

## **Why think horizontally?**

**Solving well location problems...** it is a basic need that can be addressed at the well level. Whatever we do, knowledge and expertise will most certainly improve the confidence in the well location.

**New coordinate information** can be derived for a well that currently has incorrect coordinates. There is always some explanation why those coordinates were incorrect. The rules on how to try and avoid the types of problems that cause well location inaccuracies can be explained. So the question is; how can everyone who touches well coordinates be taught the basic principles of preserving data integrity?

**Why in the oil and gas industry,** whose very existence is based on ‘wells and their locations’, have we not learned for forty to fifty years that ‘coordinate data’ is key to establishing where the assets are? Perhaps during the digital age correct coordinate determination is assumed to be an easier task than in the past... or possibly those who are custodians of the data do not have sufficient time to ascertain if coordinates are good or bad?

**The more likely situation** is that in order to make decisions on what is important, people have to prioritize their needs and adjust their learning to fit those needs. If every once in a while some coordinate error impacts someone’s job, they react either by coping with the issue or they adjust their knowledge to address that particular issue.

**Let’s look at a digital equivalent situation...** if an address is put into Google and the location is observed visually and shown to be incorrect it is safe to say that the user did determine there was a problem based on two pieces of information; first they lacked trust in the information they had; second they used knowledge about coordinate information they had learned themselves.

**What can be concluded** is the person probably has sound expertise about the information that the coordinates represent and when their information does not meet their expectations, they look to pinpoint the source of the problem using the knowledge and tools they have. The person has gained enough knowledge to correlate coordinates with addresses of places; and, if at that address there is nothing, something is wrong!

**What happens in using** this logic is it creates an oversimplification about problem solving. Subtle errors are not so easily identified and often only contribute to creating even larger ones. Because the user's priorities are directed at other needs, the knowledge or tools may not be there to recognize that a problem exists.

**Now expand the problem** by bringing up the issue of 'silo data stores'. Most understand the term *silos to mean redundant information stored in multiple places fulfilling the needs of a specific group*. Almost all assets in the petroleum industry have at their core a spatial representation; as in where is it?

**"It" is at an address** or coordinates on the Earth (most likely). It's pretty safe to say that almost every silo in some way or another has coordinate information as part of its structure. A lot of effort is being undertaken by industry to resolve silos (data gathering, rationalization, and cleansing) and are at least in part due to the recognition that assets often do not share a common address.

**The reason is primarily one of priority...** addresses are assumed to be correct or they are assumed to be the responsibility of others. When a problem is identified in the work that is being done with the information/asset, the need for resolution will cause users to invest time and effort on their silo to resolve the issues.

**This creates inconsistency in the data...** in one silo the data is resolved, in another it is not! Multiply this by the numbers of silos that exist containing the common information and the scale of the problem becomes apparent.

**The priorities and needs** have both created silos and have created the need to resolve the inconsistencies between them. As fast as the efforts are made to resolve silos, the changing needs and priorities of industry defeats those efforts.

**How can the well data location problem** that has been resolved in one silo; and, the expansion of the problem into several other silos be resolved?

**The next step in resolving** well location data requires thinking differently about how to connect silos? One way is by 'thinking horizontally'... which is a straightforward concept; *sharing with others to help others*. Of course 'thinking horizontally' is easy to say and like implementing any new idea is difficult to do; unless there is a tool set or method to accomplish it.

**The oil and gas industry** has a complex organizational structure, almost exactly mirroring silos. At the top is a board of directors and a chief executive officer... at the next level are the business units run by senior officers... the data user level is the workforce.

**It is the job of the workforce** to gather information and to pass it back up through the chain of command to some point where it is gathered and summarized in metrics; business decisions are made; and, then passed back down through the chain to provide new workforce instructions.

**As businesses grow** the ability to upload information and download decisions become mired in the management of information silos.

**Depending on the needs** of each business unit the sharing of information can be smooth or immensely complicated. The more complicated the information is and the larger the number of silos involved, the more diluted the information becomes; which causes decision making by both management and workforce to be very difficult.

**What has happened** is that industry has attempted to put in place systems and services that try to resolve the management of data and silos. The common goal is to look for data sources; rationalize the common, redundant, and conflicting information such that the numbers of silos are made smaller.

**One big problem** is that any one company may not control all the information that they use. The information may be sourced from third party vendors, service providers, and data brokers. This brings us back around to the idea of sharing and horizontal thinking.

**In John Conner's paper *Understanding the Future of Information***, he alluded to the idea of bundling as a means of sharing responsibility to complete a task when those efforts do not impact real business competition. For example, if problems which are common to all; and, are combined in an effort to solve them; that idea can be expressed as an equation:

• **BUNDLING = data + expertise + partners**

**What should stand out** is that a "*bundler*" enables a solution through having differing partners with combined knowledge and expertise sufficient to solve the well location problem. This is not one business unit *bundling* because the solution would not

necessarily share the result, it merely makes one business unit more effective through silo reduction, cleansing, and rationalization.

**This is where horizontal thinking** comes in to play; because such thinking requires 'collaboration'. The bundling equation now supports more than a business unit, possibly more than a single company, and even beyond industry.

**As a business**, it's important to address a reoccurring problem, one that does not appear to have a solution that works or, one that currently does not benefit all involved business units. In order to demonstrate the horizontal thinking aspect a bundle must be created that exhibits all elements of the equation, and not just the basic bundle equation but also a shared bundle that would benefit more than a single business unit and quite possibly many business units through 'collaboration'.

**The interesting part of this type of shared bundling** is that the client; in fact many clients, become part of the bundle. They are partners in the bundle; perhaps the most important partners. This collaboration expects that by solving the entire problem, not just a segment of the problem; both within and without the company, the issue of individual silos, redundant silos, even bridged silos become resolved for a critical aspect of all data for all companies. As a result analytics derived from spatially referenced information become better and less prone to errors due to priority omission or misunderstanding. The data are better, the derived metrics are better, or the data and knowledge passed to management is better. This is an example of horizontal thinking.

**ensoco has bundled two geologically significant areas** and can resolve all the well location information and a significant portion of the associated metadata tied to location. This information will be controlled and maintained by ensoco and it will be delivered to clients in a format that provides confidence and integrity to the usage of any associated information related to the locations.

**The ensoco bundle is a two-basins package** of 510,000 wells covering the entire drilling history of the Permian Basin and the Eagle Ford areas.

**The ensoco two-basins package** is referred to as the PBEF Two-Basins Package. It is being created through horizontal thinking using shared bundling and involving an industry collaboration of well data, partners, and a wealth of expertise.