

11-C Damage Prevention

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1.0 SCOPE

This chapter describes the procedures to implement DENC and DESC's Damage Prevention Program in an effort to prevent *pipeline* damage due to excavation activities and prevent hazardous leaks or releases of natural gas from pipeline facilities. For purposes of this program, "excavation activities" include excavation, backfilling, boring, tunneling, blasting, demolition of aboveground structures and other forms of earth moving operations.

2.0 REGULATORY REFERENCES

49 CFR Part 192 §§ [192.614](#), [192.616](#), [[ADB-2021-01](#)]

South Carolina [Chapter 36. South Carolina Underground Facility Damage Prevention Act](#)

3.0 PROCEDURE [192.614] [192.616]

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3.1 One Call System Requirements

Systems are in place within the states comprising DENC and DESC's operating territory whereby any person or party contemplating excavating or blasting on public rights of way are able to call a toll free number and are put in contact with companies having underground facilities in the area of the proposed work. These systems are sponsored by the major entities within the state that have underground utilities through membership dues.

State Specific: South Carolina

(a) Damage Prevention or One Call system

DESC is an active member of the South Carolina 811 (SC811). "Excavation activities" include excavation, blasting, boring, tunneling, backfilling, the removal of above ground structures by explosive or mechanical means, and other earth moving operations.

SC811 is a "one-call" system operating in the state of South Carolina and encompasses the entire DESC gas system. DESC periodically provides SC811 with updated maps showing additional areas where gas mains have been extended.

(b) SC811 receives and records notifications of planned excavation activities. If gas facilities are located in the general area of planned excavation, SC811 will inform the caller of the type of temporary marking to be provided and how to identify the markings. SC811 will transmit the notification to the appropriate gas operations center for handling. The notification should include the following:

1. Name of person giving notification
2. Name of entity that will be conducting excavation activities
3. Telephone number for contacting entity
4. Location of the planned excavation activities
5. Date and time of commencement of excavation activities
6. Type and scope of excavation activities

SC811 Member Code	Description (See Map for Locations)
scg02	Gas Distribution
scg10	Gas Distribution
scg11	Gas Distribution
scg12	Gas Distribution
scg14	Gas Distribution
scg50	Gas Distribution
scg52	Gas Distribution
scg54	Gas Distribution
scg55	Gas Distribution

scg75	Gas Distribution
scg76	Gas Distribution
scg83	Gas Distribution
scg84	Gas Distribution
scg85	Gas Distribution
scg86	Gas Distribution
scg88	Gas Distribution
scg89	Gas Distribution
scg94	Gas Distribution
scghp02	Gas High Pressure
scghp05	Gas High Pressure
SCGHP70	Gas High Pressure
scghp60	Gas High Pressure
scghp65	Gas High Pressure
scghp90	Gas High Pressure
scgt02	Gas Transmission
scgt05	Gas Transmission
scgt10	Gas Transmission
scgt11	Gas Transmission
scgt12	Gas Transmission
scgt14	Gas Transmission
scgt20	Gas Transmission
scgt35	Gas Transmission
scgt42	Gas Transmission
scgt52	Gas Transmission
scgt54	Gas Transmission
scgt55	Gas Transmission
scgt60	Gas Transmission
scgt65	Gas Transmission
scgt70	Gas Transmission
scgt76	Gas Transmission
scgt83	Gas Transmission
scgt84	Gas Transmission
scgt85	Gas Transmission
scgt86	Gas Transmission
scgt88	Gas Transmission
scgt89	Gas Transmission
scgt90	Gas Transmission
scgtn87	Gas Transmission
scgts87	Gas Transmission
scgz02	Gas Distribution - Utiliquest
scgz05	Gas Distribution - Utiliquest
scgz20	Gas Distribution - Utiliquest
scgz23	Gas Distribution - Utiliquest
scgz35	Gas Distribution - Utiliquest

scgz60	Gas Distribution - Utilquest
scgz65	Gas Distribution - Utilquest
scgz70	Gas Distribution - Utilquest
scgz71	Gas Distribution - Utilquest
scgz80	Gas Distribution - Utilquest
scgz87	Gas Distribution - Utilquest
scgz90	Gas Distribution - Utilquest
SCAFZ97	Fiber - statewide



(c) 360 Positive Response

In accordance with the 2012 South Carolina Underground Utility Damage Prevention Act, all member utilities are required to notify South Carolina 811 that the member utility has marked the approximate location of its underground facilities. The five parts to complete the 360 Positive Response:

1. A locate notice has been entered into the Positive Response System.
2. Member facility owner or locator provides a response to the Positive Response System.
3. Excavator checks the Positive Response System.
4. Excavation work starts and is completed.
5. Excavator closes the notice when job has been completed.

