

Fifth Edition



Professional Competence Standards for Locate Technicians

Nulca

1501 Shirkey Avenue
Richmond, MO 64085
Bus #: 1-888-Nulca-INFO
Email: ExecutiveDirector@Nulca.org
Website: www.Nulca.org



NULCA STANDARDS FOR LOCATING TECHNICIANS

OVERVIEW

The National Utility Locating Contractors Association (Nulca) was formed in 1995 to maintain standards and practices that contribute to improved safety, quality and performance within the contract locating industry.

From its conception, Nulca members recognized the need for a common set of standards and practices directing the training and development of utility locators. In 1995, the Nulca Board of Directors initiated the construction of training standards. Representatives from the contract locating industry, one call system, utility companies, and others involved in the damage prevention process were involved.

In 1996, Nulca published the *Nulca Locator Training Standards and Practices*. This formed the basis for the training programs currently in use by Nulca members performing contract locates.

In 1998, the Nulca Board requested a review and evaluation of the existing *Nulca Locator Training Standards and Practices*. It was determined that industry and regulatory changes within the industry dictated the need for a new revised training standard for utility locators. A Nulca Standards Committee was formed to develop the new training standards. As a result of these efforts, Nulca published *Professional Competence Standards for Locating Technicians 2001 First Edition* which was reviewed and adopted by the Nulca Board and publicly presented in February 2002.

In 2007, the Nulca Board requested a review and evaluation of the *Professional Competence Standards for Locating Technicians 2001 First Edition*. This led to the next revision of the *Nulca Standards for Locating Technicians Second Edition* that was approved by the Board on April 17, 2009; and then released on July 1st, 2009. The Third edition was approved and released on November 21, 2013. The Fourth edition was approved and released on March 12, 2015. The Fifth edition was approved and released on _____.

In 2015, the Nulca Board of Directors recognized that the focus of its membership had expanded beyond that of only underground locating contractors, but were made up of many different kinds of specialties within the utility industry. For this reason, the decision was made to take the NULCA acronym and make it into just the word Nulca in an effort to not limit the types of members.

Nulca has developed these industry Standards for Locating Technicians (Standards) as an educational tool and general reference aid. The Standards have been developed by volunteers within Nulca, which is based on their collective experiences in the industry, and does not reflect the judgment of any one individual. Nulca membership consists of representatives from the contract locating industry, utility companies, excavators, equipment suppliers and others dedicated to the protection of the utility infrastructure. The document reflects the collective judgment of the Nulca membership; however, individual situations, local laws or regulations, specific contract requirements or specific safety needs may override the application of the

Standard(s) in individual situations. As these Standards are published as guidelines, they are not representations or warranties and Nulca and its membership assumes no liability for the use, interpretation or application of the Standard(s) to a specific situation.

Nulca Mission Statement

The mission of Nulca is to define, establish and maintain standards and practices performed by the underground utility locating industry. Our highest priority is the safety of the general public, excavators and our employees in the protection of North America's underground infrastructure. As an Association, we will accomplish our mission by partnering with utility owners, excavators, one-call centers, suppliers and regulatory agencies, as well as other interested parties determined to provide a leadership role in the reduction of underground facility damages. Any questions or recommendations related to the Standards should be sent to Nulca.

TERMS AND CONDITIONS OF USE

Nulca publishes these Standards subject to the following:

1. While recognizing alternative locating methods exist, these Standards are specifically oriented toward electromagnetic locating.
2. The Standards are approved as of the date set forth on the title page. The user is cautioned that this is a dynamic industry, and standards and practices can change quickly.
3. Nulca does not endorse any company, technology, technique or product. No inference of endorsement shall be taken from any Nulca Standard or from Nulca generally. However, Nulca has retained the services of NSF-ISR to conduct the independent accreditation review of this Standard for members wishing to participate in this process.
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9. Regulatory agencies and other users are authorized to reference this document in laws, ordinances, regulations, administrative orders, and similar documents. Any reference to this document in whole or part shall contain the following Reference "Published with permission, Nulca Standards for Locating Technicians, ©2001, 2009, 2013, 2015, 2017 all rights reserved."
10. As a volunteer organization, Nulca has no authority to enforce compliance with these Standards on any party.
11. As used in these Standards, words such as "must", "required", and "minimum", are meant to be illustrative and are not intended to suggest a standard of conduct in and by themselves. Therefore, they must be read in the larger context of the Standard and are not meant to act as a floor or minimum level of conduct.

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Chapter 1 - Administration

1. General

Scope: This standard identifies the basic level of competence required of a Locating Technician. It specifically covers the competencies for basic level locators who are involved in buried facility locating. The locator must demonstrate knowledge and understanding of the practices and procedures through formal closed book examination, obtain a passing grade, and demonstrate, in actual or simulated scenarios the ability to use locating equipment effectively and efficiently.

Purpose: The purpose of this standard is to specify the minimum competencies for those individuals who will respond to the request for the location of facilities which are below the surface of the ground. It is not the intent of this standard to restrict any jurisdiction from exceeding those minimum requirements. The purpose of these competencies is assist in safer excavation practice, with the goal of minimizing the possibility of causing damage to underground facilities.

2. Definitions

Abnormal Operating Condition (AOC): A condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may:

- (a) Indicate a condition exceeding design limits; or
- (b) Result in a hazard(s) to persons, property, or the environment.

Aerial/Overhead: Facilities which are placed above ground and attached to poles or other structures.

Air Coupling: A condition that can occur during induction, where a receiver detects an erroneous signal, generated by a transmitter, traveling through the air, rather than through the earth, usually caused by the receiver's proximity to the transmitter.

APWA Uniform Color Code: System of colors used for marking and recognition of various types of facilities located below the ground.

Authority Having Jurisdiction: The "authority having jurisdiction" is the organization, office, or individual responsible for "approving" equipment, procedure, legislation, or regulation.

Bleedover: An unwanted signal transfer onto non-target facility(ies) creating a separate signal from the target facility signal.

Buried/Underground: Facilities which are placed below ground, whether directly buried or in conduit.

