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Scene Control Procedures

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Questar Standard Practice

5-00-08 UNDERGROUND GAS LEAK PROCEDURE

1. PURPOSE

1.1. This Standard Practice describes the procedures to be followed when responding to reports of underground gas leaks. This Standard Practice will be followed by personnel trained in leak search, detection and repair.

2. REFERENCES

2.1. Emergency Plan.

2.2. Standard Practice 8-12-01, "Portable Fire Extinguishers."

2.3. Standard Practice 8-13-01, "Respiratory Protection Program."

2.4. Standard Practice 8-10-03, "Selecting, Using and Maintaining Fire Suits."

2.5. Standard Practice 5-00-02, "Repair Procedures for Damaged Plastic Pipe."

2.6. Standard Practice 5-00-03, "Repairing Steel Pipe."

2.7. Standard Practice 5-20-01, "Extracting Natural Gas from the Ground and Associated Facilities."

3. DEFINITIONS

3.1. Emergency Gas Leak – Situations requiring evacuation and/or immediate repair (A or H Leak) such as gas detected in or within 10 feet (20 feet during winter season) of a house or building; any gas registering a stable reading on a CGI (approximately 2% or more) detected within a duct system, such as, sewer, telephone, storm drain, or power; or situations requiring immediate repair only (A Leak), with a stable 100% reading obtained on the combustible gas indicator at any single location.

3.2. CGI – Combustible gas indicator.

3.3. Backpack – A portable flame ionization leakage detector.

3.4. Background Level – Normal interference gases picked up in atmosphere being checked by backpack or mobile detectors. Background levels vary with atmosphere checked. In normal atmospheres, using flame ionization detectors, reads will vary from 10 to 1000 PPM and excessively high concentrations of an interference gas could read as high as 5000 PPM.

3.5. Class A Leak – Immediate attention required, such as a line broken and blowing, any indication of gas near or in a home or building, a high volume leak or any leak considered hazardous because of its location.

3.6. Class H Gas Leak – An event (emergency or Class A Leak) that involves a release of gas from a natural gas pipeline resulting in one or more of the following:

3.6.1. A death, or personal injury necessitating in-patient hospitalization.

3.6.2. Estimated property damage, including cost of gas loss, of Questar Gas Company or others, or both, of $50,000 or more.

3.6.3. An event that is significant, in the judgment of management, even though the event did not meet the criteria of paragraphs 3.6.1. or 3.6.2.

3.7. Limit of Leaks – The extent gas has migrated from a leak as determined by taking readings with a CGI or backpack.

4. SAFETY

4.1. Ensure maximum precautions are taken for the safety of the general public and Company personnel when a gas leak is detected. When a gas leak is determined an emergency, or when determining action priorities and considerations and for obtaining and submitting information for a DOT report, follow the emergency procedures referenced in paragraph 2.1.

4.2. Ensure all sources of possible ignition are eliminated until source of leak is determined and made safe.

4.3. Keep all unnecessary personnel out of gas leak area until area is declared safe.

4.4. Ensure fire extinguisher, respiratory aids, life lines, fire suits and other safety aids are available for usage if needed (refer to paragraphs 2.2 through 2.4).

5. ORGANIZATION

5.1. During emergency underground leak conditions, use the following organizational outline:

5.1.1. The senior construction employee at the scene, or his designate, will be in charge for gas leaks apparently originating upstream of the meter.

5.1.2. Personnel from Technical Services or other departments will be assist when requested or dispatched.

5.1.3. The senior construction employee at the scene will make the operational decisions, including manpower requirements, individual assignments, coordination and supervision of activities, liaison with other parties and reports.

5.1.4. Where gas has entered or is around a structure, the senior construction employee at the scene will coordinate with the technical service technician in evacuation houses or buildings.

6. EMERGENCY LEAK REPAIR PROCEDURES WHEN THE GAS LEAK SOURCE IS VISIBLE OR EVIDENT

6.1. Checking gas migration.

6.1.1. Check the area around the leak, starting within 10 feet (20 feet in winter) of any houses or buildings, for the possible migration of gas with a CGI or backpack.

6.1.2. When gas is detected below ground, within 10 feet (20 feet in winter) of a house or building, follow the procedures outlined in paragraph 7 of this Standard.

6.1.3. When no gas is detect below ground, within 10 feet (20 feet in winter) of a house or building, proceed with repairs to damaged gas line and continue to monitor all house or building for signs of gas (refer to paragraph 7.2).

6.1.4. When source of gas is visible but ends of damaged pipe are not visible, follow procedures outlined in paragraph 7 of this Standard.

6.2. Control any blowing gas by following procedures outlines in the Standard Practices referenced in paragraphs 2.5 and 2.6.

6.3. Ensure any areas of known gas concentrations are dissipated or vented to allow dissipation before leaving the area of the gas leak. When determined necessary, remove concentrations of natural gas with vacuum pumping equipment using the procedure referenced in paragraph 2.7.

7. EMERGENCY LEAK REPAIR PROCEDURES WHEN THE GAS LEAK SOURCE IS NOT VISIBLE

7.1. When a gas leak is reported and the source is not visible, follow the procedures outlined on the Emergency Leak Repair Procedures Checklist (refer to Figure).

7.2. Monitor, evaluate and schedule for repair all gas leaks found, beyond 10 feet (20 feet in winter) of any houses or buildings, that indicate on a CGI a gas concentration less than a stable 100 percent reading.

7.3. Each time a step is completed on the checklist, make an indication in the box to the side of the step. Do not proceed on to a new step until all portions of the present step are completed unless sufficient manpower is available to allow the starting and completion of additional steps.