SC811 Positive Response Code	Description
1	Excavator closed notification ticket. Work Completed.
2	Notification ticket closed by system.
10	No Conflict.
11	Member operator not in area of excavation.
20	Marked.
30	Locate not complete - Unable to contact excavator.
31	Insufficient Information - please call SC811 and provide additional or correct information.
40	Locate not complete; could not gain access to property.
50	Critical facility not marked. The utility owner or their designated representative has contacted the excavator and agreed to a period that an owner representative must be present during excavation to identify the unmarked facility and/or monitor the excavation.
55	Critical facility marked. The utility owner or their designated representative has contacted the excavator and agreed to a period that an owner representative must be present during excavation to identify the unmarked facility and/or monitor the excavation.
60	Locator and Excavator have agreed and documented marking schedule.
80	Facility Owner's Master Contractor is responsible for locating facilities.
90	Subaqueous Facilities. 10 days to locate or communication required.
100	Homeland Security Issue. Request Denied. Facility Owner shall contact excavator.
110	Extraordinary circumstances. Communication Required.
120	Design request - marked.
121	Design request - facility printed provided.
122	Design request - meeting required.

	denied. Facility Owner shall contact.
999	Member has not responded by the required time.
LE	System closed after ticket expires.
CAN	Cancel, closed by system.

(d) Detailed Analysis

A detailed analysis will be performed by the Damage Prevention Department by investigating excavation damages to determine which excavators are at fault via negligence and for failing to call 811 for a locate ticket. The review will be used by the Damage Prevention Department to determine which form or communication will take place. Damage Prevention Specialists will be responsible for meeting with local operations leadership to make the final determination of which failure to call damages will be referred to the state of South Carolina Attorney General's office for a fine. Damage Prevention Specialists will maintain a communication log of excavators who have damaged our facilities. Current acceptable forms of outreach communication are:

- Damage prevention letter
- Safety brochure
- Face to face meeting
- Group presentation to the front line excavators.

The communication with the excavator should be documented on the RP1162 communications report or other approved record.

Information to be supplied to SC811 Regarding Proposed Work by DESC

- In all cases, other than emergencies, notice of not less than three full business or more than 10 business days shall be given to SC811 of DESC's intent to dig.
- In advance of all work within each area, notice of excavation will be given by calling SC811 or via web ticket entry. This includes service installations as well as mains. Emergency work should also be reported to SC811. The law requires that we call prior to any excavation, whether it is new construction or maintenance.

3.2 Marking of Facilities

- DENC and DESC have the responsibility of ensuring that lines will be marked as follows before the excavation activity begins, as far in advance as practical.
- Colored flags, painted wooden or plastic stakes, or paint may be used to identify the DENC and DESC facilities. The color yellow shall be used to mark gas lines. Listed below are the APWA standard colors for marking underground facilities.

Facility Type	Marking Color
Gas	Yellow
Communications	Orange
Water	Blue
Electric	Red
Sewer/Storm Drains	Green

Proposed Excavation	White
Reclaimed Water	Purple
Temporary Survey Marking	Pink

State Specific: South Carolina [SC 58-36-70]

If the pipe size is greater than three (3) inches, the dimensions shall be indicated at least every 25 feet

- (c) All markings will run parallel with the pipe and be located as close to the center of the pipe as possible.
- (d) Tees, service lines, etc. will be marked as appropriate.
- (e) If field locates do not match mapping or what was expected contractor locators should notify Damage Prevention Specialist, and DESC personnel will notify their supervisor or manager. All required information should be provided to Engineering so that maps and other documentation shall be updated as needed.
- (f) Emergency Locate Requests:
 - (1) Local operation offices shall designate personnel to receive email notifications of emergency locates.
 - (2) Each emergency ticket shall be immediately reviewed and determined what actions are appropriate.
 - (3) If the emergency locate is performed it *must* be updated as soon as practical through positive response.

Note: Keep good customer relations in mind when marking lines. For example, avoid marking a private sidewalk, driveway or landscaping with paint.

- (g) When excavating inside a station boundary or fence, evaluate if sensing lines are buried. If so, they must be located and marked before beginning excavation.