Circuit: Complete path of electrical current including the power source (transmitter), facility being located, grounding system, and soil.

Close Induction/Clamp: A nonmetal-to-metal method of applying a signal from a transmitter in which a clamp is placed around a target facility. Generally used when a direct connection cannot be made or to better isolate facilities grounded in common.

49 CFR 192 and 49 CFR 195: Subparts of US DOT Pipeline Safety Rule that addresses locating pipelines.

49 CFR 199: Subpart of US DOT Pipeline Safety Rule that addresses Drug and Alcohol (D&A) testing.

Competence: Possessing knowledge, understanding, skill, and judgment needed to perform specific tasks and/or objectives satisfactorily, with little or no supervision.

Conductivity: A measure of a material's ability to conduct an electric current.

Conduit/Casing/Sleeving: A pipe, tube, or tile designed to enclose a facility or facilities.

Confined Space: Workplaces which are large enough for workers to enter and perform certain jobs, but also have limited or restricted means for entry or exit and are not designed for continuous occupancy. A confined space may have one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere; contains a material that has the potential to engulf an entrant; has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant; or contains any other recognized safety or health hazard such as unguarded machinery, exposed live wires, or heat stress. Note: *OSHA has various regulations, requirements and restrictions that apply to working in and around confined spaces. These should be carefully reviewed to determine which OSHA rules apply to the confined space in which you are working. Additional site or facility owner requirements may also apply.*

Covered Task: An activity, identified by the operator, that:

- (1) Is performed on a pipeline facility;
- (2) Is an operations or maintenance task;
- (3) Is performed as a requirement of 49 CFR 192 or 49 CFR 195; and
- (4) Affects the operation or integrity of the pipeline.

Current/Milliamp: The amount of electricity flowing through a circuit, measured in Milliamps.

Direct Connection/Conductive: A metal-to-metal method of applying a signal in which the transmitter is directly connected to the target facility using a set of leads.

Directional left/right arrows: Arrows found on a receiver's display which indicate to the user whether the instrument is positioned left or right of the target facility, often accompanied by a distinct audio tone.

Electromagnetic Location: Detection at the surface of electromagnetic fields present around an underground conductor (whether generated by a signal transmitter or by some passive means).

Element of Competence: Individual components of a Unit of Competence which must be met to prove competency in that Unit.

Facility: Any structure buried below the surface of the ground as defined by the CGA.

Frequency: The rate of change of an alternating current direction (measured in Hertz or kilohertz).

Gain: The sensitivity setting on the receiver.

Grounding (with a ground rod) or Grounding Systems: Typically, a metallic ground rod placed in the earth and used during a direct connection. The ground rod is ideally placed at 90 degrees away from the path of the target utility and away from all other non-target facilities. Grounding is necessary to establish a complete locating circuit.

Hertz: A Unit of measuring an alternating current. One Hertz is equal to one complete electronic cycle in one second; abbreviated Hz.

Inductive/Induction: A nonmetal-to-metal method of applying a signal using the transmitter's internal broadcast antenna. Generally used when direct connection or close/clamp induction are not available or are not the best option.

Isolation: The act of separating common bonds in order to reduce unwanted transference of signal to non-target facilities.

Locating: The practice of identifying and designating the position of a facility buried below the surface of the ground. (CGA uses "Locate")

Locating Device: Any of a number of electronic instruments designed, manufactured and distributed for the purpose of finding buried metallic conductors as part of a utility system.

Locating Technician: A person who, in the course of their normal duties, will be required to identify and designate the appropriate horizontal position of buried facilities, subject to the applicable tolerance zone under the law.

Manhole: Entry point to a vault and/or space below the surface of the ground.

Marking: A temporary indication at the surface of a facility buried below; typically made with inverted marking paint, flags, stakes, lathes, or whiskers.

Null: A receiver setting providing minimum signal response immediately over the target facility.

Offset Measurement: A measured mark made a short distance perpendicularly from the actual location of a facility, typically used when marks made over the facility would be impractical.

Operator: Any individual, firm, joint venture, partnership, corporation, association, state, municipality, cooperative association, or joint stock association, and includes any trustee,

receiver, assignee, and personal representative thereof, who engages in the transportation of gas or hazardous liquids.

Output: A control on most transmitters which can increase or decrease the amount of power the transmitter applies to the signal.

Peak: A receiver setting providing maximum signal response immediately over the target facility.

Performance Criteria: Precisely describes the Element of Competence.

Pinpointing: Using a receiver to indicate as precisely as possible, the horizontal location of a target facility in a specific spot.

Positive Response: *As defined by the CGA*, Positive Response is, “Communication with the excavator prior to excavation to ensure that all contacted (typically via the One Call Centers) owner/operators have located their underground facilities and have appropriately marked any potential conflicts with the areas of planned excavation.”

Private Facilities: Utility structures installed and maintained for the use of a private entity that are not part of the public utility infrastructure. Private utilities are identified by their presence beyond a specific demarcation point and not by where they are physically located on a property. They may be present in the public right of way.

Qualified: Tested, observed, or otherwise evaluated to meet an Operator’s requirements for the covered task. An individual who has been qualified and:

- (a) Can perform assigned covered tasks;
- (b) Can recognize and react to abnormal operating conditions; and
- (c) Has compliance documentation completed.

Receiver: Equipment that detects a signal for the purpose of identifying a buried facility.

Regulatory Standard: Requirements pertaining to activities identified and set forth by the appropriate regulatory body such as Federal, State, Provincial or local Governments or Agencies.

Signal: A moving magnetic field capable of being detected by a receiver; typically applied deliberately by a transmitter for the purpose of locating.

Signal Distortion: An unwanted signal alteration typically caused by nearby non-target conductors attracting or repelling the electromagnetic field placed on the target facility.

S.U.E. (“Subsurface Utility Engineering”): Pre-project planning to determine the physical position and identity of buried facilities prior to project commencement.

Sweeping: Using the receiver to acquire a signal for tracing, or to rule out the presence of signals within a target area.

