Pipeline Risk Assessment

STEP 1

Identify the hazards, (i.e. anything that may cause harm).

- What type(s) of pipelines are in the jurisdiction?
- Where are they located?
- Do they cross or come proximate to critical infrastructure, e.g. schools, healthcare facilities, roads, bridges, railways, other pipelines, water/sewer lines, high voltage power lines, etc.?
- What type(s) of products do they carry?
- Fire/explosion/flash-fire radii from high pressure pipeline(s)?
- Flow dispersal models for liquid pipeline(s)?
- What are their operating pressure(s) and/or flow(s)?
- Who is/are the operator(s) of these lines?
- Do we have contact information for the operator(s)? Back-up contacts?
- Do/does the operator(s) know our response capabilities, resources, and/or limitations?
- What is our agency's training level(s) regarding pipeline emergency response?
- What is the agency's response resource capability?
    - Apparatus
        - Engines
        - Tankers/Tenders
        - Rescue
        - Air support
        - Hazardous Materials Units
        - EMS
    - Manpower
        - Daytime

        - Nighttime
    - Equipment
        - Gas monitoring equipment
        - Self-Contained Breathing Apparatus
        - Spare SCBA cylinders
        - Portable pumps
        - Intrinsically-Safe Radios
        - Spare batteries
        - Shovels
        - Rakes
        - Foam
        - Confinement/diking/damming/spill control equipment
        - Other
    - Hazardous materials capability(ies)?
        - Awareness
        - Operations
        - Technician
        - Hazardous Materials Incident Command
    - Can we deal with a:
        - Small leak (low pressure)?
            - Without fire?
            - With fire(s)?
        - Large leak (high pressure)?
            - Without fire?
            - With fire?
        - Small spill (<55 gallons – ERG limit)?
            - Without fire?
            - With fire?
            - In a waterway?
        - Large spill (>55 gallons – ERG limits)?
            - Without fire?
            - With fire?

        - In a waterway?
- What are the capabilities of our mutual and/or automatic aid agencies?
- What are the potential threats and their likelihoods?
    - Contractor damage – digging, construction, etc.
    - Encroachment on right-of-way(s)
    - Subsidence or ground movement
    - Wildland fire damage
    - Vandalism/malicious act(s)
    - Terrorism

STEP 2

Identify who and/or what may be harmed and how.

- Do we have PHMSA defined, "HIGH CONSEQUENCE" areas?
- Are there residences or businesses proximate to the pipeline(s)?
- Is there a traffic diversion plan(s)?
- Is there a railway diversion plan(s)?
- Is there an airspace diversion/closure plan(s)?
- Consider the difference between daytime versus nighttime.
- Is there a chance of livestock or agricultural impact?
- What is the proximity to waterways?
- Consider other environmental considerations.

STEP 3

Assess the risk(s) and develop an action plan to reduce and/or minimize the risk(s).

- How do we rank our risk(s) based on a "FREQUENCY/IMPACT MODEL" of Low-to-High?

PIPELINE RISK FREQUENCY/IMPACT MODEL	LOW IMPACT	HIGH IMPACT
LOW FREQUENCY		
HIGH FREQUENCY		

- What threat/risk is the most likely to impact our agency?
- What steps can we take to reduce the/those risk(s)?
    - Agency education
        - Pipeline response training
        - Hazardous materials training
        - NIMS training
        - Tabletop drills
        - Other training
    - Operator contact(s)
    - Public education
    - Contractor/excavator education
    - Increased surveillance
- Ensure pipeline markers are in place and updated.
- What resources are needed to improve our agency's response capability?
    - What can we provide?
    - What can the operator(s) provide?
        - Maps
        - Product specific resources
            - Booms
            - Pigs

- Pillows
- Other
- Monitoring/detection equipment
- Other

STEP 4

Keep a record of your risk assessment and chart the progress on risk reduction initiatives.

- Is the Assessment "GLOBAL", e.g. jurisdiction-wide – all lines, all operators, all incidents?
- Is the Assessment operator and/or pipeline-specific?
- Where do we keep the risk assessment?
    - Paper format
    - Electronic Format
    - On Mobile Data Terminals
- Who gets a copy of the assessment?
    - Dispatch Center(s)
    - Law Enforcement
    - Emergency Medical Services
    - Local Hazardous Materials Team
    - Local Emergency Planning Council (LEPC)
    - County Emergency Management
    - State Emergency Management
    - Operator(s)

STEP 5

Review the risk assessment on a regular basis and update as necessary.

- Who is responsible for updating the Risk Assessment?
    - Agency
    - LEPC
    - County Emergency Management

    - Operator(s)
- How often will the Assessment be updated?
    - Annually
    - Bi-annually
    - If Operator(s) change
    - As needed
    - Post-Incident
    - Other