3.3 Requests for Locations From Parties Other Than SC811

The operation of a one-call systems within the DENC and DESC operating territory will not eliminate all location requests from outside sources. However, when callers notify DENC and DESC of anticipated digging activities, they will be instructed that current laws require that they notify the respective one-call system (SC811) by phone, so that other utilities in the area may be notified.

3.4 Damage Prevention Awareness and Education [[192.616](#)]

DENC and DESC's Pipeline Public Awareness Program provides for annual communications to the affected public along our pipelines and area excavators that are intended to protect the safety of people living and working near pipelines. These communications contain audience specific damage prevention messages designed to:

- Affected Public – 1) Raise their awareness that they live and/or work near buried pipelines; 2) Educate them on how to assist in preventing pipeline incidents by following safe digging practices including the appropriate use of a One-Call system; 3) Provide them with DENC and DESC's emergency contact information.
- Excavators – 1) Educate them on how to assist in preventing pipeline incidents by following safe digging practices; 2) Educate them on the existence and purpose of One-Call systems and how to properly utilize them; 3) Make them aware of the hazards associated with a natural gas release; 4) Provide them with DENC and DESC's emergency contact information.

State Specific: South Carolina

- [Public Awareness Plan](#) (PDF file)

3.5 Pipeline Inspection During Excavation Activities

Any pipeline that DENC and DESC has reason to believe could be damaged by excavation activities should be inspected as follows:

(a) Frequency

When DENC and DESC has reason to believe that a buried pipeline could be damaged by excavation activities, inspections will be performed as frequently as necessary during and after the excavation activities to verify the integrity of the pipeline. Consideration will be given to maintaining field contact with the excavator during excavation activities to avoid and promptly resolve any problems that may arise. A record will be kept of all such inspections. In the case of blasting, the final inspection will include a leakage survey.

(b) Types of inspection needed:

- (1) Threaded and coupled steel pipelines - DENC and DESC should pay particular attention during and after excavation activities to the possibility of *joint* leaks and breaks due to settlement when excavation activities occur near threaded coupled steel lines.
- (2) Plastic and steel pipelines - DENC and DESC personnel should inspect plastic and steel pipelines for coating damage and gouges, when necessary, before the exposed pipeline is back-filled. Exposed pipelines shall be documented on proper form or within Bell Hole App.
- (3) Blasting - Upon completion of blasting activities, leakage surveys shall be conducted on pipelines that may have been affected by blasting. Inspect and check all facilities and appurtenances to ensure safe conditions.

(c) Records - Retain all hard copies of the records of inspection and surveys for a period of at least 5 years.

(d) Restoration - DENC and DESC personnel will continue surveillance for a reasonable period of time after excavations to monitor for excessive settlement of backfill and for damage caused by other related construction activity.

3.6 Blasting

- (a) When blasting activities are planned to take place in close proximity to natural gas lines, additional procedures should be followed to ensure that DENC and DESC's facilities are not damaged.

For purposes of this section, the following definitions are used:

- **Ground vibration** - the movement of earth caused by the shock wave of an explosive blast
- **Peak particle velocity (ppv)** - a method of measuring ground vibration, it is a measure of the instantaneous velocity of earth particles taken just after a blast; there are three components of ppv:
 - **Longitudinal particle velocity** - a measure of the ground vibration in a direction along the pipeline
 - **Transverse particle velocity** - a measure of the ground vibration in a direction perpendicular to the pipeline
 - **Vertical particle velocity** - a measure of the ground vibration in the vertical direction
- **Seismograph** - a device used to measure peak particle velocity; all seismographs must be approved for use within the South Carolina Department of Labor, Licensing, and Regulation's "Explosives Law and Regulations"
- **Blasting plan** - a descriptive plan and/or sketch of the blasting to occur that is prepared by the blasting contractor. The plan should show planned charges and shots and their locations relative to DENC and DESC's facilities. The plan should be designed to limit ppv to 2.5 inches per second or less.