Task: A piece of work assigned to or expected of an individual(s).

Tracer Wire: An insulated metallic wire buried with a non-metallic utility for the purpose of locating the non-metallic facility.

Tracing: Using the receiver to follow the route of a target facility.

Transmitter: Equipment that transmits a detectable signal for the purpose of identifying an underground facility.

Unit of Competence: One of ten primary components of the Nulca Professional Competence Standard.

Unlocatable: A target facility which cannot be located by electromagnetic induction.

Chapter 2 - Competencies for Locating Technician

1. General

Introduction: The Locating Technician shall be trained to meet Regulatory Standards which are appropriate for their jurisdiction.

Locating Technicians are those persons who, in the course of their normal duties, will be required to identify and designate the appropriate horizontal position of buried facilities, subject to the applicable tolerance zone under applicable law. Locating Technicians are expected to identify and indicate the approximate horizontal position of buried facilities (subject to the tolerance zone), to assist in the protection of the general public and themselves from harm within the scope of the locator's sole control.

The key purpose of the Units of Competence is to provide Locating Technicians with the skill, knowledge and understanding to complete the following tasks and activities safely and professionally.

The Locating Technician shall satisfy the performance criteria of all Elements and Units of Competence outlined herein by using locating equipment to locate a minimum of one or all of the various buried facilities (in rural or urban settings as it pertains to a geographical area of responsibility) under actual or simulated conditions such as:

1. Electrical Systems (electric power lines, cables, conduit, and lighting cables)
2. Gas, oil, steam, petroleum, or gaseous materials
3. Communication systems (alarm or signal lines, cables, or conduit)
4. Potable water
5. Reclaimed water, irrigation, and slurry lines
6. Sewer and draw lines
7. Other underground structures

The Locating Technician must demonstrate the knowledge and understanding in the Units of Competency for every type of facility the Locating Technician is required to Locate. Locating Technicians are to demonstrate their knowledge and understanding through formal and informal questioning.

2. Competencies

Units of Competence:

- | | |
|----------------------------|---|
| 1. Basic Locating Theory | 6. Visual Observation Skills |
| 2. Use of the Transmitter | 7. Safe Work Practices and Regulations |
| 3. Use of the Receiver | 8. One-Call Regulation, Requests, and Documentation |
| 4. Marking Procedures | 9. Excavator and Customer Relations |
| 5. Knowledge of Facilities | 10. Locating Pipelines (US) |

Unit 1 -- "Basic Locating Theory"

The Locating Technician shall, given various simulated or actual site situations or by diagram, demonstrate basic competency in the knowledge of Basic Locating Theory.

Elements of Competence:

- 1.1 Demonstrate a basic knowledge and understanding of electromagnetic theory as it applies to utility locating.
- 1.2 Demonstrate a basic knowledge and understanding of a circuit as it applies to utility locating.
- 1.3 Demonstrate a basic knowledge and understanding of signal frequency as it applies to utility locating.
- 1.4 Demonstrate a basic knowledge and understanding regarding signal distortion and bleedover.
- 1.5 Demonstrate a basic knowledge and understanding of grounding as it applies to utility locating.
- 1.6 Demonstrate a basic knowledge and understanding of soil conditions as they apply to utility locating.
- 1.7 Demonstrate a basic knowledge and understanding of the relative conductivity of utility materials and tracer wires.

Performance Criteria:

- 1.1a Demonstrate a basic knowledge and understanding of the relationship between electricity and magnetism.
- 1.1b Demonstrate a basic knowledge and understanding of what "signal" is and how it is produced.
- 1.2a Demonstrate a basic knowledge and understanding of how electricity flows through a locating circuit.
- 1.2b Demonstrate a basic knowledge and understanding of common obstacles to the flow of electricity in a locating circuit.
- 1.3a Demonstrate an understanding of common frequency measurement terms (i.e., Hz & kHz).
- 1.3b Demonstrate an understanding that most instruments offer a variety of signal frequencies and each frequency has situational advantages and disadvantages.
- 1.3c When presented with a variety of common locating scenarios (actual or simulated), demonstrate the ability to select the most effective frequency from among at least two choices.
- 1.4a Demonstrate a basic knowledge and understanding of how signal distortion is created.
- 1.4b Demonstrate knowledge of at least one technique used to recognize the presence of signal distortion.
- 1.4c Demonstrate a basic knowledge of how to overcome signal distortion and bleedover when they are detected.
- 1.5a Demonstrate a basic knowledge of the impact of system grounding on a locate; i.e., insulated versus non-insulated conductors, and well-grounded versus poorly grounded systems.

- 1.5b Demonstrate a basic knowledge of effective ground rod positioning when using conductive mode.
- 1.6a Demonstrate a basic knowledge of how soil conditions can affect a circuit.
- 1.7a Demonstrate a basic knowledge of how the relative conductivity of a utility material can affect a locating circuit.

Unit 2 -- "Use of the Transmitter"

The Locating Technician shall, given various simulated or actual site situations with different buried facilities, demonstrate a basic competency in applying an electromagnetic signal with a transmitter in both conductive and inductive methods. The Locating Technician shall be able to:

Elements of Competence:

- 2.1 Demonstrate a basic knowledge and understanding of the three methods of signal application (direct connect, close induction/clamp, and induction).
- 2.2 Demonstrate knowledge of basic transmitter operation.
- 2.3 Demonstrate proper equipment care procedures.

Performance Criteria:

- 2.1a Demonstrate knowledge and understanding of how to apply a signal by direct connection, close induction/clamp, and induction.
- 2.1b Demonstrate knowledge and understanding of the situational advantages and disadvantages of each method of signal application.
- 2.2a Demonstrate knowledge and understanding of proper transmitter use by accurately connecting to pre-selected buried facilities.
- 2.2b Demonstrate how to determine what frequencies are available on a given transmitter and how to select from among them.
- 2.2c Demonstrate how to determine what power output settings are available on a given transmitter and how to select from among them.
- 2.2d Demonstrate how to determine the relative quality of the circuit created (where applicable).
- 2.3a Demonstrate basic knowledge of proper storage and cleaning of a transmitter.
- 2.3b Demonstrate knowledge of the transmitter's power source and how to maintain useful power.
- 2.3c Demonstrate knowledge of how to check for continuity in the transmitter's leads.

