

Right-of-Way (ROW) Patrol and Response (Air/Ground)

Purpose	This purpose of this document is to share learnings of operators relating to the patrolling of liquid pipeline rights-of-way (ROW).
Reference	<ul style="list-style-type: none"> • 49CFR 195.412-“Inspection of right-of-way and crossings under navigable waters” • 49 CFR 195.404- “Maps and records” • OGP - Oil and Gas Producers - Aircraft Management Guidelines • HSAC - Helicopter Safety Advisory Conference
Appendices	<ul style="list-style-type: none"> • Appendix A: Forms and Reports • Appendix B: Other Documents
Related Toolbox Topics	<ul style="list-style-type: none"> • Unauthorized Activities, Encroachment, and Excavation: Management, Response, and Correspondence • Crossing and Encroachment Agreements and Correspondence

Frequency of ROW Patrol:

Each operator must, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on or adjacent to each pipeline right-of-way. Methods of inspection include walking, driving, flying or other appropriate means of traversing the right of way.

Operators may take into account many considerations which could affect the frequency of which patrols are needed. In some cases, an operator may deem it necessary to patrol a pipeline more than the required 26 times per calendar year. Additionally, an operator may experience unplanned schedule changes which could threaten compliance with the minimum required frequency of patrol. Below are some things to consider when scheduling ROW Patrol activities:

CONSIDERATIONS: Factors Affecting Frequency of Patrols

- Inclement weather
- ROW Maintenance Issues (i.e. vegetation overhang which impedes view of the ROW surface)
- Company Personnel attrition
- Controlled access on land
- Asset turnover
- Environmentally Sensitive Areas (how to patrol)
- ROW Location (i.e. highly populated areas, areas of extreme undulation, etc.)
- Patroller attrition/replacement (i.e. patroller turn over/ patroller filling a vacancy and has limited familiarity with the assets he/she is patrolling)
- Controlled air spaces
- Wildlife migration patterns
- Vehicle (plane, truck, atv) maintenance issues
- Land use (quarries, farm land, sub-urban development)

Personnel/Responsibilities:

Operators should assign several people within their organization, of differing rank, to ensure that all tasks associated with ROW Patrolling are performed. Below are several tasks Operators may consider when assigning the responsible people;

CONSIDERATIONS: Tasks Associated with ROW Patrolling

- Initiating actions or steps necessary to protect the public and the pipeline
- Installation and maintenance of corrective measures that may be necessary to respond to findings of the patrol
- Ensure pilots and local operations offices and corporate office/mapping department maintain a common set of pipeline maps in order to avoid discrepancies in location reports
- Coordinate field tech response to urgent observations/emergencies
- Communicate with Patrollers while identifying leaks, right-of-ways encroachments, washouts, or third-party construction activities
- Contact landowners or public residents prior to entering Company ROW
- Observe, document, and report any encroachment activity, washouts or erosions, and right-of-way maintenance
- Perform inspections in areas of restricted airspace
- Initiate additions or deletions to patrol routes and forward these changes to the patroller

Patroller Performance:

Occasionally, Operators may find it helpful to allow for performance checks of the patroller. This will ensure that the patroller is performing patrols on the correct lines and reporting all observations that exist. Ways to check patroller performance are:

CONSIDERATIONS: Factors Affecting Frequency of Patrols

- Schedule a patrol to be done in an area where the Company is performing work on the ROW
- Annual assessments (fly along with pilots)
- Creating “targets” for the patroller to identify and report back on their location on the ROW
- If utilizing a contractor, allow a Company employee to accompany the patroller
- Increase frequency for areas with high activity

Potential Observations:

When performing ROW patrols, Operators should be cautious of anything that appears to be out of the ordinary. Operators may consider establishing a list of observations which, if seen on the ROW, would be considered “notable observations.” Some potential notable observations are:

CONSIDERATIONS: Potential Notable Observations

- Oil, petroleum product, vapor or other evidence of spills or discharges from pipeline facilities and related appurtenances
- Oil or product on surface of water adjacent to pipeline
- Dead vegetation
- Vegetation on or over the pipeline ROW that unreasonably prevents the inspection of surface conditions
- Trees and debris collected on pipelines crossing creeks and rivers
- Clearing of timberland over, across or along pipelines. This includes canopy effect and overhang on the ROW
- Any excavation that if continued may affect the ROW
- Construction of buildings, well derricks, residential construction of any kind, fences or any other structures potentially affecting ROW
- Grading, resurfacing, or construction of new roads, streets, ditches or waterways, potentially affecting ROW

- Building of terraces, water ponds or pits potentially affecting ROW
- Earth movement or subsidence, with particular attention to areas near slopes or rivers
- Heavy equipment on Company pipeline ROW or the staging of heavy equipment potentially affecting ROW
- Construction or repair of levees or dredging
- Unintentional exposure of pipelines along the ROW
- Presence of buildings, fences or any other man-made structures within the ROW
- Blasting or surface mining within ¼ mile or that could impact the pipeline
- Washouts over or along the pipeline ROW
- Changes of the location of bayous, creeks, or riverbeds on or near the pipeline ROW
- Barges or large commercial watercraft anchored over river crossings, offshore, or other waterways
- Deposits of debris on right-of-way
- Dead animals on right-of-way
- Evidence of activity around a block valve or any other place along pipeline right-of-way that might indicate a line tap, vandalism or sabotage
- Any activity along the right-of-way that might cause hazards or restrictions to the safety, integrity and operation of the pipeline(s)
- Damaged aerial or pipeline markers and signage

General Steps for ROW Patrolling:

When creating a process for patrolling ROW, Operators may consider including general steps for what needs to be included from the beginning of the patrol to the completion. Some general inspection steps are:

CONSIDERATIONS: General Inspection Steps

- Determine section of the pipeline right-of-way to be inspected
- Determine the method to transverse the right-of-way
Ensure the observer/pilot has a clear understanding of which pipeline(s) need to be patrolled; the location of the pipeline(s); and the beginning and ending points of the pipeline(s) that is to be patrolled
- Use a ROW Patrol Form to document all notable observations identified on the ROW

CONSIDERATIONS: Response to Patrol Observations

- In the event a notable observation is identified, dispatch personnel to investigate the observation and respond accordingly
- Immediately notify the Control Center or appropriate field personnel of any Emergency or Urgent observations.

Note: An Emergency or Urgent observation is defined as any condition that poses an immediate danger to life, property, or the environment and includes un-permitted excavation activity within XX feet of the pipeline

- In case of severe emergency observations, such as injuries, death, fire, or major spill or outages, notify the Local Emergency Responders (such as 911) immediately
- If excavator personnel not present, attempt to communicate with a Warning Tag, temporarily marking pipeline, sticker, or other notice on any idle inactive excavation equipment located within XX feet of the pipeline or idle inactive excavation equipment outside the right of way that could pose a possible danger to the pipeline. Photographic documentation is recommended
- Record all responses to observations on a Patrol Form
- Complete the Patrol Form and retain according to company procedures
- The Company Representative should ensure corrective action is taken to address the observations

Training:

Certain regulatory requirements pertain to training of pilots as well as other patrol personnel and should be consulted prior to any patrol being performed. Processes should be considered which ensure that any required training for patrol personnel is current and maintained. Additionally, joint training between company personnel and contractors may be beneficial.

Records:

All records regarding ROW Patrol should be maintained by the Operator for a minimum of two years, or however long required by regulations or the Operators' document retention policy.

1 Appendix A: Forms and Reports

This appendix contains industry examples of forms and reports related to the topic.