- (b) Any proposed blasting in the proximity of DENC and DESC's natural gas mains as described in (d) below must be approved in advance by DENC and DESC. A [blasting plan](#) may be required of blasting contractors working in the area of DENC and DESC natural gas facilities, especially critical lines or equipment. The blasting plan must be designed to limit peak particle velocities to 2.5 inches per second at or near DENC and DESC facilities.
- (c) Only licensed blasting contractors will conduct blasting operations in proximity of DENC and DESC's natural gas facilities.
- (d) A DENC and DESC representative will monitor any blasting activities that occur within a roadway right-of-way in which there is a natural gas *main*. If on private right-of-way, an DENC and DESC representative will monitor any blasting activities that occur within 100 feet of DENC and DESC's natural gas facilities.
- (e) A seismograph must be used, unless a waiver is granted, to monitor all blasting activities that occur within 25 feet of DENC and DESC's underground natural gas facilities. It is the blasting contractor's responsibility to provide this equipment.
- (f) A seismograph must be used, unless a waiver is granted, a [Blasting Report](#) will be required of all blasts as described in (e) above. It should be signed by the blaster upon completion, indicating his/her agreement with the information contained in it.
- (g) Seismic data should be recorded on the [Blasting Report](#) or printed directly from the seismograph to show particle velocity in all three planes.
- (h) The seismograph's transducer should be located just above the surface of the pipe below ground. It should be firmly coupled to the ground by compaction above it.
- (i) The maximum particle velocity allowable as measured by a seismograph is 2.5 inches per second in any of the three planes.
- (j) The blaster should be cautioned when seismic readings exceed 2.5 inches per second.
- (k) If the blaster exceeds 4.0 inches per second ppv, the inspector may notify the authority having jurisdiction in the roadway right-of-way and shut down all blasting operations. The buried pipe should be exposed and inspected for any damage in the area of the blast.
- (l) In no cases should company employees handle or transport explosives of any type owned by the blasting contractor.
- (m) In no cases should company personnel make recommendations to the blaster on setting charges or designing the blast.
- (n) Blasting Reports should be filed and retained for 5 years.

- (o) A leakage survey must be conducted after completion of all blasting activities.

3.7 Trenchless Technology Damage Prevention Guidelines

The use of directional drilling and other trenchless technologies dictates the use of additional precautions to prevent substructure damage to existing gas pipelines. Locate requests are required as follows:

- (1) When it is anticipated that a trenchless installation will cross or come within 10 feet of DENC and DESC pipeline, expose the pipeline to determine its precise location to ensure adequate separation is maintained during drilling of the pilot bore and back reaming operations.
- (2) When a trenchless installation will run parallel to an existing pipeline, expose the pipeline (pothole) or use locating technology to verify that adequate clearance is maintained during drilling of the pilot bore and back reaming operations.
- (3) Where potholes are used for visual inspection, they should be placed at intervals that will ensure adequate clearance is maintained during boring operations. Factors to consider for pothole intervals include the following:
 - (i) Proximity of proposed bore path to the pipeline facilities
 - (ii) Type of facility (existing and proposed)
 - (iii) Type of soil
 - (iv) Size and controllability of the bore

3.8 Additional Requirements for Transmission, M-Line, and Critical High-Pressure Distribution Pipeline Encroachments

- (a) In addition to standard **OQ** locator training, the training required for individuals locating transmission and high pressure distribution pipelines will include the administrative aspects of the locating and encroachment procedures outlined in this procedure.
- (b) All locate requests involving transmission pipelines will generate a separate locate ticket to be located and/or verified as properly located by a company employee.
- (c) High pressure distribution or M Line locate requests should be located and/or verified by a company employee.
- (d) The locator must communicate directly with the excavator who requested the locate to determine whether a possible crossing/conflict exists between the pipeline and the proposed excavation. If a conflict may or will exist, the locator must take the following steps:
- (e) The locator must inform the party that all excavation around transmission and high pressure distribution and M Line pipelines must be monitored by the Company in accordance with applicable laws and policies. The locator must then arrange a schedule for the excavation or arrange to be notified with ample notice prior to the actual crossing taking place to comply with this requirement.
- (f) The locator should mark DENC and DESC's facilities and document as required. If another employee, different than the locator, will follow back up on the excavation and/or witness the crossing, any relevant documentation must be provided to that employee(s) along with the excavator's contact information and schedule for the excavation to occur.
- (g) Transmission pipelines and high pressure distribution and M-Line crossings, including crossings on private and public right-of-way, must be witnessed by a qualified company employee to ensure that all work was completed without damage to the pipeline and in accordance with the terms of the permit. A qualified company employee must also follow back up with the excavator and site as necessary until all potential conflicts/crossings are complete.

State Specific: South Carolina

Reports should be maintained throughout this process to document ongoing inspections of said work. This documentation should be managed as normal in the local offices.