Unit 3 -- "Use of the Receiver"

The Locating Technician shall, given various simulated or actual site situations with different underground facilities, demonstrate a basic competency using a receiver to identify and designate the position of those facilities correctly. The Locating Technician shall be able to:

Elements of Competence:

- 3.1 Demonstrate knowledge and understanding of common receiver antenna configurations.
- 3.2 Demonstrate knowledge of basic receiver operation.
- 3.3 Demonstrate proper equipment care procedures.

Performance Criteria:

- 3.1a Demonstrate a basic understanding of peak, null, and directional modes and how they are achieved.
- 3.1b Demonstrate a basic knowledge and understanding of the situational advantages and disadvantages of peak, null, and directional modes.
- 3.2a Demonstrate how to determine what frequencies are available on a given receiver and how to select from among them.
- 3.2b Demonstrate how to determine which antenna modes are available on a receiver and how to select from among them.
- 3.2c Demonstrate a basic knowledge and understanding of receiver gain and how to adjust it.
- 3.2d Demonstrate the ability to conduct sweeping, pinpointing, and tracing of pre-selected buried facilities.
- 3.2e Demonstrate a knowledge and understanding of how to perform an electronic or manual depth measurement.
- 3.2f Demonstrate a basic knowledge of current strength measurement and its use in troubleshooting.
- 3.2g Demonstrate a basic knowledge and understanding of how to determine conductor orientation by manual method or compass display.
- 3.2h Demonstrate the knowledge and ability to recognize and avoid air coupling.
- 3.3a Demonstrate a basic knowledge of proper storage and cleaning of a receiver.
- 3.3b Demonstrate knowledge of the receiver's power source and how to maintain useful power.

Unit 4 – “Marking Procedures”

The Locating Technician shall, given various simulated or actual site situations with different buried facilities, mark their position on the surface of the ground using the most appropriate method for the specific task after referencing any Regulatory Standard concerning such activities. The Locating Technician shall be able to:

Elements of Competence:

- 4.1 Satisfactorily delineate the approximate horizontal location of buried facilities.
- 4.2 Demonstrate knowledge and understanding of different marking systems.

Performance Criteria:

- 4.1a Demonstrate the ability to indicate the location of buried facilities within Required Federal, State, Provincial, and local regulatory requirements.
- 4.1b Demonstrate the ability to indicate the location of buried facilities as per the facility owner's standards, which may exceed Federal, State, Provincial, and local regulatory requirements.
- 4.2a Demonstrate a knowledge and understanding of Federal, State, Provincial, local, and/or APWA Uniform Color Codes.
- 4.2b Demonstrate a knowledge and understanding of the common types of marking devices and proper application methods for their use.
- 4.2c Demonstrate the ability to recognize and understand industry symbols used to indicate buried facilities.
- 4.2d Demonstrate the ability to label the buried facilities per the facility owner's requirements.

Unit 5 -- “Knowledge of Facilities”

The Locating Technician shall, given various simulated or actual site situations with different underground facilities, correctly identify those facilities and select the most appropriate method of locating such a facility. The Locating Technician shall be able to:

Elements of Competence:

- 5.1 Demonstrate a basic knowledge of the physical utility system(s) being located.
- 5.2 Demonstrate a basic understanding of the mapping system for the facility(ies) being located.

Performance Criteria:

- 5.1a Demonstrate a basic understanding of how the utility product (communications signal, petroleum, steam, water, power, etc.) travels to the consumer from a source point (power plant, head end, central office, etc.)
- 5.1b Correctly identify various common surface and subsurface structures and appropriate signal application points on the facility being located.
- 5.1c Correctly identify various underground pipe, cable, or tracer wire types commonly used on the assigned system.
- 5.1d Demonstrate a basic knowledge of the situational advantages and disadvantages of various signal application points and methods.
- 5.1e Correctly identify proper isolation and or bonding/un-bonding procedures for the facility being located (if applicable).
- 5.2a Demonstrate the ability to find a specific location on a given facility map.
- 5.2b Demonstrate the ability to differentiate between aerial and underground facilities on a facility map, as well as aerial to underground transitions.
- 5.2c Demonstrate a basic knowledge and understanding of key mapping symbology.
- 5.2d Demonstrate the ability to identify the approximate physical location of on-site facilities using a facility map.
- 5.2e Demonstrate a basic knowledge and understanding of buried facility information such as: size, material, length, year of installation, offset measurements, and pressure as well as if the facility is buried directly or in conduit/casing/sleeving.
- 5.2f Understand the facility owner’s procedure for reporting mapping errors, omissions and irregularities.
- 5.2g Recognize when buried facilities are unlocatable by conventional electromagnetic means and follow customer specific procedures when they are encountered.

Unit 6 “Visual Observation Skills”

The Locating Technician shall, given various simulated or actual site situations with different buried facilities, correctly identify visible indicators that would lead to the possibility of the existence of an underground facility. The Locating Technician shall be able to:

Elements of Competence:

- 6.1 Correctly identify the proposed excavation site.
- 6.2 Correctly identify the most common surface and subsurface structures of each utility system.
- 6.3 Correctly identify different visual evidence of the presence of underground facilities.
- 6.4 Demonstrate a basic knowledge regarding private facilities.

Performance Criteria:

- 6.1a Demonstrate a knowledge and understanding of determining the delineation of a proposed excavation site via white marks or description provided by the locate request.
- 6.2a Recognize and identify different utility plant features (i.e., utility poles, pedestals, gas meters, manhole covers, etc.).
- 6.3a Recognize areas where previous excavations may have taken place based on observable field conditions.
- 6.3b Recognize and reasonably interpret markings from previous locates.
- 6.3c Recognize potential for service structures (i.e., meters, etc.) to be located inside of buildings or houses.
- 6.3d Recognize and identify marker posts, signs, stub markers, vent pipes, valves, concrete markers, and/or curb markers.
- 6.3e Recognize and identify aerial to buried transitions.
- 6.3f Recognize and identify neighboring services which may be in conflict.
- 6.4a Demonstrate the ability to recognize and identify common private facilities and a knowledge of what procedures are to be followed when they are encountered.

