Line Locating Quality Assurance

Purpose	The purpose of this document is to share learnings of pipeline operators relating to the Line Locating Quality Assurance Program and ROW Protection/Damage Prevention. A Line Locating Quality Assurance Program helps management ensure that the Company's ROW Protection Program is being carried out as expected, that all persons performing line locating tasks are qualified, following the procedures and completing the documentation as required.
Reference	API RP 1166 "Excavation Monitoring and Observation" CGA Best Practices (current edition) 49 CFR 195.442 "Damage prevention program" National Utility Locating Contractors Association (NULCA)
Appendices	• Appendix A: Forms and Reports • Appendix B: Other Documents
Related Toolbox Topics	• Operator One-Call Ticket Management Systems • One-Call Notification Screening • One-Call Notifications Response and Communication

Responsibilities:

ROW Protection and Damage Prevention are not limited to responding to one-calls. It also may include: protection from encroachments, such as buildings being built over pipeline or within the easement, adequate permanent line markers, ensuring one-call maps are adequate, updating (redlining) alignment sheets as needed, contactor and emergency response agency communication and responding to Aerial Patrol Reports.

A Line Locating Quality Assurance Program is designed to assure that the elements of the Program are in place and being followed. A typical line locating quality assurance evaluation includes:

- Confirming training documentation
- Confirming map and alignment sheets in use are current and correct
- Verifying that handling of one-call tickets are done in accordance with state laws and Company procedures;
- Verifying that line locating and marking meet State Law and Company Procedures
- Confirming that communication with excavator meets Company Requirements

Line Locators may perform additional tasks that may be included in a Quality Assurance program; for example ROW inspection, meeting with excavators or emergency officials, observation and monitoring, or responding to patrol reports. Where separate audits are performed for various phases of the one-call management process, effort should be made to ensure that the entire process is reviewed. Operators may wish to conduct unannounced, random line locating assessments.

The results of a Line Locating Quality Assurance Program should be communicated with the appropriate supervision/management. Documentation of the corrective action or response should be maintained as well as documentation to substantiate the Line Locating Quality Assurance Program. Results of individual assessment should be compared with others to identify trends and other analysis.

Training and Qualification Documentation:

Persons locating pipelines within the ROW should possess the Knowledge, Skills and Abilities (KSA) to perform their duties. Training and qualification of locating personnel should be described in the Company's Program and is beyond the scope of this document. However, a Quality Assurance Program should determine that the Line Locator has met the Company's training and qualification requirements.

CONSIDERATIONS: For Individual Line Locator to Confirm
• Company required ROW protection training is complete • Company required qualifications are current • Company required review of procedures are met • Company required equipment training

Map and Alignment Sheets:

Line Locators must have current maps and alignment sheets and know how to use them. The quality control assessment should substantiate that the maps and/or alignment sheets used by the Line Locator are current and correct, that the Locator understands the symbology and layout, and knows the process to be used in getting the maps and/or alignment sheets updated if errors are found.

CONSIDERATIONS: Operators May Wish To Confirm
• Alignment sheets in use by the Line Locator are current • The process for disseminating alignment sheet/maps is functioning correctly and understood by the locating personnel • The centerline data and one-call buffer in use by the Line Locator are current and periodically reviewed • The Line Locator demonstrates the ability to read and understand the alignment sheets; i.e. symbology, stationing and orientation • Company process for marking up and submitting alignment sheet errors is being followed

Processing One-Call Tickets:

A Line Locating Quality Assurance Program must confirm that one-call tickets are being processed in accordance with state one-call laws and Company procedures and are done in a timely manner.

CONSIDERATIONS: Operators May Wish To Confirm
• Routine tickets are processed in accordance with Company/State requirements or waiver
Note: Company cannot waive a state requirement
• Emergency tickets are processed promptly and in accordance with Company/State requirements or waiver • After hour coverage is provided • Design tickets are processed appropriately • Daily review of One-Call tickets is being conducted to ensure that all one-calls received are processed appropriately and that all tickets are received into the system • Documentation is adequate to substantiate the above

Marking Underground Structures:

A Line Locating Quality Assurance Assessment should ascertain that the underground structures are accurately located and marked. It is recommended that the assessment include verifying the accuracy of the marks made by re-locating the facilities or comparing the marks to the location of the exposed facilities.

CONSIDERATIONS: Operators May Wish To Confirm
• Routine tickets are processed in accordance with Company/State requirements or waiver
Note: Company cannot waive a state requirement
• Maps/alignment sheets reviewed (i.e., appurtenances could be attached to pipeline that could be snagged) • Locate is performed safely (proper PPE/traffic control) • Line Locator is aware of and conducts visual inspection for other utilities • Markings are within state tolerance or Company requirements of centerline • Bends and other changes are clearly marked • Flags/Marks are spaced within State or Company specifications, whichever is more stringent • Marks contain - Name/Size/Identifier • Engineering Department or responsible Department is notified of any point of intersection/inflection (P.I.) or error not on alignment sheet • That abandoned lines are marked (if known) or contractor informed (if unable to locate • Markings and area photographed • Photos attached and documented as required by the procedure • Communicate markings to contractor and One-Call Center if required

Line Locating Equipment:

A Line Locating Quality Assurance Program should ensure that Line locating equipment is checked for proper functioning prior to use in accordance with Company Procedures and that proper documentation of check is available.