7.4. If any problem arises which is not covered on the checklist, contact supervision for assistance.

7.5. Repair gas leaks following procedures outlined in the Standard Practices referenced in paragraphs 2.5 and 2.6.

7.6. Ensure any areas of known gas concentrations are dissipated or vented to allow dissipation, before leaving the area of the gas leak. When determined necessary, remove concentrations of natural gas with vacuum pumping equipment using the procedure referenced in paragraph 2.7.

8. TESTING GAS FOUND IN SEWER MANHOLES

8.1. When a duct system such as sewer, telephone, storm drain or power contains 2 percent or more gas by volume when registering on a CGI, evacuate houses/buildings on both sides of the street and houses that are within 70 feet.

8.2. Start evacuation at the manhole with a CGI reading of 2 percent or more gas and continue from manhole to manhole until gas free area is found in any direction from the original reading.

9. COMPLETING EMERGENCY REPAIR PROCEDURES CHECKLISTS

9.1. Return all completed Emergency Leak Repair Procedures Checklists to supervision (refer to Figure 1).

9.2. If weather conditions permit the Region Manager could cancel or initiate frost conditions in an applicable Region/Center, except St. George Center which is exempted from frost conditions.

9.3. When frost conditions do not apply in a Region/Center, the Region Manager will notify the Supervisor of Construction and Maintenance by written letter, with information copies to the Technical Services Supervisor and any other applicable Region personnel.

Refer to original file for Figures.

QUESTAR

Training Bulletin

Questar Gas Company

To: Operations Supervisors
From: Reid Hess
Subject: Revised Procedure – Outside Leak Screening on Inside Leak Calls
Date: November 16, 2007

Please share this information with all individuals in your area that are currently qualified to perform Emergency response and Leak detection under the Questar Gas Operator Qualification plan. This must be done no later than December 31, 2007. Please document the training and forward to Deb Torgersen, DNR530.

A change is being made to the procedure in verifying no gas exists on the outside of a building when performing an inside leak call investigation. Bar testing will only be used in limited circumstances as described below.

Currently, the Technical Service Policies and Procedures (TSPP) 02-00-01, "Emergency Call Procedures", section 9 require bar testing outside at specific locations as part of the inside leak investigation procedure. This process will change to "leak screening." Leak screening involves the above ground use of gas detection instruments (e.g. combustible gas indicator (CGI) or combustible gas detector (CGD)) to make precautionary checks for outside natural gas leakage. Leak screening should be used in place of bar testing in circumstances where there is no report or indication of an outside gas leak and the check for outside leakage is only precautionary. This is being done to minimize the chance of damaging a gas line while barring. This change will only affect the inside gas leak procedure. Anytime an outside gas leak is known or suspected, use the procedures listed in Standard Practice 5-00-08, "Underground Gas Leak Procedure."

The new procedure will be done as follows:

- Inside leak investigation will occur as listed in the TSPP Emergency Call Procedure.
- The meter will be checked for leaks and spot tested.
- Leak screening outside of the building will be performed.
    - Use a CGI (or alternately a CGD) to check for indications of a natural gas leak at ground level. The intake on a CGI or the sensor end on the CGD should be held as close to the ground as possible, but be sure to avoid snow or moisture.
    - Refer to TSPP 02-00-01, Figure 1 (standard building) and Figure 2 (corner building) for minimum screening locations.

- If no indications of leaking natural gas are found, no bar testing is required.
- Exception: Limited bar testing will be performed when frozen ground is present. Refer to TSPP 02-00-01 for locations of bar testing holes.
- If outside leaking gas is identified, follow the procedures listed in TSPP 02-00-01 section 8 and Standard Practice 5-00-08, as applicable, including immediately proceeding with all required evacuations and other specified safety precautions. Bar testing should be performed to find and delineate the outer limits of the leak.

- When bar testing is necessary, precautions bust be taken to avoid damaging company service lines or mains during the procedure. Note the location of service riser and consult company maps as needed for information on location of mains, tap and service line. Do not bar directly over the gas main or service line to avoid damaging the pipe.
- In the event that bar testing damages a company pipeline and results in the uncontrolled release of natural gas, immediately proceed with all required safety precautions per Standard Practice 5-00-08, including required evacuations, notification and control of potential ignition sources. Call 911 (or request Dispatch call 911) to report the emergency.

Revisions to the TSPP 02-00-01, "Emergency Call Procedures" will be published in the near future, subject to final review by the Technical Service Policies and Procedures committee. In the meantime, these new leak screening procedures should be implemented as quickly as can be communicated to employees but before January 1, 2008 at the latest.

If you have any questions or comments please feel free to contact me on extension 3374.

cc

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QUESTAR

Training Bulletin

Questar Gas Company

To: Operations Supervisors
From: Reid Hess
Subject: Additional Requirements for Evacuations and "A" Leaks
Date: January 28, 2008

Please share the following information with all employees qualified on Emergency Response that may respond to "A" leaks or evacuations. Please document the training and forward to Deb Torgersen, DNR530. This must be done no later than February 28, 2008. Also, verify that these employees are equipped with the necessary warning tape and emergency evacuation notices.

The following procedural changes will take place as soon as practical, but no later than February 28, 2008.

(1) If an evacuation or an "A" leak exists, the hazardous area will be marked off as follows:
- The hazardous area of an "A" leak will be marked off with warning tape in a manner that the general public will know not to enter the area. In the event the hazardous area is large, assistance from emergency response officials should be requested to mark off and/or secure the area.
- In case of an evacuation, in addition to instructing the occupants to immediately leave the building and providing required emergency evacuation notices, all entrances to the building will be marked off with warning tape in a manner that the entrant will understand they should not enter the building. When possible, the entire front of the building should have warning tape strung across (side or back as well if applicable). Do not forget side or rear entrances when they are accessible.