Unit 7 -- “Safe Work Practices and Regulations”

The Locating Technician shall, given various simulated or actual site situations with different buried facilities, create safe working environments for the general public, excavators, themselves, and others at the work site, following Federal, State, Provincial, and Local health safety and environmental regulations and practices. The Locating Technician shall be able to:

Elements of Competence:

- 7.1 Demonstrate knowledge and understanding of safe work practices and personal protective equipment (PPE).
- 7.2 Demonstrate knowledge and understanding of the most common safety hazards associated with utility locating.
- 7.3 Demonstrate knowledge and understanding of emergency response requirements.
- 7.4 Demonstrate knowledge and understanding of the hazards surrounding confined space entry.
- 7.5 Demonstrate knowledge and understanding of a hazard communication program.

Performance Criteria:

- 7.1a Identify and wear all personal protective equipment as required by Regulatory Standards or more stringent company standards.
- 7.1b Demonstrate knowledge and understanding of how to protect themselves at the work site location, protect the general public in and around the work site location, and protect the work area.
- 7.1c Demonstrate the ability to identify hazardous environments and practice safe work methods to ensure the safety of the Locating Technician and others.
- 7.1d Demonstrate knowledge and understanding of the right to refuse any work that is unsafe to themselves or others present at the work site.
- 7.1e Demonstrate knowledge and understanding of the obligation to stop any work that is unsafe to themselves or others present at the work site.
- 7.1f Demonstrate knowledge and understanding of how to manage and channel traffic to minimize the disturbance and inconvenience to the general public within the Regulatory Standards.
- 7.1g Demonstrate knowledge and understanding of common hazards of working with the general public with an emphasis on customer relationships, conflict management, and understanding of soft skills.
- 7.2a Demonstrate knowledge and understanding of common hazards of bites and/or stings by dogs, other animals, reptiles, and insects.
- 7.2b Demonstrate knowledge and understanding of basic defensive driving techniques (i.e., National Safety Council or similar program).
- 7.2c Demonstrate knowledge and understanding of climate and weather hazards.
- 7.2d Demonstrate knowledge and understanding of hazards associated with slips, trips, falls, walking, lifting, bending, squatting, puncture wounds, and foot trauma.
- 7.2e Demonstrate knowledge and understanding of potential threats to the eyes.

- 7.2f Demonstrate knowledge and understanding of sun exposure, poison ivy and other skin threats.
- 7.3a Demonstrate knowledge and understanding of how and where to quickly access required emergency information when necessary.
- 7.3b Demonstrate knowledge of how to activate the emergency response system for the geographical area in which they locate.
- 7.4a Demonstrate knowledge and understanding of what constitutes a confined space, the potential consequences of unauthorized entrance, and those that are exempt of these requirements.
- 7.4b Demonstrate knowledge and understanding of the equipment and procedures necessary to safely enter a confined space (where applicable).
- 7.5a Demonstrate knowledge and understanding of their company's hazard communication program and safety data sheets pertaining to each hazardous chemical handled.

Unit 8 -- “One Call Regulation, Requests and Documentation”

The Locating Technician shall, given various simulated or actual site situations demonstrate a basic understanding of local One-Call regulations, as well as the documentation associated with locate requests and completed locates. The Locating Technician shall be able to:

Elements of Competence:

- 8.1 Demonstrate a basic knowledge and understanding of One-Call Center regulations and processes for the assigned area of responsibility.
- 8.2 Demonstrate knowledge and understanding of locate request documentation.
- 8.3 Demonstrate knowledge and understanding of locate response documentation.

Performance Criteria:

- 8.1a Demonstrate knowledge and understanding of the basic local One-Call Center process from customer request through ticket expiration.
- 8.1b Demonstrate knowledge and understanding of positive response requirements for Locating Technicians (where applicable).
- 8.1c Demonstrate knowledge and understanding of the various locate request priorities and response requirements in the assigned area of responsibility.
- 8.1d Demonstrate basic understanding of local One-Call Center requirements and/or how to reference them.
- 8.2a Demonstrate knowledge and understanding of locate request documentation in their geographical area of responsibility.
- 8.3a Demonstrate ability to create written/computerized documentation of a completed locate request.
- 8.3b Demonstrate a basic ability to graphically document a completed locate using a sketch, computer assisted drawing, photograph, or video.

Unit 9 -- “Excavator & Customer Relations”

The Locating Technician shall, given various simulated or actual site situations, interact with customers and others in a professional and effective manner. The Locating Technician shall be able to:

Elements of Competence:

- 9.1 Promote positive working relationships with excavators and the public.

Performance Criteria:

- 9.1a Correctly identify most commonly used excavation equipment.
- 9.1b Demonstrate a basic knowledge of how to professionally interact with excavators in the field using soft skills.
- 9.1c Demonstrate knowledge of how to professionally address common customer concerns about the locating process.
- 9.1d Demonstrate knowledge and understanding of the employer's procedure for handling an escalating conflict in the field.
- 9.1e Demonstrate knowledge of how to refer a future excavator to 811, the One-Call Center, or company customer service department.
- 9.1f Demonstrate an understanding of the importance of communicating that marking is not yet complete.
- 9.1g Demonstrate a basic understanding of the CGA's Best Practices for Locating and Marking, and the National Dig Safely Message / 811 Campaign.
- 9.1h Understand and identify the different types of excavation and their applications.

