



ENERGY TRANSFER

**Transwestern Pipeline Company**

***Pipeline Surveillance***

<b>Code Reference :</b>	<b>Procedure No.: I.21</b>	
<b>49 CFR: 192.705, 192.706, 192.709</b>	<b>Effective Date:</b> <i>April 2, 2007</i>	<b>Page 1 of 8</b>

**1.0 Procedure Description** This Standard Operating Procedure (SOP) establishes the requirements for a patrol program for pipeline systems.

**2.0 Scope** This SOP describes the criteria for conducting and documenting pipeline patrols to verify the safety of the pipeline.

**3.0 Applicability** This SOP applies to all pipelines that are subject to third party damage or outside forces.

**4.0 Frequency** The operating pressure, the class location, encroachment activity, land usage and frequency, terrain, and weather should be considered in determining the patrol frequency. The Sr. Vice President of Operations may adjust the Aerial Patrol Schedule (Table 2) frequency as required, but shall conform to the minimum frequency shown in Table 1.

**Table 1  
Transmission Line Patrol Schedule**

<b>Class Location</b>	<b>At Highways and Railroad Crossings</b>	<b>At All Other Locations</b>
1&2	2 times per year with intervals not to exceed 7½ months	Once per calendar year, with intervals not to exceed 15 months
3	4 times per year with intervals not to exceed 4½ months	2 times per calendar year, with intervals not to exceed 7½ months
4	4 times per year with intervals not to exceed 4½ months	4 times per year with intervals not to exceed 4½ months

**Table 2  
Aerial Patrol Schedule**

<b>Pipeline Segment</b>	<b>Frequency of Patrols</b>
Transmission Lines	Monthly
Lateral Lines	Monthly

**NOTE:** When selecting a frequency of monthly, do not exceed 45 days.



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**5.0  
Governance**

The following table describes the responsibility, accountability, and authority of the operations described in this SOP.

<b>Function</b>	<b>Responsibility</b>	<b>Accountability</b>	<b>Authority</b>
Aerial Surveillance	Asset Management Team	Operations Manager	Area Director
Patrol Observations	Operator Performing Patrol	Operations Manager	Area Director
Notification of Encroachment Problems	Operator Performing Patrol	Operations Manager	Area Director
Reporting	Asset Management Team or Operator Performing Patrol	Operations Manager	Area Director

**6.0  
Terms and  
Definitions**

For general terms, refer to *A.01 Glossary and Acronyms*.

**7.0  
Surveillance of  
Pipelines**

The Asset Management Team develops a patrol program to observe surface conditions on and adjacent to the transmission line right-of-way for indications of leaks, construction activity, and other factors affecting safety and operations.

Methods of patrolling include walking, driving, flying, or other appropriate means of traversing the right-of-way.

The following procedures are described in this section:

- Aerial surveillance
- Patrol observations
- Notification of encroachment problems
- Reporting

**7.1  
Aerial  
Surveillance**

The Asset Management Team schedules aerial patrols utilizing fixed wing aircraft or helicopters.

In the event of a cancellation, the patrol pilot documents the cancellation of a scheduled aerial patrol due to weather conditions, mechanical readiness of the aircraft, or other conditions and notifies the Asset Management Team.

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<b>Step</b>	<b>Activity</b>
1	<b>VERIFY</b> the personnel performing the patrols have adequate training and experience to identify the various items in the following section, “Patrol Observations,” relative to onshore and marsh patrols, as applicable.
2	<b>CONSIDER</b> accompanying the patrol pilot on the aerial patrol at least twice a year for Class 3 locations and annually for Class 1 and 2 locations.
3	<b>EVALUATE</b> construction activity to determine if more frequent flights are warranted.