(2) If the level of gas anywhere in the building measures 1% or higher using a combustible gas indicator, emergency response officials should be called to assist (e.g. securing the area, ventilating the building, etc.) At this point no one including occupants, the public, or employees should be in the building.
- Once building occupants have been evacuated ensure they stay back, away from the evacuated building and the work area.
- Instruct the occupant to take a key to the building with them. Some home owners may want to rely on entering the building through a garage with a keyless entry, this will not be allowed during an evacuation, and prior to the building being cleared after no natural gas is present. Entering the garage with a keyless entry system is not allowed.
- Post warning tape and use emergency response officials to keep bystanders away from the affected area.
- If bystanders approach the evacuation/work area, instruct them, for their safety, to remain out of the immediate area.

(3) Ensure the new Emergency Evacuation Notice (form 50700, see attachment) is provided to the occupant informing the occupants of the evacuation. Provide a company phone number on the notice so the occupants can get information as needed.

(4) When clearing buildings after an evacuation and prior to allowing any occupants or the public access to the building, the following must take place:
   - When it has been determined safe to enter to begin clearing the building, obtain permission from the occupant to enter the building. If building is locked, obtain a key and instruct the occupant to stay back from the evacuated building and away from the work area. The Questar Gas employee will then unlock the building and enter to attempt to clear the building.
   - For safety reasons, under no circumstances may an occupant or other member of the public be allowed into the evacuated building prior to or during the clearing process.
   - To clear the building for re-entry, one Questar Gas employee with a combustible gas indicator (e.g. Gas Ranger) will enter the building to determine no gas exists, using approved procedures.
   - If the first employee determines that the building is free of natural gas, a second Questar Gas employee will enter the building with a second combustible gas indicator (e.g. Gas Ranger) or a combustible gas detector (e.g. TIF)and verify that no gas exists using the same established procedure. It the first Questar Gas employee is the only employee responding, the same employee can verify the building is clear of natural gas by using a second leak detection device (CGI first, TIF second) during an additional second check. Once this procedure has been performed successfully, the building will be considered cleared and the occupants can return to the building.
   - If in either inspection any level of natural gas is detected in the building, the evacuation will continue until the building becomes free of natural gas as verified by two independent checks performed by Questar Gas employee(s) using separate instruments for both checks.

(5) If an "A" leak involves a broken and blowing main, ensure emergency response officials are notified and assistance requested, particularly if the main is in a populated area. Once on scene, these individuals can be used to help secure the area, protect the public, protect property, be used for traffic control, and to help keep bystanders out of the work area. If the blowing main is in a remote area with no buildings suitable for human occupancy in the area, emergency response officials need not be notified, unless, in the judgment of the lead person responding to the call, it is deemed necessary.

Please reinforce with employees that they should request additional assistance from company and/or emergency response officials as needed for large or complex emergencies and anytime it is deemed necessary. If an employee has procedural questions they should contact supervision or the Operations Training Department.

Note that these procedural changes will be incorporated into the next update of Standard Practice 5-00-08 "Underground Gas Leak Procedures," and Emergency Plan Section V, "Controlling Emergency Situations." Appropriate updates will also be made to training curriculum and OQ modules for future use.

If you have any comments or questions regarding these additional steps please feel free to contact me on ext. 3374.

Attachment – Emergency Evacuation Notice, form 50700

SECTION: V CONTROLLING EMERGENCY SITUATIONS

1. PRIORITIES OF EMERGENCY ACTION

Emergency action will be established on a priority basis. High priority level action will always take precedence over lower level priority action. The priority of any emergency action will be evaluated from the following decreasing priority level sequence:

1.1. Customer and general public safety.

1.2. Employee safety.

1.3. Property damage protection.

1.4. Customer inconvenience.

1.5. Public relations.

1.6. Economic considerations.

2. EMERGENCY ACTION CONSIDERATIONS

The first Company personnel at the scene will determine the existing hazards. The following measures will be considered and taken as necessary to minimize hazards:

2.1. Evacuating premises which are or which may be affected.

2.2. Blocking-off potentially hazardous areas.

2.3. Rerouting traffic around hazardous areas.

2.4. Preventing accidental ignition.

2.5. Ventilation of affected premises.

2.6. Controlling the flow of leaking gas by section isolation, pressure reduction, shutting-off meters, or other appropriate means.

2.7. Determining the full extent of the hazardous area; including:

2.7.1. The discovery of any gas migration, in or around nearby buildings, sewers or other structures, and;

2.7.2. The possibility of multiple leaks as a result of the initial damage.

2.8. Reporting to appropriate supervision and where appropriate, Gas Control Department, details of the emergency and requesting further instructions or assistance if needed.

2.9. Evaluate situation and based upon need call 911.

2.10. Requesting notification to and/or assistance from appropriate fire, police or other public officials.

3. SYSTEM EMERGENCIES

3.1. Escaping Gas.

3.1.1. An occurrence where any pipe, valve or related equipment carrying natural gas which has been damaged to the extent that gas is escaping, will be treated as an emergency condition.

3.1.2. The initial action to be taken will be to stop the flow of escaping gas. Depending upon the nature and extent of the incident, this can be accomplished by the methods outlined in paragraphs 3.1.3 and 3.1.4.