Unit 10 -- “Locating Pipelines (US)”

1. The Locating Technician shall, if locating pipelines regulated by the Department of Transportation Pipeline and Hazardous Materials Administration in the U.S., comply with 49 CFR 192 Transportation of Natural and Other Gas by Pipeline and 49 CFR 195 Transportation of Hazardous Liquids by Pipeline, including Operator Qualification requirements for all covered tasks performed during the line locating process as applicable or defined by Federal, State, and operator-identified requirements.
2. The Locating Technician, if performing covered tasks, shall comply with 49 CFR 199 Drug and Alcohol (D&A) Testing.
3. The Line Locating Technician shall comply with all Operator-identified requirements. Elements of Competency listed in Units 1-9 found in the Nulca Competency Standards may or may not conform to the specific requirements of an operator’s Operator Qualification Plan or Operations and Maintenance Manual.

Elements of Competence:

- 10.1 Ability to prove current qualification for the performance of covered tasks as defined by the operator of the regulated pipeline.
- 10.2 Ability to obtain, reference, and follow the covered task steps as defined by the operator of the pipeline.
- 10.3 Ability to recognize and react to abnormal operating conditions (AOC’s) as defined by the operator of the pipeline in the performance of covered tasks.
- 10.4 Ability to demonstrate knowledge of the Department of Transportation’s Drug and Alcohol Policies, including the requirements as they pertain to availability to perform covered tasks.

Performance Criteria:

- 10.1a Identify the Operator’s covered task(s) including and associated with line locating.
- 10.1b Produce proof, or demonstrate knowledge on how to produce proof, of current qualification on the operator’s covered tasks.
- 10.2a Obtain, or demonstrate knowledge on how to obtain, Operator’s task steps and requirements.
- 10.2b Demonstrate knowledge and understanding of how to comply with the requirements of each task step.
- 10.3a Identify the Operator’s AOCs involved in line locating and other applicable covered tasks.
- 10.3b Identify the proper reaction to the identified AOC’s, including company and emergency contact information when applicable.
- 10.4a Demonstrate knowledge and understanding of the required DOT D&A pre-employment, random, post-accident, and reasonable cause testing including how to comply with testing requests.
- 10.4b Demonstrate knowledge and understanding of when and why a Locating Technician may be unavailable to perform a covered task.
- 10.4c Demonstrate knowledge and understanding of where and to whom questions about DOT D&A questions should be addressed.



Nulca OFFICERS (2017)

President
Dennis Tarosky

Vice President
Patrick Burk

Treasurer
Bill Deckard

Secretary
Josh Hinrichs

Past President
Greg Jeffries

Legal Council
Dean Parker

Executive Director
Ron Peterson

Nulca BOARD OF DIRECTORS 2017

<u>Name</u>	<u>Company</u>
Dennis Tarosky	Utiliquest/STS/Locating, Inc.
Patrick Burk	Olameter Corporation
Josh Hinrichs	ELM Utility Services
Bill Deckard	Krylon Industrial Group
Greg Jeffries	McKim & Creed, LLC
Dan Bradley	Safe Site Utility Services, LLC
Mark Drew	Vivax
Christopher Koch	ZoneOne Locating
Marc Levesque	On Target Utility Services
Mike Marrero	USIC
Casey McCorquodale	Radiodetection
Brett Ramsey	Accumark
Terri Riesen	Marathon Petroleum
John Walko	Excavac Corp
Drew Greer	Fisher Labs



BYLAWS OF Nulca

BYLAW I OBJECTIVES

Specific Objectives of this Association are to:

- 1.4 To define, establish, and preserve the identity and the common interests of the underground facility locating industry.
- 1.2 To educate and promote better relations between members and governmental agencies, other Associations, contractors, professional engineers, manufacturers, suppliers, utility companies, one call centers, the public, and the underground facility locating industry.
- 1.3 To collect and disseminate information relative to the business in which Association members are engaged.
- 1.4 To represent the common interests of Association members at hearings, meetings, and conferences held by legislative and other public administrative bodies on national, state, and local levels. This means that the voice of the underground facility locating industry should be heard with respect to the promulgation of Federal, State, and Local codes, programs relating to the needs of communities for proper facility location, public works programs, the enactment and administration of prevailing wage laws, and such other governmental activities as may be of significance or interest to the underground utility locating industry in the United States.
- 1.5 To participate in, or support, legal actions to the extent and in the manner deemed appropriate in each case which affect the interests of the underground facility locating industry.
- 1.6 To promote ethical practices among underground facility locators and the general public.
- 1.7 To promote research for the underground facility locators locating industry.
- 1.8 To encourage safety in the conduct of work.
- 1.9 To exchange data and information with other stakeholders of the Common Ground Alliance (CGA) and to act as the voice of the stakeholder for the Association in the CGA and its committees. The Association shall also conduct this same function with other trade associations, chambers of commerce, boards of trade, and other organizations engaged in similar activities.

- 1.10 To encourage the education of Association members in the pursuit of underground facility locating in accordance with sound business principles.
- 1.11 To promote the practical application of scientific and technical knowledge related to the underground facility locating industry for the benefit of public health, safety, and comfort.
- 1.12 To promote and develop equitable insurance classifications applicable to this industry, including workers' compensation and liability protection.

BYLAW II

MEMBERSHIP

- 2.1 **Membership Classes:** Membership in the Association shall be of seven general types: (a) Locating Member (multiple tiers to be determined by the Board) (b) Locating Member/Utility Owner (by state of operation with multiple tiers to be determined by Board) (c) Vendor Member (d) National Associate (e) Honorary (f) One-Call Center (g) Individual. Membership in the Association may be obtained only by majority affirmative action of the Board on written application accompanied by the appropriated dues for the current dues period.
- 2.2 **Locating Member:** Locating Member shall consist of any person, firm, or corporation who locates underground facilities to provide above ground location of these facilities in response to locate requests generated by the owner or operator of the facility, government entity, or a one-call center in accordance with the provisions of the Constitution and Bylaws. Locating Members shall be entitled to vote and hold office.
- 2.3 **Locating Member/Utility Owner:** A Utility Locating Member/Utility Owner shall be an underground facility owner who provides above ground location of their facilities in response to locate requests generated by a government entity or a one-call center in accordance with the provisions of the Constitution and Bylaws.
- 2.4 **Vendor Member:** A Vendor Member shall be a person, firm, or corporation who or which is directly involved in the underground facility locating industry as supplier of equipment, materials, service provider, vertical engineering, and design surety, or other stakeholder group as determined by the Board of Directors. Vendor members are eligible to vote on Association matters which come before the Annual Meeting except for those matters determined by the President to be restricted to voting by Locating Members only.
- 2.5 **National Associate Member:** A National Associate Member shall be an underground facility owner, but not a Locating member/utility owner, that is concerned with underground damage prevention. National Associate members are eligible to vote on Association matters which come before the Annual Meeting except for those matters determined by the President to be restricted to Locating members.
- 2.6 **Honorary Member:** A person who has performed notable service for the Association, industry, or the United States may become an Honorary member of the Association.

