# Pipeline risk assessment as a tool for resolving conflict

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**Pipelines, along with other aspects of the oil and gas business, have become controversial. While controversy can arise from many different agendas – some as far-reaching as ending reliance on hydrocarbons as a fuel source – many controversies are based purely on safety concerns.**

No one can deny that a pipeline transporting pressurised, often flammable fluids, often incompatible with the surrounding environment if released, has introduced risks that would not otherwise be present.

Risk can be an emotional topic. The pipeline's neighbours are often reluctant stakeholders, feeling that a risk has been thrust upon them with no commensurate benefit. Their tolerance of such risk is greatly diminished due to the involuntary nature of the risk. Had they chosen the risk or were otherwise benefiting from it, their tolerance would typically be much higher.

Reduced tolerance leads to requests, pleas, insistences, demands, that risk be removed. Since this is not normally possible, the compromise position is a negotiation for reduced risk, hopefully to the point of insignificance. While 'insignificance' is subjective, we can perhaps agree that the involuntary risk stakeholders will seek the lowest possible risk while the pipeline beneficiaries generally seek maximum returns. Note that a regulator or other public official is often the representative and voice of the involuntary stakeholder, even when he himself might be a beneficiary of the pipeline in some way.

Here's where good risk assessment helps. When stakeholders can agree on the risk or at least have similar risk context, negotiations can be efficient and successful. Properly conducted risk assessment facilitates agreement. A reductionist assessment approach, with independent analyses of key ingredients, ensures that disagreements can be localised and resolved: "Ok, even if we assume phenomenon *x* happens 10 times more than we think it will, we have all agreed that the proposed mitigation and resistance will keep failure rates well below *y*."

During negotiations, the pipeline beneficiaries may offer some additional risk reduction measures to appease the critics. Stakeholders must also agree on the benefits of potential risk reduction measures to negotiate properly. Again, risk assessment facilitates this: "Ok then, we'll agree that exposure *x* will be tracked and, if precursors suggest it could even get as high as two times what we think it will be, we'll implement mitigation measure *y*, which as we have already agreed, will reduce the damage probability by at least four fold".

The science and engineering of pipeline risk assessment can provide clarity and help resolve the conflicts even when politically and emotionally-charged issues are in play. In the US, the much-debated Keystone Pipeline is an example of lost opportunity. The investment spent on extensive re-studying, opportunities lost and marketing campaigns could have been more wisely spent on risk management. A full and proper risk assessment would identify a multitude of opportunities to make the pipeline safer. While additional – beyond regulatory minimums – actions would make the pipeline more costly, such expenditures would have been benefited all stakeholders. Protections of many kinds including advanced leak detection, secondary containments, inspections, and numerous others could have been paid for with monies spent on the conflict, creating an exceptionally safe pipeline and a mostly satisfactory compromise position for all stakeholders (at least those whose real agenda was safety of the pipeline).

*W. Kent Muhlbauer.*

Kent Mulbauer contributes a column to each edition of *Pipelines International* tackling pipeline risk in bite-sized portions to make the challenging subject more approachable.

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