3.1.3. Stopping the flow of gas at the point of damage can be accomplished by one or more of the following methods:

a. Use of the Halt Emergency Control Device.

b. Installation of a suitable leak clamp.

c. Use of an expandable stopper plug.

d. Use of a wooden plug.

e. Tightening or greasing the leaking valves or fittings.

f. Installing a barrel type sleeve over the leaking valve or fitting.

3.1.4. Isolation of Damaged Facility. Stopping the flow of gas by isolating the damaged facility can be accomplished by one or more of the following methods:

a. Closing existing valves.

b. Installing pressure control fittings or flow stopping devices.

c. Pinching-off the line.

3.1.5. Bypass Considerations

a. Whenever it becomes necessary to shut off or isolate a section of main, consideration will be given to the number of customers which will be affected by the shutdown.

b. The method of isolation will be such that a minimal amount of service interruption results.

c. Bypass piping should be considered if the shutdown will be extensive.

3.2. Fires.

An incident where a fire has been reported in any Company building, system piping, distribution or transmission facility is to be treated as an emergency. Fires involving customer gas piping and/or appliance(s) will also be treated as an emergency. The initial action to be taken when a fire has been reported is to coordinate and/or assist with the appropriate fire department in so far as the emergency affects the gas piping, appliances or facilities.

3.2.1. Fires in Buildings.

3.2.2. The first priority action of a fire in any building will be to shut off the gas supply to the building. This can be accomplished by one of the following methods:

a. Closing the inlet valves.

b. Shutting-off the service at the main.

c. Pinching-off or installing a pressure control fitting on the service line upstream of the meter.

d. Isolating the area.

3.2.3. Fires in Gas Piping.

a. The first priority action in such an incident will be to immediately institute the appropriate measures required to stop the flow of gas and the appropriate measures required to protect the surrounding area from the consequences of the fire.

b. The decision to extinguish the fire before the escaping gas has been stopped will be made on the basis of the following considerations:

i. The hazard to the surrounding area if the fire continues to burn.

ii. The potential explosion hazard if the fire is extinguished.

iii. The potential hazards of re-ignition if the fire is extinguished.

3.2.4. Fires in Meter or Pressure Limiting Station.

a. Incidents where gas has ignited within or in the vicinity of a pressure limiting or metering station require an immediate evaluation as to the action necessary to protect the transmission and/or distribution system supplied from that facility. The following factors should be considered:

i. Status and function of regulating equipment.

ii. Potential hazard of over or under pressure within the system.

iii. Potential hazard of rupture to piping or station equipment.

iv. Consequences involved if facility is removed from service.

v. Consider installation of bypass piping.

vi. Consideration of increasing pressure on other system connected stations.

b. After evaluation of the condition is complete, appropriate action will be taken.

3.3. Explosions.

3.3.1. Explosions in Buildings.

a. The priority action to be taken where an explosion has occurred in any structure to which natural gas is supplied is to shut-off the supply of gas to that building. This action is to be initiated regardless of the cause of the explosion.

b. After the gas has been shut-off, precautions will be taken to prevent additional explosions and a leak survey investigation will be made in the area to determine the possible source of the explosion.

3.3.2. Explosions in Gas Piping Systems.

The initial action to be taken where an explosion has occurred within or in the immediate vicinity of a natural gas piping system, and where the system has been damaged, is to stop the escape of gas from the damaged area.

3.3.3. Explosion in Meter or Pressure Limiting Stations.

The primary action to be taken when an explosion has occurred within or in the immediate vicinity of a natural gas measuring or pressure limiting station, and where the facility has been damaged, is to stop the escape of gas from the damaged area.

3.4. Abnormal Pressure Conditions

3.4.1. High Pressure Conditions.

a. When the pressure within a natural gas system or segment of the system exceeds the maximum allowable operating pressure (MAOP), immediate steps will be taken to determine the cause and reduce the pressure to an acceptable limit. The following system conditions will be immediately inspected and corrective action taken where necessary:

i. Damage to or improper operation of pressure limiting equipment, control lines, or pressure set points.

ii. Damage to or improperly operated system bypass valves or crossover valves.

b. Immediate action will also be taken to reduce the high pressure condition within the system to an acceptable range by one or more of the following:

i. Relief valves.

ii. Opening blow-down valves to atmosphere.

iii. Opening service line valves and venting gas to the atmosphere away from the structure using proper procedures.

3.4.2. Low Pressure Conditions.

a. When the system or segment of the system's operating pressure is reduced below the safe operation of any connected and properly adjusted gas burning equipment, immediate steps must be taken to improve the condition. The following conditions will be immediately checked and appropriate corrective measures taken:

i. Malfunction within pressure regulating and limiting stations.

ii. Obstruction within piping system.

iii. Closed or partially closed system valves.

iv. Line damage.

v. System capacity problems.

b. Immediate action will also be taken to restore the system to the proper operating pressure. Consideration must be given to the fact that some interruption of service may have resulted from the low pressure condition.

c. All services in the affected areas will be inspected and corrective action taken before the pressure is restored to the system.

3.5. Defective or Unsafe Customer Equipment.

3.5.1. Service Shut-Off - When a gas burning appliance or installation of a gas burning appliance is found and is considered to be unsafe, defective or hazardous, the gas to the appliance or installation will be shut-off until the defect or condition which rendered it unsafe or hazardous is corrected.

3.5.2. Service Work - Appliances will not be disconnected by Company personnel except where necessary for inspection, approved service work or violations of appliance shut-off orders. Service work on appliances by Company personnel will be performed as described in the Technical Service Manual.

3.5.3. Service Restoration - Whenever a defective, unsafe or hazardous appliance or installation is encountered and it is not repaired before the Company personnel leaves the area, a written notice will accompany the shut-off and be issued as outlined in the Technical Service Manual.