Honorary members shall be entitled to any of the privileges of membership without the payment of dues but shall not be entitled to vote or hold office. Honorary membership shall be valid until death unless suspended or revoked for good causes by unanimous vote of the Board present and voting at any regularly constituted meeting.

- 2.7 **One-Call Center:** A One-Call Center member shall be a call center that processes excavator locate requests and where applicable forwards those requests to contract locators.
- 2.8 **Individual Member:** Individuals interested in the underground facility locating industry may apply for individual membership. Individual members may collectively elect one (1) member to the board.
- 2.9 **Admission:** Membership may only be confirmed by the board. If a firm is admitted to membership then any other member of such firm may represent the firm at any meeting of members.
- 2.10 **Members' Duties:** Each member is obligated to comply with the Articles of Incorporation and the Bylaws and to meet all financial obligations to the Association in the time and manner specified by the Board. Each member is expected to cooperate fully with appropriate officials of the Association with respect to Association matters including official inquiries and requests concerning compliance with the terms of the Articles of Incorporation and the Bylaws of the Association.
- 2.11 **Members' Rights and Privileges:** The privileges of membership in this Association includes the right to participate in Association activities, to secure the service provided the Association, and to publicize such membership, including the use of the Association's emblem, so long as the emblem is not utilized in a manner that will reflect adversely upon the Association. Contractor members shall be entitled to serve on the Board in accordance with the nominating and election criteria. National Associate members are eligible to vote on Association matters which come before the annual meeting except for those matters determined to be restricted to Contractor members only.
- 2.12 **Designated Representative:** If any company or corporate representative shall be elected as an officer or Director of this Association, then the duties of such office shall be performed by the individual so elected and may not be assumed by any other officer or employee of that member company or corporation. Persons authorized to act for a member company or corporation shall be so designated in writing by a person authorized to act for the company or corporation and the last designation of record shall determine company or corporation in the Association.
- 2.13 **Dues and Assessment:** The Board is authorized to establish dues payment procedures and penalties where needed. Dues for each fiscal year shall be established by a three-fourths (3/4) vote of those members of the Board.

BYLAW III
TERMINATION OF MEMBERSHIP

- 3.1 **Dues Payment:** A member becomes delinquent and is considered to have voluntarily resigned if appropriate dues are not paid within thirty days after the annual due date. A membership interest of a member shall automatically expire if the member fails to pay any dues assessed without further action by the Association within the thirty (30) day period set forth above.
- 3.2 **Membership Resignation:** Any member of the Association may resign by giving written notice. If a member's dues are not paid the member shall be considered to have voluntarily resigned and relinquished all rights to membership as of the date of nonpayment. The resignation, expulsion, or suspension of any member shall not cancel any debt owed. A member who has resigned, been expelled, or been suspended may request a waiver of any debt owed. Such request must be provided in writing to the Treasurer of the Association. Such requests will be reviewed by the Board at the next meeting. The member shall be notified as to the Board's decision within ten days following the meeting. Approval of such requests requires a simple majority vote of the Board members in attendance at a Board meeting.
- 3.3 **Member Expulsion:** A member may be expelled by three-quarters (3/4) action of the Board.
- 3.4 **Readmission of Members:** A member who has been expelled may not be readmitted for at least one year and then only upon proof that the member is eligible for membership as a new member.
- 3.5 **Return of Property:** On termination of membership the member is obligated to return promptly all properties of the Association.

BYLAW IV
DUES AND ASSESSMENTS

- 4.1 **Dues Structure:** The Board is authorized to approve a dues structure for the Association, with one or more categories of dues, by action approved by three-fourths (3/4) of the Board.
- 4.2 **Dues Cycle:** Dues shall be billed annually. Members admitted during the course of the fiscal year shall pay dues for an entire year.

BYLAW V
BOARD OF DIRECTORS

- 5.1 **Board Composition:** The number of directors shall be not less than three (3) but may be more as determined by resolution of the Board.
- 5.2 **Voting Rights:** Each director shall be entitled to one vote. There shall be no cumulative voting. Voting may be by remote communication. Remote communication includes electronic communication, conference telephone, video conference, the internet, webinars, use of the Association's website, and any other similar method of conveying information.
- 5.3 **Year of Service:** Members of the Board, all of whom must be members of the Association, shall be installed for a period of one year, or until their successor is elected and takes office.
- 5.4 **Past President:** The Past President shall continue to hold the position of Past President so long as he or she (1) remains active in the industry; and (2) until the current President becomes the immediate Past President.
- 5.5 **Removal of Directors:** Any Director of the Association may be removed with or without cause at a regular meeting or a special convention called for the purpose of considering such action by a vote of three-fourths of the members of the Association registered as being in attendance at the meeting.
- 5.6 **Meeting Schedule:** The Board shall determine the schedule of meetings for the purpose of attending to the discharge of the duties of their offices.
- 5.7 **Quorum:** A simple majority of the members of the Board shall constitute a quorum.
- 5.8 **Written Action:** Any action that may be taken at a meeting of the Board may be taken without a meeting when signed by the number of directors that would be required to take the same action at a meeting of the Board at which all directors are present. Between meetings of the Board, any questions may be submitted to the Board for ballot by mail or any form of remote communication.
- 5.9 **Compensation and Reimbursement:** Officers, Directors, Committee Chairmen and Committee members shall not receive any salary for their services. Travel expenses may be reimbursed to those attending meetings or approved in accordance with expense reimbursement policies established by the Board.
- 5.10 **Resignation:** A director may resign at any time by giving written notice to the Association. A resignation shall take effect at the time specified in the resignation or upon receipt by the Association if no time is specified. Acceptance of a resignation shall not be necessary to make it effective.
- 5.11 **Vacancies:** Any vacancy or newly created position in the Board shall be filled by a vote of the majority of the remaining Directors, though less than a quorum, and each director so chosen shall hold office until the next election and until his or her successor shall be duly elected and qualified.