**7.2  
Patrol  
Observations**

The operator performing a ground or aerial patrol keeps a log of the patrol, observing and documenting the following items:

1. General conditions of the right-of-way.
2. Indications of sink holes, sunken trenches, or exposed pipelines.
3. Water erosion, soil slippage, or landslide areas.
4. Indications of gas leakage such as gas blowing, displaced backfill, discolored or wilted vegetation, bubbles in water puddles or water crossing areas, and/or ice formations over the pipeline.
5. Fires on or adjacent to the right-of-way.
6. The condition of pipeline markers.
7. Damage to existing company facilities such as valves, metering and regulating stations, loop terminals, or communications facilities.
8. Construction activity on, in the vicinity of, or progressing toward the pipeline right-of-way (including evidence of possible construction such as the presence of excavation equipment).
9. Land leveling or grading activities.
10. Excavation near the pipelines, including routine activities occurring within industrial properties.
11. Installation of houses, mobile homes, businesses, churches, or other structures of human occupancy, if such structures could possibly be within 660 feet or when the Potential Impact Radius (PIR) exceeds 660 feet to at least the distance of the PIR as shown in *Appendix B Potential Impact Radius*.
12. Installation of parks, recreation areas, or other places of assembly on or adjacent to the right-of-way, if such areas could possibly be within 660 feet of the pipeline or when the Potential Impact Radius (PIR) exceeds 660 feet to at least the distance of the PIR as shown in *Appendix B Potential Impact Radius*.
13. Construction of irrigation or drainage canals, ponds, or swimming pools.

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14. Installation of irrigation piping systems, sprinkler systems, sewers, utilities, or other underground facilities or structures.
15. Installation of telephone or power poles, fence posts, or guy wire anchors.
16. Tree logging operations.
17. Seismic geological survey activities, well logging operations, well drilling activities, or quarry and blasting work.
18. Any unusual conditions or activities which may have an effect on the pipelines.

**7.3  
Notification of  
Encroachment  
Problems**

The patrol operator performs the following procedure when potential encroachments are identified during a patrol survey.

Step	Activity
1	<b>NOTIFY</b> the Asset Management Team regarding encroachment activities which could affect the pipeline. In the event the Asset Management Team is not available, <b>CONTACT</b> Gas Control.
2	<b>RECORD</b> the details of the activity, the name of the Asset Management Team member who was notified, and the time of the notification in <i>Form I.25.A Aerial Patrol Trouble Report (APTR) or equivalent</i> .
3	If previously reported activities (or occurrences) have changed in a manner that might affect the pipeline, such as road construction, pipeline construction, or erosion on the right-of-way, <b>NOTIFY</b> the Area regarding the activities.

**7.4  
Reporting**

A member of the Asset Management Team makes the following reports for conditions identified by patrols.

Step	Activity
1	<b>DOCUMENT</b> the results of the Area’s investigation and any other conditions found or reported that could adversely affect the safety, operation, or maintenance of the pipeline system on <i>Form B.13.A Encroachment, Foreign Line Crossing and Class Location HCA Report</i> . <b>INCLUDE</b> a description of conditions found and any remedial action required or taken.

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Step	Activity
2	<b>COMPLETE</b> the APTR or applicable form within two business days from when the patrol flight is completed. Includes sketches, photos, or additional data to supplement reports where necessary.
3	<b>INCLUDE</b> on the APTR a description of each activity on or adjacent to the pipeline right-of-way.
<b>NOTE:</b> Provide a distinct number for each individual report of activity documented on the APTR.	
4	<b>INVESTIGATE</b> each activity reported on the APTR.



**7.4.1  
Line Patrol  
Summary**

Complete the following forms as part of the line patrol summary.

Step	Task	Done By
1	Completes <i>Form B.13.A Encroachment, Foreign Line Crossing and Class Location HCA Report</i> with the results of the investigation.	Asset Management Team
2	Completes <i>Form I.21.A Line Patrol or equivalent</i> for each aerial patrol completed.	Asset Management Team
<b>NOTE:</b> The report number will be recorded on the APTR no later than one week after the flight day.		
3	Issues the form no later than the 10th day after the completion of the patrol.	Asset Management Team
4	Completes Form I.21.A with line number additions and/or deletions.	Asset Management Team
5	Conducts an annual review and revises Form I.21.A as changes occur.	Operations Manager



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- 8.0** Form B.13.A Encroachment, Foreign Line Crossing and Class Location HCA Report
- Documentation** Form I.21.A Line Patrol (or equivalent form)
- Requirements** Form I.25.A Aerial Patrol Trouble Report (APTR) (or equivalent form)

<b>Activity</b>	<b>TW Reporting</b>
Acknowledge the requirements as outlined in the SOP have been completed. Record exceptions in the description tab.	D7-I

- 9.0** There are no documents referenced in this SOP.
- References**

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**Appendix A:  
KSA and OQ  
Task Table**

The table below identifies the Operator Qualification (OQ) task requirements.