3.6. Gas Within or in the Vicinity of Buildings.

3.6.1. Evacuate buildings and immediately repair any leaks when the following situations occur:

a. Any gas is detected within a building, or in the ground within 10 feet (20 feet during the winter season) of a building.

b. Any gas registering a stable reading on a CGI (approximately 2% or more) is detected within a duct system, such as, sewer, telephone, storm drain or power. If less than 2% is detected within such a duct system, monitor the situation closely until a leak is found and repaired or verification is made that no leak exists.

c. Exception: Any leak on a riser with less than a 2% CGI read at 20" below ground that can be vented may be classified as a "B Leak"(Rush evaluate and/or repair - to be determined by construction appropriate supervision).

3.6.2. When evacuating buildings, use the Emergency Leak Repair Procedures Checklist. Refer to Form 50610 "Emergency Leak Repair Checklist."

NOTE:	*When frost conditions do not apply in a Center, the Center Manager will notify The Supervisor, Construction and Maintenance, by letter with informational copies to Technical Services Supervisor and any other applicable Region personnel.*

3.6.3. If weather conditions permit, the Center Manager could cancel or initiate frost conditions in an applicable Center, except the St. George Center, which is exempted from frost conditions.

3.7. Situations Requiring Immediate Repair.

3.7.1. When gas is detected in the ground and the source is not visible, the following situations require immediate repair:

a. Any condition listed in paragraph 3.6.1 above.

b. A stable 100% reading is obtained on the CGI at any single location.

c. When responding to situations listed in paragraph 3.7.1 above, use Form 50610 "Emergency Leak Repair Procedures Checklist."

3.8. Abnormal Quality of Gas.

3.8.1. Abnormal BTU Value.

a. When the BTU value of a gas mixture is below or above the firing ability (normally 950-1150 BTU's per cubic foot at 14.73 PSIA) of orificed appliances in a system or segment of the system, action must be taken.

b. When determining the course of action to be taken to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Use gas as is, depending on the conditions.

v. Mix with storage or other gas to raise or lower BTU value.

vi. Use a substitute gas mixture from another source.

3.8.2. Abnormal Water Content.

a. When the water content within the system or segment of the system is above the pre-established limits of seven (7) pounds of water in vapor phase per MMCF or free water, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Blow-down and/or purge.

iii. Pig the line.

iv. Use of line heaters.

v. Use of dehydrator units.

vi. Injection of methanol in line.

vii. Additional stages of regulation.

viii. Monitor line and take dew point readings.

ix. Use gas as is, depending on the conditions.

3.8.3. Abnormal Hydrocarbon Condensate Content.

a. When the hydrocarbon condensate within the system or segment of the system is found in concentrations detrimental to equipment or causes equipment to malfunction, action must be taken to clear the lines and equipment of hydrocarbon condensate.

b. When determining the course of action to minimize any hazards to equipment and to restore the quality of gas, consider any or all of the following:

i. Evaluation by Engineering Department - which should include the most probable route of disbursement through the Distribution System.

ii. Isolate the system or segment of the system.

iii. Pig or ball the line.

iv. Divert the gas through scrubber or drip equipment.

v. Injection of methanol in line.

vi. Locate the natural liquid traps in the system or utilize fabricated liquid traps in high condensate areas. Tap the line or trap and insert a stinger so the pressure can force the liquid condensate from the system. Use appropriate containers to contain the liquid.

3.8.4. Abnormal Hydrogen Sulfide (H_2S) Content.

a. When the hydrogen sulfide (H_2S) content within the system or segment of the system exceeds the pre-determined maximum allowable limits of twelve (12) parts per million, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Burn vented gas that was blown down or purged.

v. Mix with storage or other gas to lower hydrogen sulfide (H_2S) content to an acceptable level.

vi. Use as is, depending on conditions, and continue to monitor the system.

3.8.5. Abnormal Odorant Level.

a. When the odorant level within the system or segment of the system is above or below the pre-established limits, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Use gas as is, depending on the conditions.

v. Notify service dispatchers.

vi. or reduce odorant.

vii. Mix with storage or other gas to adjust odorant level.

3.8.6. Abnormal Oxygen Level.

a. When the oxygen content within the system or segment of the system exceeds the pre-established limit of ten (10) parts per million by volume, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Use gas as is, depending on the conditions.

v. Mix with storage or other gas to adjust oxygen level

3.8.7. Abnormal Inert Substance Level.

a. When the inert substance level within the system or segment of the system exceeds the pre-established limit of five (5) percent by volume, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Use gas as is, depending on the conditions.

v. Mix with storage or other gas to adjust inert level.

3.8.8. Abnormal Total Sulphur Level.

a. When the total sulphur level within the system or segment of the system exceeds two (2) grains per CCF, of which not more than one (1) grain may be mercaptan sulfur, immediate action must be taken.

b. When determining the course of action to minimize any hazards and to restore the quality of gas, consider any or all of the following:

i. Isolate the system or segment of the system.

ii. Divert the gas to another area.

iii. Blow-down and/or purge.

iv. Use gas as is, depending on the conditions.

v. Mix with storage or other gas to adjust sulphur level.