CONSIDERATIONS: Operators May Wish To Confirm
• Tools and equipment are in proper working order and properly calibrated • Line locating equipment is checked for proper operation in accordance with Company Procedures (for example, “daily prior to use”) • Conductive method used (or justifiable inductive) • Proper hook-up and grounding procedures where applicable • Document the equipment field check maintained • Appropriate safety equipment and procedures were used by the locator

General Requirements Associated with Line Locating:

Other items that may be confirmed in a Line Locating Quality Assurance Program include “Observation”/“Monitoring” in accordance with Company procedures, inspection forms completed, and possible prohibition from power excavation within tolerance zone and documentation associated with each.

CONSIDERATIONS: Operators May Wish To Verify
• Company representative is continuously present (observe) when work is within 10' or per Company requirements • Company representative (monitor) if work is within 10' to 25' or Company’s procedure • Proper documentation is completed • No power excavation within tolerance zone unless approved by Company • Foreign Line Crossing Report completed and maintained in accordance with Company Procedure • Pipe Inspection Reports are completed and maintained in accordance with Company procedure

1 Appendix A: Forms and Reports

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

1.1 Verification of ROW Activities Form

Date: _____

Employee: _____ Signature: _____

Reviewer: _____ Signature: _____

One Call Ticket Number: _____

Also, document this review in the one call ticket notes.

Training Documentation

Yes	No		Comment:
☐	☐	1 OQ Qualifications Current	
☐	☐	2 Current review of Company Proceedure	
☐	☐	3 Supervisor Review	

Maps & Allignment Sheets (M&A)

☐	☐	1 Alignment Sheets updated within last week	
☐	☐	2 One call Maps (Coverage Area) Confirmed within last Year and documented	
☐	☐	3 RDs demonstrated understanding of using M & A	
☐	☐	4 RDs demonstrated understanding GPS & stationing	
☐	☐		

Handling One Call Tickets

☐	☐	☐	1 Routine Tickets handled < 48 hours or Waiver	
☐	☐	☐	2 Emergency Tickets handled Promptly	
☐	☐	☐	3 After hour Coverage	
			4 Design Tickets handled appropately	
☐	☐	☐	5 Daily Review of One-Call Tickets	
☐	☐	☐	6 Documentation Adequate	

Marking Underground Structures

Satisfactory	Unsatisfactory	N/A		Comment:
☐	☐	☐	1 Marked within 48 hours	
☐	☐	☐	2 Maps/Alignment Sheets reviewed	
☐	☐	☐	3 Locate performed safely (proper PPE / Traffic Control)	
☐	☐	☐	4 Visual inspection for other utilitites	
☐	☐	☐	5 Markings within 2' of centerline	
☐	☐	☐	6 Bends and other changes clearly marked	
☐	☐	☐	7 Flags/Marks at <10ft intervals	
☐	☐	☐	8 Marks - Name/Size/Identifier	
☐	☐	☐	9 Engineering notified if any P.I. or error not on alignment sheet	
☐	☐	☐	10 Abandoned Lines / Parrellel Lines marked	
☐	☐	☐	11 Markings & Area photographed	
☐	☐	☐	12 Photos attached to One Call ticket	
☐	☐	☐	`13 Communicate markings to Contractor	

Line Locating Equipment

Satisfactory	Unsatisfactory	N/A		Comment:
☐	☐	☐	1 Line locating equipment checked prior to first locate at known location	
☐	☐	☐	2 Conductive method used (or justifiable Inductive)	
☐	☐	☐	3 Document the equipment field check in System	

General Requirements

Satisfactory	Unsatisfactory	N/A			Comment:
☐	☐	☐	1	Encroachment consultation with SME/Supervisor	
☐	☐	☐	2	Continuously present (observe) when work is witin 10'	
☐	☐	☐	3	Employee present (monitor) if work is within 10' to 25'	
☐	☐	☐	4	Excavation site inspection form completed	
☐	☐	☐	5	No power excavation within tolerance zone	
☐	☐	☐	6	Foreign Line Crossing Report completed/attached in System	
☐	☐	☐	7	Pipe Inspection Repair Report completed/attached in System	
☐	☐	☐	8	Documented Hand-off to Inspector/Others	
			9	DPR demonstrates knowledge of Sweeping for foreign structures	

Patrol Programs

☐	☐	☐	10	Follow up of Aerial Patrol Inspection Reports
☐	☐	☐	11	Ground Patrol
☐	☐	☐	12	Proper Document

Public Awareness

☐	☐	☐	13	Documented Individual Contacts on Form
☐	☐	☐	14	Attend Public Awareness Meeting / Complete Form
☐	☐	☐		Contact made with Responder / Complete Form
☐	☐	☐	15	Attend Contractor Meeting /Complete Form

Other Notes / Comments:

Employee_____ Date **Evaluator** **Date**

Supervisor _____ **Date:**_____ **Manager** **Dae**

(Manager confirms action items completed)