1.1 Example of Aerial Pipeline Patrol/Encroachment Control Report

Asset Management Group: _____

Pipeline System: _____

Distribution: _____

Beginning Station: _____

Ending Station: _____

Field Team: _____

Field Team Contacts:

Name: _____

Telephone #: _____

Name: _____

Telephone #: _____

Name: _____

Telephone #: _____

Date: _____ Patrol Company Name: _____ Aircraft Flown: _____

Flight Time:

Start Time: _____ End Time: _____

Pilot: _____

Telephone: _____

Cell Phone: _____

DOT OP Qual. Expiration Date: _____

Observer: _____

Telephone: _____

Cell Phone: _____

DOT OP Qual. Expiration Date: _____

Route Code(s)	Route Description	From MP Station or Valve	To MP Station or Valve	Miles of Pipe	Date Flown	Item Y/N

1.2 Example of Identification of Potential New Identified Sites or High Consequence Areas Report

Route to Pipeline Integrity Manager Coordinator if completed

Hazardous Liquid Pipelines

- Is the site a potential source of drinking water or ecological resource?
- If a pipeline release were to impact the area, would Company's reputation be affected?
- Is this a new population center such as a housing development, church, school, day-care, business?

GPS coordinates of facility or area-Lat/Long: _____

Date Report Submitted: _____

Signature of Person(s) Submitting Report: _____

Field Team Leader Review Date: _____

Field Team Leader Initials: _____

1.3 Example of Right-of-Way Inspection Report

Area _____ Date: _____ Pilot & Observer: _____

Plane #: _____ Actual Start Time: _____ Actual Finish Time: _____

Contact at Start: _____ Contact at Finish: _____

Patrol#: _____

Reference#: _____

Flight Type:

Emergency

Special

Routine

AFE Charge

Special

Emergency

System/Segment: _____ Mileage: _____

Time

Time Started: _____

Time Finished: _____

Hours Flown: _____

Inspected

Yes

No

Partial

Partial Comment #: _____

Conflicts?

No

Yes

Conflicts Comments #'s: _____

Total Hours Flown (All Segments): _____

Comments on Partial Flight (number of miles flown, from location to location, etc):

1.

2.

3.

Comments on Conflicts Identified: _____

1.4 Example of Pipeline Patrol/Encroachment Report

Date: _____

System: _____

Sheet#: _____

ROW#: _____

Brief locate or observation: _____

Surveillance Conducted By:

- Aircraft
- Land Vehicle
- Foot
- Boat

If surveillance conducted by Air, indicate the Aircraft type and Passenger Name:

Aircraft: _____

Name: _____

Patrol Date	Time		Location: Insert Thomas Guide/Section, Township, Range, or Milepost, etc.	
	From	To	From	To

Contacts:			
Location	Name, Title & Company:	Telephone: Office	Pager/Mobile

1.5 Example of Surveillance Checklist: Encroachment Detects & Adverse Conditions

Surveillance Check Off List: Encroachment Detects & Adverse Conditions (Non-Permitted illegal, unapproved or unauthorized activity impacting)			
Check Applicable Items:		Check Applicable Items:	
Encroachment Detect or Response	<input type="checkbox"/>	Adverse condition impacting safe operations	<input type="checkbox"/>
Leaks or spills	<input type="checkbox"/>	Markers obstructed from view	<input type="checkbox"/>
New exposure of pipeline	<input type="checkbox"/>	Markers unreadable	<input type="checkbox"/>
Excavation in or near pipeline right-of way	<input type="checkbox"/>	People at or near unmanned facility	<input type="checkbox"/>
Aboveground construction in or near pipeline right-of-way	<input type="checkbox"/>	Debris on right-of-way	<input type="checkbox"/>
Maintenance activities in roads, streams, canals, irrigation systems, etc. crossing pipeline right-of-way	<input type="checkbox"/>	Excessive tree canopy overhanging right-of-way	<input type="checkbox"/>
Washouts or soil subsidence	<input type="checkbox"/>	Excessive vegetation growth on right-of-way	<input type="checkbox"/>
Fires at or adjacent to pipeline facilities	<input type="checkbox"/>	Sections of pipeline no patrolled	<input type="checkbox"/>
Missing or damaged markers	<input type="checkbox"/>	Other observations/concerns to investigate or address	<input type="checkbox"/>
		Prohibited improvement installation	<input type="checkbox"/>

**Patrol Actions on Surveillance Items Detected:
(Separately number each item, problem, and issue in sequence)**

Item	Location	Problem	Patrol's Actions/Comments
1			
2			

Date Report Submitted: _____

Signature of Person(s) Submitting Report: _____

Field Team Leader Review Date: _____

Field Team Leader Initials: _____