4. SERVICE INTERRUPTIONS

4.1. Interruptions to customer service which are the result of a system emergency condition can vary from a single customer to large blocks of customers. Consult Engineering for assistance in determining extent of service interruption and obtaining maps to aid in service restoration. Interruptions will generally fall into the following categories:

4.1.1. Planned interruptions.

a. Planned interruptions of service, as defined in this plan, result from an emergency condition which did not result in initial loss of service. However, the planned interruption of service will require a relatively short term interruption to restore the system to normal operation. The elements of this type of interruption are:

i. Interruption of service which is required in order to make repairs or restore damaged facilities.

ii. Advance notification to customer is generally possible.

iii. Time is available to transport additional manpower and equipment to the emergency site.

b. Shut-Off Procedures. After determining the extent of the interruption required, the following procedures will be followed:

i. Notify customer of shut off if possible.

ii. Shut-off and lock service line valve.

4.1.2. Supply loss interruptions.

a. Supply loss interruptions are those which result in the immediate loss of service because of damage, equipment failure, system blockage or malfunction to system piping or facilities, which temporarily disrupts the supply. The elements of this type of interruption are:

i. Immediate interruption of service resulting from the partial or total loss of supply at some points in the distribution system.

ii. Customer notice is delayed.

iii. Immediate action must be taken.

iv. Initial manpower and equipment availability may be restricted.

b. Initial Action. Immediate initial action will be taken as follows:

i. Determine the area involved.

ii. Isolate area if necessary.

iii. Shut-off and lock all service line valves.

iv. Establish shut off record.

v. Notify all affected customers as soon as possible.

5. CIVIL DISTURBANCES

5.1. Damage to Company facilities may or may not exist during a civil disturbance, therefore, the problem becomes one of protection and maintenance of Company facilities. Safety to customers, general public, and employees will be foremost in maintaining Company facilities during a civil disturbance.

5.2. The Company will be involved only in those actions which are required as follows:

5.2.1. Solicit protection for its facilities.

5.2.2. Maintain its facilities.

5.2.3. Protect the public from the consequences of damage to its facilities.

5.2.4. Protect its employees from the consequences of the disturbance.

5.3. The following action will be taken by Company employees during a civil disturbance:

5.3.1. Employees will report to specific duty stations as requested or otherwise assigned.

5.3.2. Employees will not enter a riot area or an area of civil disturbance alone.

5.3.3. Police protection will be solicited for employees entering an area of civil disturbance.

5.3.4. Employees will make every effort to avoid any involvement with riot or civil disturbance participants.

5.4. Each Center will evaluate their system to determine areas or points in the system which could be affected by the disturbance. Particular emphasis will be given the following:

5.4.1. Pressure limiting and measuring stations.

5.4.2. Valves and valve assemblies.

5.4.3. Microwave stations.

5.4.4. Company office buildings.

5.4.5. Vehicle storage areas.

5.4.6. Compressor stations.

5.4.7. Dispatch centers.

5.4.8. Exposed piping.

5.5. After evaluating the impact of the disturbance on the system, recommendations will be developed on actions which would be required to adequately protect the critical areas or facilities. These would include, but not be limited to, the following actions:

5.5.1. Assignment of Company personnel to patrol the area.

5.5.2. Requests to law enforcement agencies for police protection.

5.5.3. Requests to National Guard authorities for protection assistance.

5.5.4. Installation of security devices such as barricades, locks, or lights.

5.5.5. Erection or installation of a physical barrier (Barricading, trenching, fencing, vehicles or equipment).

5.6. After the condition has been analyzed and proposed action established:

5.6.1. Coordinate and verify proposed action with appropriate supervision, Environmental and Safety Services, and Security Departments.

5.6.2. Initiate required action.

5.6.3. Establish control and communications with all elements.

5.6.4. Establish record and status report of actions being taken.

5.6.5. Keep supervision informed.

6. MAJOR DISASTERS

6.1. Damage to Company facilities will vary depending upon the magnitude of the disaster; therefore, the first action will be to assess the nature and extent of damage and establish communication with chain of command.

6.2. Advanced Planning.

6.2.1. Employees are assigned by Center Managers to report to a specific duty station in case of a major disaster. This station is usually the regular assigned duty position, but need not be.

6.2.2. Law enforcement departments, fire department, public authorities, and the National Guard are to be kept informed of Company's proceedings by employees designated by Center Managers as liaison agents.

6.2.3. Command Posts will be designated as follows:

a. Central Command - E.O.C. Salt Lake Operations Center.

b. Salt Lake Region Command - Salt Lake Operations Center.

c. Northern Region Command - Ogden Service Center Office Building.

d. Wyoming Region Command - Rock Springs and Evanston Centers.

e. Central Region Command - Springville Service Center Office Building.

f. Southern Region Command - Cedar City Service Center Office Building.

g. Gas Control Command - Gas Dispatching Center.

6.2.4. Earthquake Notification.

a. The National Earthquake Information Center (NEIC) will notify Gas Control/ Consolidated Dispatch Center of any earthquakes with a magnitude of 4.0 or greater in the Intermountain Area. This notification should be received 30 to 90 minutes following the event. This information should be recorded on a permanent log and the call list should be initiated. NEIC will provide the following:

i. Date and time of earthquake.

ii. Richter magnitude.

iii. Epicenter Location.

iv. Preliminary reports of damage caused by earthquake.

v. Preliminary casualty report.

b. The University of Utah Seismograph Stations (UUSS) will notify Gas Control/ Consolidated Dispatch Center of any earthquakes with a magnitude of 3.0 or greater in the Utah and the area currently served by Questar Gas in Wyoming. This notification should be received 30 to 90 minutes following the event. This information should be recorded on a permanent log and the call list should be initiated. UUSS will provide the following:

i. Date and time of earthquake.

ii. Richter magnitude.

iii. Epicenter Location.

iv. Any other pertinent information they possess.

c. Questar Gas Center Managers or their designated alternates will notify the Consolidated Dispatch Center whenever they "feel" an earthquake. Notification should be received from Center Managers within minutes of the event. This information should be recorded on a permanent log and the call list should be initiated. Center Managers should provide the following:

i. Date and time of earthquake.

ii. Relative strength of ground motion.

iii. If a "roaring" sound was produced by the earthquake.

iv. Whether damage to buildings or the gas system might be expected.

v. Whether the Center Manager will initiate the Postearthquake Facilities Inspection Procedure for checking the gas system.

