service, www.mms.gov/ld/PDFs/GreenBook-LeasingDocument.

[7]Ibid.