- 5.12 **Action of the Board:** Unless otherwise specified in these Bylaws for actions requiring 3/4 vote of the entire Board, any board action shall take action by the affirmative vote of a majority of the directors present at a duly held meeting.
- 5.13 **Waiver of Notice:** A director may waive notice of a meeting of the Board. A waiver of notice by a director entitled to notice is effective whether given before, at, or after the meeting, and whether given in writing, orally, or by acceptance. Attendance by a director at a meeting is a waiver of notice of that meeting, unless the director objects at the beginning of the meeting to the transaction of business because the meeting is not lawfully called or convened and does not participate in the meeting.
- 5.14 **Special Participation:** Members of the Board, or any committee appointed by the Board, may participate in a meeting by means of remote communication. Such participation shall be considered presence in person at such meeting for purposes of notice and quorum requirements.
- 5.15 **Advanced Consent or Opposition:** A director may give advance written consent or opposition to a proposal to be acted upon at a Board meeting. Such consent or opposition shall not constitute presence at the meeting for quorum purposes. The proposal acted upon at the meeting must be substantially the same or have substantially the same effect as the proposal to which the director has consented or objected for that consent or objection to be considered effective.
- 5.16 **At-Large, Ex-Officio, Honorary, and Advisory Directors:** The Board may by resolution designate one or more at-large, honorary, ex officio, or advisory directors who shall have such rights, voting or otherwise, as are conferred by the Board.
- 5.17 **Special Meeting:** Special meetings of the Board may be convened by the President or any two (2) Directors.

BYLAW VI **OFFICERS**

- 6.1 **Officers.** The officers of the Association shall consist of a President, a Vice- President, a Secretary, a Treasurer, and such other officers as may from time to time be determined by the Board.
- 6.2 **President.** The President shall serve for a term of one year and shall be the chief executive officer of the Association and at such time as the Board is not meeting shall be charged with the general control and management of the business of the Association and shall perform all duties incident to the office, as well as such additional duties as the Board may direct or prescribe. The President may sign and execute authorized bonds, contracts, checks or other obligations in the name of the Association in accordance with procedures contained in the Articles of Incorporation or the Bylaws or established by the Board. The President shall also keep the Board fully informed and shall freely consult with them concerning the business of the Association and from time to time shall make such recommendations regarding the establishment and implementations of policies germane

to the objectives and business of the Association. The President shall conduct and preside at all meetings of the Board and at all Annual and Special Meetings of the Association. This Section shall not be construed, however, to prevent the President, during absences from the offices of the Association, from delegating the duties and responsibilities incident to the day-to-day conduct of the Association's business to assistants or other subordinate members of the Association's official staff.

- 6.3 **Vice President:** The Vice President shall assist the President in such a manner as they shall see fit so as to become fully acquainted with the duties of those offices. The Vice President shall automatically succeed to the office of President. In the event of the unavailability or the temporary incapacity of the President to act, the Vice President shall act as President.

BYLAW VII **ELECTION OF OFFICERS AND DIRECTORS**

- 7.1 **Board Composition:** The Board shall consist of the immediate Past President who remain active in the industry, all current officers, two Locating Members, two National Associate members, two at-large directors, one Individual Member, and two ex-officio members.
- 7.2 **Succession of Office:** The Vice President shall automatically succeed to the office of President at the convention following election as Vice President.
- 7.3 **Term of Office:** The elected officers of the Association and Directors who have been duly appointed to vacancies shall hold office until their respective successors have been duly qualified and elected. In case of temporary absence or disability of any officer other than a Director, the Board may appoint a person to perform the duties of such officer during such absence or disability. In case a vacancy shall occur in any office of the Association from any cause, the Board shall appoint a person to perform the duties incident to the office until the same shall be filled by election by the members at the next Annual Meeting or at a special meeting called for that purpose.

BYLAW VIII **COMMITTEES**

- 8.1 **Committee Structure:** Committees other than those which are specifically established in these Bylaws may be established by the Board. The Board shall confer such powers as they may deem necessary.
- 8.2 **Standing Committees:** There shall be established if so determined by resolution of the Board one or more of the following standing committees:
- (a) **Membership Committee:** This committee, composed of no less than three members, shall have jurisdiction over the development of membership in the Association. It shall review and make recommendations with respect to all matters relating to membership in the Association, such as, the appropriateness of classifications held by members and all other matters relating to the acquisition and retention of membership in this Association.

- (b) **Executive Committee:** This Committee may, in its discretion, delegate to such committee the power to receive and to pass all applications for membership, to create rules governing applications for membership, and to change, alter, or amend such rules from time to time as the business of the Association may require.
- (c) **Finance Committee:** This committee, composed of no less than three members, shall have jurisdiction over the financial condition and requirements of the Association and shall keep the Board posted thereon, shall have review jurisdiction over the collection and disbursement of funds and review operation of the budget.
This committee is authorized to make an orderly review of Association expenditures to ascertain whether they are within budget. It is within the jurisdiction of this committee to retain a Certified Public Accountant to audit the accounts of the Association for each year.

BYLAW IX **AMENDMENTS**

- 9.1 **Amendment Process:** These Bylaws may be restated, amended, altered, or replaced and new Bylaws may be adopted by affirmative vote of three-fourths (3/4) of the Board of Directors. Upon approval of any amendment or modification to these Bylaws, the Association shall notify the members by remote communication of the change or post the changes or the revised Bylaws on its website.

Amended _____ Board Meeting