6.3. Initial Action.

6.3.1. All employees report to pre-assigned duty stations as soon as possible.

6.3.2. All employees assigned liaison functions are to report to liaison area as soon as possible.

6.3.3. Command posts are to establish communication with central command and all liaison areas.

6.3.4. Personnel and equipment are dispatched by command posts to damaged facilities to evaluate the extent of the damage and to repair services.

6.4. Reporting to Central Command. After an evaluation of the emergency has been made by the command posts, the following extent of damage information will be forwarded to the central command:

6.4.1. Damaged facilities.

6.4.2. Fires.

6.4.3. Service areas lost.

6.4.4. Action already taken by personnel.

6.4.5. Proposed plan of action.

6.4.6. Reports from liaison areas.

6.4.7. Available assistance.

6.4.8. Other pertinent information.

6.5. Repair and Restoration of Damaged Facilities.

6.5.1. The priority of repair work will be coordinated through the central command.

6.5.2. Repairs will be made only after consideration and approval of central command.

7. NON-NATURAL GAS LEAKS OF COMBUSTIBLE SUBSTANCES

7.1. Cooperative Assistance Actions.

7.1.1. When requested, the Company will assist communities within the Company's service area when these communities experience occurrences of non-natural gas combustible substances or swamp gas entering storm and/or sanitary sewer systems. The Company is willing to provide this community service since normally the Company has the only equipment readily available to detect, identify, and establish the area of contamination within the storm and/or sanitary sewer systems.

7.1.2. The Company's involvement in these instances of occurrence, when called upon, will be of assisting the community person in charge of the

operation in identifying an unknown substance (petroleum product, propane, etc.) by means of gas-chromatograph sampling performed by personnel from the Measurement and Control Gas Laboratory and to determine the extent of any type of combustible contamination with flame-ionization equipment.

7.1.3. The community person in charge will be made aware the Company personnel are there only to assist with the problem and not to become responsible for the problem or correcting the problem.

7.1.4. Once the contamination has been identified and, when possible, the source of the contamination leakage is determined, the information will be conveyed to the community person in charge of the operation.

7.1.5. When the community person in charge has been notified of the information in paragraph 7.1.4, Company personnel will vacate the operation and resume their normal duties.

7.1.6. The Company's involvement in this effort is to provide assistance to the community, and at the same time restrict time involvement of Company personnel. In the event that a community person in charge requests additional assistance or continued help other than as described herein, it will be the responsibility of the Center Manager to approve any added commitment of the Company's resources based on the hazard involved.

7.1.7. When the cleanup operation is completed, Company personnel will assist, if called upon by the community person in charge of the operation, by providing backpack flame-ionization reads from specified locations so those in charge of the operation may assess the safety of the system from combustible contamination.

7.2. Restoring Service After Non-Natural Gas Leak Emergency.

7.2.1. Company actions in these situations will be in conformity with our evacuation procedures and policies for restoration of service. This will generally take the form of clearing the premises with leak survey equipment prior to relighting appliances.

7.2.2. Company personnel will make the final decision of declaring the premises cleared and safe for all service restoration.

7.2.3. Depending upon the circumstances, service personnel in a relight operation will inform the premises occupants of the safeguards of keeping water in floor drains and suggest to the occupants to check their drains and put water in the ones that are dry.

(iv)

Natural Gas Migration

- 2008 New Operations Employee Construction Orientation School
  - Emergency Plan Section V reviewed with employees and written test
  - Underground leak repair procedure (evacuation policy) – review of Standard Practice 5-00-08 with discussion of gas migration during review of check list
  - Blow down, purging, and repair of broken natural gas lines
  - Emergency Plan Quiz

2008 NEW OPERATIONS EMPLOYEE CONSTRUCTION ORIENTATION SCHOOL

May 5th through May 14th

FIRST DAY (Monday - May 5)

8:00-9:00 a.m.	Introduction and orientation films: * Pipeline 29" * Southbound 87"
9:00-9:30 a.m.	Importance of good customer relations, proper clothing, time off, drug, alcohol and harassment policies.
9:45-10:45 a.m.	Emergency plan Review Section V & Written Test
10:45-11:00 a.m.	Convincer video
11:00-11:45 a.m.	Oxygen analyzer/Gas Ranger/CGI
1:00-2:00	OQ Module 47 Leak Detection review & test
2:00-4:00 p.m.	Flagger certification

SECOND DAY (Tuesday - May 6)

7:30-9:30 a.m.	Introduction to Standard Practices
9:50-11:50 a.m.	Map Reading
1:00-2:30 p.m.	Pipe Locators
2:45-4:00 p.m.	Oxy-acetylene safety

THIRD DAY (Wednesday - May 7)

7:30-9:00 a.m.	Excavation safety and backfill procedures OQ Modules 18 - 44 review & tests
9:20-10:20 a.m.	Under ground leak repair procedure (evacuation policy) Review S.P. 5-00-08, including gas migration when discussing check sheet.
10:20-11:05 a.m.	Drilling and plugging operations
11:10-11:45 p.m.	Locator wire, and mechanical fittings OQ Module 41 review & test
1:00 - 2:00 p.m.	Blow down, purging, and repair of broken natural gas lines
2:00-4:00 p.m.	Flow control by squeeze off and static electricity