Task Description	OQ Task
Pipeline Patrol	PLOQ701B

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**Appendix B:** The following chart outlines the Potential Impact Radius (PIR) greater than 660 feet.  
**Potential Impact Radius**

<b>Diameter</b>	<b>MAOP</b>	<b>Impact Radius (ft.)</b>
36	1200	860.5
36	1000	785.5
36	900	745.2
30	1200	717.1
30	900	621.0
28	1200	669.3





# Encroachment, Foreign Line Crossing and Class Location HCA Reports

B.13.A

AVAILABLE ELECTRONICALLY

Report No.

One-call No.

Other

RECIPIENT OF REQUEST/REPORT:			
Received by (Co. Person)	Other Company Personnel Notified	Date Received	Time Received

COMPANY PIPELINE OR FACILITY INVOLVED:		
Line Number	Name of Pipeline	Survey Station/Mile Post
Describe Involvement:		

FOREIGN PARTY IDENTIFICATION:			
<input type="checkbox"/> ATTACHED ONE-CALL TICKET		<input type="checkbox"/> ATTACHED LIST OF "IDENTIFIED SITES"	
Business/Contractor/Landowner/Local Official	Contact's Name and Title		
Business Telephone No.	Contact Telephone No.		
Address	City	State	County and ZIP

INFORMATION PROVIDED TO FOREIGN PARTY:	
By: <input type="checkbox"/> Phone	<input type="checkbox"/> Fax
<input type="checkbox"/> Letter	<input type="checkbox"/> Site Visit
<input type="checkbox"/> List	<input type="checkbox"/> Email
<input type="checkbox"/> Other	
Construction Guidelines Provided: <input type="checkbox"/> Yes <input type="checkbox"/> No	

PROPOSED SCOPE OF WORK:	
<input type="checkbox"/> SEE ATTACHED ONE-CALL TICKET	
Description of Information Requested or Work to be Performed:	
Starting Date	Starting Time
Explosives Used?	<input type="checkbox"/> Yes <input type="checkbox"/> No
One-Call Notified	<input type="checkbox"/> Yes <input type="checkbox"/> No
Location of Proposed Work:	
City	State
County	
Township	Range
Section	Block
Other	

SITE INVESTIGATION:	
Were Flags or Markers Existing?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Were Lines Located?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If Yes, attach related details. If No, Why?	
Any Damage To The Lines? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Describe:	
Date Investigation Conducted	Time Investigation Conducted
Name of Person(s) Investigating.	Print Name
	(Signature)
Foreign Crossing Report Prepared	<input type="checkbox"/> Yes <input type="checkbox"/> No
Comments:	
Class Location Report Prepared	<input type="checkbox"/> Yes <input type="checkbox"/> No
Comments:	
<input type="checkbox"/> Project in Progress <input type="checkbox"/> Project Completed	
Prepared By (Signature)	

**DISTRIBUTION:**  
Original – Team Compliance File  
Copy's – Integrity Engineer, GIS Dept.,  
Project Completion

Revised 6/25/08

**RETENTION:**  
Original – 5 Years  
Copy – 5 Years



**Class Location Report**

REPORT SOURCE:  SURVEILLANCE  LOCAL OFFICIAL  LIST/MAP  ATTACHED SKETCH  
 INITIAL REPORT  SUPPLEMENTAL REPORT DATE OF INITIAL REPORT:

LINE NO. ENGINEERING STATION

LINE NO.	ENGINEERING STATION	OFFSET DIRECTION (L/R)	OFFSET DISTANCE	LATITUDE	LONGITUDE

**TYPE OF STRUCTURE, OPEN AREA OR FACILITY INVOLVED (See SOP J.01 for Definitions)**

Single Family Dwelling  Facility With Impaired Mobility, Confined or Hard to Evacuate People  
 Multiple Occupancy Dwelling  Open Air Structure (Stadium or other Structure that is open to the air or with temporary walls)  
 Populated Outside Area Detail:  
 Date Occupied