- (h) Transmission pipeline and M Line crossings of high pressure distribution and M Line pipelines must also be witnessed by a qualified company employee to ensure that all work was completed without damage to the pipeline and in accordance with the terms of the permit.
- (i) Any time a pipeline is found to be damaged, has damaged coating, or requires any remedial action, the witnessing employee must complete the appropriate documentation. The original must be retained in the local office and a copy forwarded as needed.
- (j) Integrity Management Department must be made aware of any damage to a line and/or coating. In addition to this communication the report and a drawing of any repairs and repair locations must be forwarded to the engineering department. This drawing must concretely identify the specific location on the pipeline of any fittings, coating repairs, as well as investigative information regarding how the line was damaged. This information is crucial to managing the Company's Integrity Management efforts.
- (k) Engineering Services and division level management must be made aware of any known or potential un-witnessed crossings and locations, as well as any other suspected locations where pipe or coating damage may have occurred. Integrity Management will evaluate these locations for assessment to include excavation at the site or an over-the-line survey performed as necessary.
- (l) The employee who witnesses the crossing must complete the appropriate documentation for all crossings including those covered by permanent or temporary license agreements and for those not requiring a permit.

State Specific: South Carolina

This form should be forwarded to the ROW Coordinator after completion of the crossing. The ROW Coordinator will have the crossing placed on GIS and/or strip maps as necessary and this should be accomplished within 30 days.

3.9 Encroachments

- (a) For the purpose of managing encroachments, the following procedures shall be utilized for all pipelines located on private right of ways. These procedures are very prescriptive in order to comply with the rigorous requirements of Integrity Management and associated efforts to document pipeline risks and operating histories.
- (b) The locator must arrange with the excavator to gather all necessary information and drawings in order that a temporary or permanent License Agreement may be prepared. A license agreement is required if the Company's pipelines reside in private right-of-way. It is not required for overhead utility crossings that are at a sufficient height (minimum 20 feet) as to allow our construction and maintenance equipment access.
- (c) Verbal encroachment agreements should be discouraged, and should be reviewed and approved. However, operations management can give verbal approval for emergency types of excavations within the right-of-way, provided that these excavations are also witnessed as necessary when in the proximity of the pipeline. There may also be times when in the interest of public relations or the regulation requirements of other utilities, a verbal agreement may be appropriate with a temporary or permanent encroachment to follow.

- (d) If an employee discovers any unauthorized or un-permitted excavation within DENC or DESC owned private right-of-way, that employee must communicate with the excavator regarding the company's requirements for construction on pipeline rights-of-way. Specifically, this includes obtaining a properly executed permit and strict adherence to the terms of the permit, to include contacting SC811 prior to any excavation. Again, no third party excavation can take place adjacent to the pipeline without a proper agreement and a DENC and DESC witness, when the excavation is within the DENC-owned right of way.

State Specific: South Carolina

1. The locator must gather the proper information (including the excavator's name, address, and telephone number, and any sketches and/or drawings) and complete a License Agreement Application. Information should in turn be forwarded to Engineering for preparation of a permanent license agreement and signed by the Vice President or delegate. Information for a temporary agreement should be forwarded to the division's Engineering Manager. These agreements are not complete until executed by both parties; as such, excavation cannot proceed until these agreements have been executed by both parties.
2. System Integrity & Support shall maintain a spreadsheet, updated quarterly, that tracks the status of all License Agreements. Right-of-Way Crossing Forms are required to close out the license agreement.

4.0 TRAINING/QUALIFICATIONS

See the appropriate system Operator Qualification Program.

5.0 DOCUMENTATION/FORMS

State Specific: South Carolina

- [Damage Prevention Report](#) (PDF file)
- [Blasting Report](#) (PDF file)
- [Encroachment Permit Application](#) (XLS file)
- [Temporary Right-of-Way Encroachment Permit](#) (PDF file)
- [Right of Way Crossing](#) (PDF file)
- [Exposed Pipeline Examination Report \(Form OM-402\)](#) (PDF file)
- [Add/Modify Aboveground Pipeline Record](#) (PDF file)
- [Add/Modify/Verify Transmission Record](#) (PDF file)

6.0 RELATED DOCUMENTS

None at this time.

7.0 APPENDICES

State Specific: South Carolina

- [Public Awareness Plan](#) (PDF file)

(UNCONTROLLED IF PRINTED)