FOURTH DAY (Thursday - May 8)

7:30 a.m.-4:00 p.m.	Plastic fusion machine identification, maintenance and use. Plastic fusion procedures and qualification Module #38 review & test

FIFTH DAY (Friday - May 9)

7:30 a.m.-8:30 a.m.	Cad welding and wrapping of steel pipe and fittings
8:30 a.m.- 10:00 a.m.	OQ Testing #45 - Coating Repairs, #20 - Other Pressure Testing, #31-Inspecting Pipe and Coating,
10:00a.m.-4:00 p.m.	Plastic fusion qualification

SIXTH DAY (Monday - May 12)

7:30 a.m.-4:00 p.m.	Safety

SEVENTH DAY (Tuesday - May 13)

7:30 a.m.-4:00 p.m.	Safety (first aid and CPR)

EIGHTH DAY (Wednesday - May 14)

7:30 a.m. -9:30 a.m.	Fire Training
10:00 a.m.-2:30 p.m.	Commercial Driver License requirements; pre-trip inspection, skills test and road test.
2:30 p.m.-4:00 p.m.	OQ make-up testing or if needed #42 - Abnormal Operating Conditions, #36 Physical Properties

***IF TIME ALLOWS: D.O.T Requirements, Mcgruff truck, My dog won't bite

EMERGENCY PLAN

I. Emergency Plan - Section V

A. Handout test and Section V

1. Let class complete test
2. Go over test
3. Explain each question
4. Give answers in detail

Emergency Plan Quiz

NAME _____ DATE _____

1.1-.1 1. List the six priority concerns in an emergency.

a. customer and general public safety
b. employee safety
c. property damage protection
d. customer inconvenience
e. public relations
f. economic considerations

3.2 (a) 1-4 2. List the four methods for shutting off the gas when you have a fire in a building.

a. closing the inlet valves
b. shutting off the service at the main
c. pinching off or installing a pressure control fitting on the service line upstream of the meter
d. isolating the area

3.1(c)1-6 3. Name six of the methods used to stop flow of escaping gas from a point of damage.

a. use of the Halt emergency control device
b. installation of a suitable leak clamp
c. use of an expandable stopper plug
d. use of a wooden plug
e. tightening or greasing the leaking valves or fittings
f. installing a barrel type sleeve over the leaking valve or fitting

2.1-2.10 4. What measures should be taken to minimize hazards in an emergency?

a. evacuating premises which are or which may be affected
b. blocking off potentially hazardous areas
c. preventing accidental ignition
d. ventilation of affected premises
e. controlling the flow of leaking gas by section isolation, pressure reduction, shutting off meters, or other appropriate means
f. the discovery of any gas migration, in or around nearby buildings, sewers or other structures
g. the possibility of multiple leaks as a result of the initial damage
h. reporting to appropriate supervision and where appropriate, Gas Control, details of the emergency and requesting further instructions or assistance if needed
i. evaluate situation and based upon need call 911
j. requesting notification to and/or assistance from appropriate fire, police or other public officials

3.8(2)i-vi 5. What steps should be taken to restore the quality of gas in your system after an abnormal BTU value has been discovered to be below 950-1150 per cubic foot of gas.

a. isolate the system of segment of the system
b. divert the gas to another area
c. blow down and/or purge
d. use gas as is, depending on the conditions
e. mix with storage or other gas to raise or lower BTU value
f. use a substitute gas mixture from another source

3.6(a)1-2 6. Name the three situations that would lead to evacuation of building

a. any gas detected within a building
b. gas in the ground within 10 feet (20 feet during the winter season) of a building
c. any gas registering a stable reading on a CGI (approximately 2% or more) is detected within a duct system, such as sewer, telephone, storm drain or power. If less than 2% is detected within such a duct system, monitor the situation closely until a leak is found and repaired or verification is made that no leak exists.

3.6 (3) 7. When is it acceptable to have gas against the building and not evacuate?

a. any leak on a riser less than a 2% CGI read at 20" below ground that can be vented may be classified as a AB@ Leak (rush evaluate and/or repair - to be determined by construction appropriate supervision)

3.8(b)i-ix 8. If water content in the system is above the pre-established limits of seven lbs. in water vapor per MMCF or free water, list the steps that need to be taken to minimize any hazards.

a. isolate the system of segment of the system
b. blow down and/or purge
c. pig the line
d. use of line heaters
e. use of dehydrator units
f. injection of methanol in line
g. additional stages of regulation
h. monitor line and take dew point readings
i. use gas as is, depending of the condition

3.8(d) (1) 9. How many parts per million of Hydrogen Sulfide (H_2S) does it take to exceed pre-determined allowable limits within the system? 12 parts per million

10. If pressure in the system falls below a safe operating level, what action needs to be taken to protect end users?

3.4(b) (3) Inspect and take corrective action prior to restoring pressure to the system

3.8(f) (1) 11. Is it true or false that the oxygen level within a system cannot exceed (10) ten parts per million in volume?

3.8(g) (1) 12. What is the pre-established limit of inert substance level within the system? 5% by volume

UNDERGROUND LEAK REPAIR PROCEDURES

STANDARD PRACTICE.....5-0-8

I. Evacuation policy

   A. Show overheads 1-4

      I. Expain each

   B. Show overheads 5-9

      I. Expain each

   C. Ask questions

II. Show and expain overheads on actual instances (overheads in classroom)

   A. Have class explain what they would do and why do it for each example

   B. Correct any mistakes they make on each example