

Utility Corridor Problems Caused By Mother Nature

by W. A. Thomasson, SR/WA

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We at Northwest Pipeline Corporation have experienced some unusual problems over uniquely located Douglas Pass located about 50 miles northwest of Grand Junction, Colorado. We operate at 26-inch high pressure buried natural gas pipeline that crosses the pass at an elevation of 8,268 feet above sea level. The terrain is very steep and the soil is highly unstable. Add a little moisture to this topography and you can understand how land slides are used as historical references in the area. After Northwest constructed its 26-inch high pressure natural gas line in 1956, the Colorado Highway Department thought this natural pass through the mountains would also make an ideal location for a state highway. Then Western Slope Gas Company wanted in on the action with a 10-inch High Pressure Gas Line. Now when the mountain moves, Mother Nature takes with her our 26-inch Pipeline, the State Highway and Western Slopes 10-inch Pipeline.

This picture of us precariously clinging together on a moving mountain side has yet to be satisfactorily resolved. We have considered boring, but this would require a 26-inch diameter bore, 3,000 to 3,500 feet in length with a 500 foot change in grade. We are not 100% sure this could be accomplished even if the mountain would stop moving. We have considered relocating, however, the reality of mountain ranges for hundreds of miles East and West of the pass renders this alternative economically unfeasible. Although we haven't

actually lost the entire line since 1963, we have had to repair it several times and made two major relocations.

I think we have given up resisting the natural occurrences on this mountain side. Our compromise solution is the recent installation of two solar powered acoustical monitoring devices, the first of their kind on the Northwest Pipeline system. One device was installed on a new valve south of the pass and the other on the existing valve north of the pass. These installations have decreased the distance between valves on this section of line by about 15 miles.

The monitors will use sonic sensors to measure sound waves traveling through the pipeline. They are set to detect a hole as small as one-half inch in diameter. If a leak should occur, the devices would prevent the loss of additional gas and exposure to the public.

We've relocated some segments of the line over the past few years and before we installed the new valve and sensors, we did core drilling and other geological studies to decide whether another relocation would be necessary. However, the make-up of the area—mostly sand, loam and shale—indicates that moving the line again would not solve the problem. Installation of the valve and monitoring devices means that if a break should occur in the line, service interruption will be minimal and will involve only the section of pipeline which actually crosses the pass.

I'm not blaming Mother Nature for all our problems, neither am I against motherhood and apple pie; however, some of our installations have been forced into precarious locations that have certainly created some interesting problems. The Douglas Pass dilemma is one situation where man has been unable to find the solution but has



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First a charter member of Chapter 35, he transferred to and became the first chairman of Chapter 28-A, now Chapter 53. He served as its organizational chairman and served as its first President.

During his tenure with Chapter 53, Thomasson helped organize Region 9 and became its first Chairman. He has also served as Vice-Chairman of the International Pipeline Committee and member of the International Nominations and Elections Committee. Over the past several years he has served on numerous Chapter Committees, spoken at Regional and Chapter Seminars and conducted Pipeline Committee programs and/or lectured at several International Seminars.

adjusted to live with the problem, being thankful that Mother Nature left some openings so that we can negotiate these natural barriers.

(see Oregon, pg. 22)

Oregon (cont. from pg. 21)

One natural corridor that has historical significance and one that Northwest is continually involved with is called the "Oregon Trail". In some areas this historic corridor may be miles wide and in other places it narrows to a few hundred feet.

One of the narrower scenic spots is "Ladd Canyon", Oregon. Years ago our forefathers used various trees to wench their wagons down this very steep canyon.

We recently completed construction of our second pipeline through this area and there remains one pine tree at the top of this canyon. We were given explicit instructions as how not to cause any damage to this tree and were cautioned that if we damaged or destroyed this tree it would be extremely expensive. Around the base of the tree trunk were marks allegedly made by ropes holding back the wagons as they were let down the hill. Needless to say, we didn't bother the tree.

The other area I have selected to discuss is known as Moab Canyon, located just north of Moab, Utah. This narrow ¼-mile wide natural corridor is the only north-south access for many miles. The area known as Arches National Monument, takes approximately ½ of the area, State Highway 163 takes an additional 100 feet, Northwest has its same 26-inch high pressure pipeline located there, Utah Power & Light has three high voltage power lines located there, Mountain Bell has a telephone line in the area and

a local water company has a line. Add to this a railroad and a recently constructed MAPCO 16-inch products line and you have instant congestion. The highest and best use of the land would be deemed for utility and transportation easements.

In spite of the congestion and related operational problems, we worked out solutions with MAPCO in advance of their construction that both parties felt were beneficial. Basically, MAPCO agreed to:

1. Bury its pipeline a sufficient depth to allow Northwest to operate heavy equipment over it.
2. Submit a controlled blasting plan for approval before blasting in the vicinity of our pipeline.
3. Crossing to be 45° angle or more and welds within Northwest's right of way must have 100% X-Ray inspection. Also, 48 hours notification prior to beginning work within our right of way.
4. Reimbursement of direct cost caused by their construction as well as any damage to our facilities.

This agreement covered roughly 300 miles of parallel construction and approximately 50 crossings. We recently billed MAPCO for our expenses of approximately \$50,000.

In the MAPCO case, the problem that had to be resolved was just how close can a new pipeline be constructed to an existing high pressure gas pipeline. My answer at the public meeting when this question was asked was, "Let's not try to see how close or how safe, but rather stay as far away and safe as possible." I felt that there were too

many factors involved including our line pressure, age of our line, wall thickness, depth, types of soil and soil stability. The trauma of detonations on these variables was more than I cared to contemplate. The surface oriented Bureau of Land Management, was recommending only a five foot separation of the facilities. We emphatically said this was entirely too close, so the Bureau requested a minimum distance we would consider safe. This is like trying to answer how close you can get to the edge of a cliff and still be safe. As long as you don't fall off you're safe, but why tempt fate - why not stay as far away as possible and then you know you are safe. Blasting that close to a high pressure gas line reminds me of the parable of how porcupines make love—very carefully.

It is natural for us to resent being forced into a corridor. Often times Mother Nature forces us into a relationship in which we would prefer not to be involved. It is much easier when our facilities are safe and snug all alone on our private exclusive right of way.

Whether we are forced into this situation by statutes, regulations or Mother Nature, it comes down to the same thing, learning to live with each other with minimal disturbance and interference. Each situation is unique, we might say each corridor and each facility in that corridor is a project specific study. I believe we can, with proper planning, make the corridor concept work. But whatever we do, let's not make Mother Nature angry. Look what happened to Mount Saint Helens.

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