**SPECIFIC INFORMATION ON THE ABOVE STRUCTURE, OPEN AREA OR FACILITY CHECKED ABOVE**

Facility/Site Type: (Prison, School, Park etc.) Facility Name: (Ex.- Joe's Crab Shack)  
 Number of Occupants (max per day) Days per week Weeks per year Hours per day Days per year  
 Address (street) City, State ZIP  
 Alignment Sheet No.: Subdivision Plat Attached (if available)  Yes  No

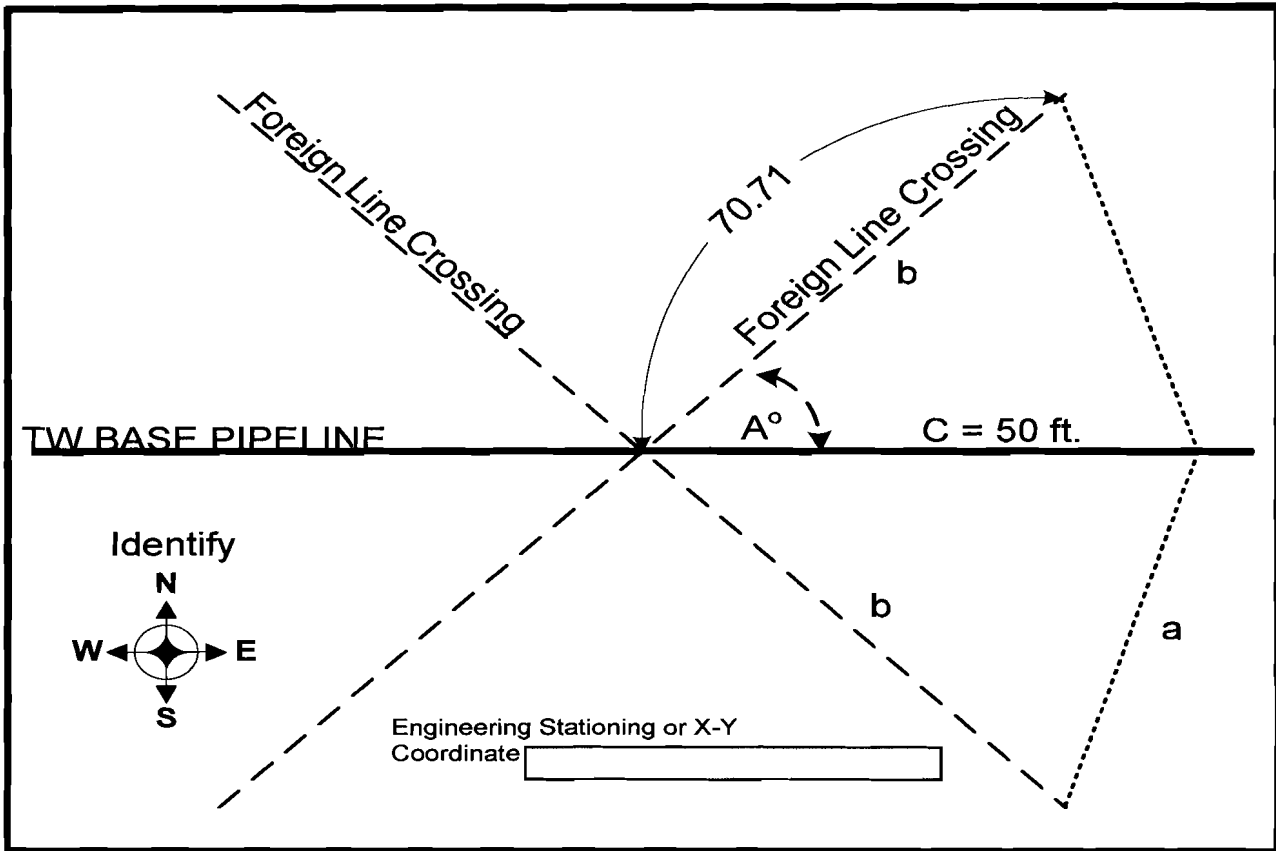
**DGPS/GPS METHOD**

1. Structure Upstream \*Latitude = °N \*Longitude = °W  
 a. Pipeline Center Line \*Latitude = °N \*Longitude = °W  
 2. Structure Center of Structure \*Latitude = °N \*Longitude = °W  
 b. Pipeline Center Line \*Latitude = °N \*Longitude = °W  
 3. Structure Downstream Corner \*Latitude = °N \*Longitude = °W  
 c. Pipeline Center Line \*Latitude = °N \*Longitude = °W  
 \*Example of DGPS format: Latitude = + 27.93821 °N Longitude = + 89.50000 °W

Note: Any structure whose width is 50ft. or less in length requires only the center point of the structure determined 90° from the centerline of the pipeline. All structures greater than 50ft. will require the upstream, center, and downstream points determined 90° from the centerline of the pipeline.

**OFFSET MEASUREMENT (Report offset distance & direction to closest pipeline – Measured at 90 degrees to the pipeline)**

A. Upstream Corner of the structure ft.  
 B. Station Plus of the Pipeline Centerline ft.  
 C. Center of the Structure ft.  
 D. Station Plus of the Pipeline Centerline ft.  
 E. Downstream Corner of the Structure ft.  
 F. Station Plus of the Pipeline Centerline ft.



**EXAMPLE**

Equation	Step 1 (Calculate Equation)	Step 2 (Result)	Step 3 (Calculate the Angle of Crossing)
$A = \frac{b^2 + c^2 - a^2}{2bc}$	$A = \frac{(70.71)^2 + (50)^2 - (50)^2}{2(70.71)(50)}$	$A = 0.707$	$\text{Cosine}^{-1} A = 45^\circ$
$a = 50 \text{ ft.}$	$A = \frac{4,999.90}{7,071}$		
$b = 70.71 \text{ ft}$			
$c = 50 \text{ ft}$			

**Foreign Facility**

Size      Type/Transports      Material

**COMMENTS:**

DISTRIBUTION:  
Original – Team Compliance File  
Copy's – Integrity Engineer, GIS Dept.,  
Project Completion

Revised 7/1/08

RETENTION:  
Original – 5 Years  
Copy – 5 Years



**CONTACTS:**  EMERGENCY OFFICIAL QUESTIONNAIRE with LIST of currently known "IDENTIFIED SITES" attached

Business/Contractor/Landowner/Local Official Contact's Name and Title

Business Telephone No. Contact Telephone No.

Address City State County ZIP

**TYPE OF STRUCTURE, OPEN AREA OR FACILITY INVOLVED (See SOP J.01 for Definitions)**

Single Family Dwelling  Facility With Impaired Mobility, Confined or Hard to Evacuate People

Multiple Occupancy Dwelling  Open Air Structure (Stadium or other Structure that is open to the air or with temporary walls)

Populated Outside Area Detail:  
Date Occupied

**SPECIFIC INFORMATION ON THE ABOVE STRUCTURE, OPEN AREA OR FACILITY CHECKED ABOVE**

Facility/Site Type: Facility Name:  
(Prison, School, Park etc.) (Ex.- Joe's Crab Shack)

Number of Occupants Days per week Weeks per year Hours per day Days per year

Address (street) City, State ZIP

Alignment Sheet No.: Subdivision Plat Attached (if available)  Yes  No

**IDENTIFIED SITES**

Facilities with persons who are mobility-impaired, confined or difficult to evacuate.

Hospital  Retirement Facility  Prison  Assisted Living Facility  Day Care Facility

Other:

Where people gather for recreational and other purposes  
{Facilities or outside area where Twenty (20) or more people gather fifty (50) times per year (Not consecutive), within a twelve-(12)-month period.}

RV Park  Restaurant  Stadium  Convenience Store  Park  Airport  Lake

River  Factory  Marina  Community Center  Church  Business  Building

Other:

COMMENTS:





