SIX NATIONS NATURAL GAS COMPANY

DISTRIBUITON SYSTEM INTEGRITY MANAGEMENT PROGRAM

APPROVED BY:

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1. INTRODUCTION

Six Nations Natural Gas Company Limited Partnership (the Gas Company) is a natural gas local distribution company owned by the Six Nations Of The Grand River Territory. It's *raison d'etre* is to provide a safe, secure and reliable supply of natural gas energy to the communities of the Six Nations Of The Grand River Territory and the Mississaugas of the New Credit First Nation. Natural gas will be distributed through its underground system of plastic pipe.

The safety and security of the two communities the Gas Company serves, will be ensured through the development, implementation, maintenance and continual improvement of a Distribution System Integrity Management Program (DSIMP). All relevant legislation and regulations that the Gas Company operates under, will be met by management and staff, to meet its goal.

The importance of this program cannot be overstated in terms of the continued safety and security of the pipeline operations. It will be incorporated into the values of the Gas Company.

The DSIMP provides the framework for the Gas Company to collect, integrate and analyze information related to:

1. Design and construction
2. Condition monitoring
3. Maintenance and repair
4. Operating conditions
5. Failure and damage incidents
6. Examining and comparing risks and risk reduction activities
7. Establishing and tracking system performance

2. DEFINITIONS

The following are words and acronyms used throughout this document and have the associated definition:

Above grade installation – installation of a pipeline above the surface of the ground on supports or in an embankment constructed from earth or other materials.

Cast iron – all forms and types of cast iron.

Cathodic protection – a technique to prevent the corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

Collapse – cross-sectional instability of pipe resulting from combinations of bending, axial loads and external pressure.

Company – the individual, partnership, corporation or other entity that is in charge of design, materials, or construction, whichever is applicable.

Company, operating – the individual, partnership, corporation or other entity that operates the pipeline system.

Competent – qualified, trained and experienced to perform the required duties.

Construction – all activities required for the field fabrication, installation, pressure testing and commissioning of natural gas piping.

Contractor – the prime contractor and any subcontractors engaged in work covered by this Standard.

Damage incident – an event that results in damage to a pipe, component, tank, or coating without release of service fluid.

Defect – in imperfection of sufficient magnitude to warrant rejection based upon the requirements of this Standard.

Demonstrate – verify or describe and explain, by the use of records, measurements, tests, comparison of specimens, experiments, or analysis by a competent person, supported by documentation.

Dent – a depression caused by mechanical damage that produces a visible disturbance in the curvature of the wall of the pipe or component without reducing the wall thickness.

Diameter, outside – the specified outside diameter (OD) of the pipe, excluding the manufacturing tolerance provided in the applicable pipe specification or standard.

Distribution system, gas – the distribution and service lines, and their associated control devices, through which natural gas is conveyed from transmission lines or from local sources of supply to the outlet of a customer's meter set.

DSIMP –Distribution System Integrity Management Program. The DSIMP includes all mains and services. It is based on the guidelines set out in CSA Z662, Annex M.

Failure incident – an unplanned release of natural gas, into the atmosphere.

Gouge – a surface imperfection caused by mechanical removal or displacement of material that reduces the wall thickness of a pipe or component.

Grade installation – installation of a pipeline on the surface of the ground or in a shallow ditch.

Hazard – a condition or event that might cause a failure or damage incident or anything that has the potential to cause harm to people, property or the environment.

Imperfection – a material discontinuity or irregularity that is detectable by inspection as specified in this Standard.

Joint, electrofusion – a joint made in thermoplastic piping using electrical energy where the heating element is an integral part of the fitting, such that when electric current is applied, the heat produced melts the mating surfaces, causing them to fuse together.

Joint, heat fusion – a joint made in thermoplastic piping by heating the parts sufficiently to enable fusion of the materials when the parts are pressed together.

Line, distribution – a pipeline in a gas distribution system that conveys natural gas to individual service lines or other distribution lines.

Line, service – a pipeline that conveys natural gas from a gathering line, distribution line or another service line, to the customer.

Lower Explosive Limit (LEL) – the smallest proportion of flammable gas mixed with air that would result in combustion when exposed to a source of ignition.

Measuring station – a facility used to measure the quantity of natural gas flowing through piping.

Meter, customer's – a meter that measures natural gas delivered to a customer.

Pipe – a tubular product made to a pipe specification or standard, or tubing that is allowed by this Standard, to be used as pipe.

Pipeline – those items through which natural gas flows, including pipe, components, and any appurtenances attached thereto, up to and including the isolation valves used at stations and other facilities.

Pipeline emergency – an event involving a pipeline system, such as the uncontrolled release of natural gas that endangers life, the well-being and health of people, property and the environment.

Pipeline system – pipelines, stations, and other facilities required for the measurement, processing, storage, gathering, transmission and distribution of natural gas.

Piping – a portion of a pipeline system, consisting of pipe or pipe and components.

Piping, abandoned – piping that is removed from service and is not maintained for later return to service.

Pressure – gauge pressure.

Pressure - limiting system – a device or system that will automatically act to reduce, restrict or shut off the supply of natural gas flowing into piping in order to prevent the pressure from exceeding a predetermined value.

Pressure – relieving system – a device or system that automatically operates to actively limit or lower the piping pressure by blowing natural gas into the atmosphere.

Pressure, maximum operating (MOP) – the maximum pressure at which a piping system is qualified to be operated.

Pressure, standard service – the gas pressure to be maintained at the inlet of a domestic customer's meter under normal operating conditions.

Regulator, monitoring – a pressure regulator set in series with the working pressure regulator, for the purpose of taking over the control of the downstream pressure in the case of malfunction of the working-pressure regulator.

Regulator, service – a regulator installed on a service line to control the pressure of the gas delivered to a customer.

Right of way, private – a right of way that is not located on a road used by the public.

Road – the generic term denoting a highway, road, or street.

Shutoff, curb – a valve or cock located in a service line at or near the property line, accessible through a valve box and cover, and operated by a removable key.

Shutoff, service – a valve or cock located in a service line between the gas distribution system and the meter.

Source of ignition – any mechanical, electrical or otter device that can produce sufficient energy and temperature to start combustion of a flammable mixture.

Surge – a transient pressure change due to a sudden variation in the flow conditions.

Survey, bar hole – a gas leakage survey made by driving or boring holes at regular intervals along the route of buried piping and testing the atmosphere in the holes with a combustible-gas detector or other suitable device.

Survey, gas detector – a gas leakage survey made by testing with a combustible gas detector.

Survey, leakage – a systematic survey made for the purpose of locating leaks in a natural gas distribution system.

Survey, vegetation – a leakage survey made by observing vegetation above buried pipe.

Temperature, ambient – the temperature of the surrounding medium in which piping is situated.

Test, leak – a pressure test to determine whether piping leaks.

Tie-in –a connection between two pressure test sections, pretested piping and other piping, new facilities and existing piping, or two lengths of piping that are fixed at their opposite ends or are long enough to act as though they are fixed.

Top Management – is considered to be the General Manager and the Distribution and Maintenance Foreman.

Trenchless installation – any technique including augering, boring directional drilling and tunneling, whereby pipe is installed without a continuous trench.

Tubing – a tubular product made to tube specifications or standards.

Utility – an irrigation system, drain, drainage ditch, sewer, water, underground communications cable or power line, or foreign pipeline.

Valve, isolating – a valve for isolating laterals, stations, pressure-relieving installations and other facilities.

3. INDUSTRY STANDARDS AND REGULATIONS

Canadian Standards Association
CSA Z662, Oil and Gas Pipeline Systems

Technical Standards and Safety Authority
Technical Standards and Safety Act, 2000 and all subsequent amendments

4. NATURAL GAS SYSTEM DESCRIPTION

The Gas Company is owned by Six Nations Of The Grand River. The Gas Company provides natural gas energy to the Six Nations Of The Grand River Territory and the Mississaugas of the New Credit First Nation. Currently, all roads within the Six Nations territory, south of the Grand River, have access to natural gas.

Natural gas is a fuel of choice because it is clean and reliable. As of April 1st, 2012 it is delivered to over 2,200 end users, through a network of over 180 km of buried gas mains. All pipe within the system, is plastic. Main valves are located at each corner of cross roads as well as at the entrance to large commercial users, schools and public buildings.

The distribution system is divided up in terms of how meters are read (meter walk) and the annual leak survey. In terms of the meter walk, there are twelve (12) divisions. In terms of the annual leak survey, there are three divisions. A map of the system is shown in Appendix 1.

4.1 NATURAL GAS SUPPLY

Odourized natural gas is delivered to the Gas Company, by Union Gas, at two measured points. The first is at Third Line, east of the Rail Link train tracks. At this point, the gas pressure is reduced by Union Gas, to 380 kPa (55 psi) and is delivered into the Gas Company system. It crosses west, under the Rail Link tracks into the Gas Company system.

The second point of delivery, is on regional highway 54, approximately 7 km east of Middleport, at LaFortune Park. Odourized natural gas is delivered into the system at 310 kPa (45 psi). At this point, the gas line crosses south, under the Grand River and into the Gas Company system.

Other than the regulating and meter station at Third Line, operated by Union Gas, there is no further processing.

4.2 REGULATING STATIONS

The Gas Company itself, does not operate any regulating stations as all gas delivered by Union Gas, is at 380 kPa or lower.

4.3 DISTRIBUTION SYSTEM

Natural gas is distributed to customers through a network of gas mains, valves, service lines and regulators. All pipe in the system is plastic pipe and has tracing wire. As supplied to a residential customer, natural gas is further reduced to 1.75 kPa (0.25 psi) at the meter. For commercial and institutional customers, the gas can be increased.

5 ORGANIZATIONAL STRUCTURE

The Gas Company is owned by Six Nations Of The Grand River. At the time of this writing, there are two shareholders-in-trust, the elected chief and one member of the elected band council, who also sits on the Board Of Directors, of the Gas Company.

5.1 BUSINESS STRUCTURE

The business structure of the Gas Company is set up in the following manner:

a. Six Nations Natural Gas Company Limited is the operating company. It assumes all debts and liabilities.
b. Six Nations Natural Gas Company Limited Partnership is a limited partnership between Six Nations Natural Gas Company Limited and the elected council of the Six Nations Of The Grand River Territory. Elected council is the silent or limited partner. The limited partnership was set up to receive 99.99% of the profits, thereby reducing the tax liability for Six Nations Council and any other liabilities.

5.2 OPERATIONAL STRUCTURE

The organizational structure of the Gas Company has a Board of Directors. There are seven seats on the Board, of which the elected council of the Six Nations of the Grand River Territory can hold up to two elected members. The other seats are filled by members of the community.

The Gas Company is operated on a day to day basis by a General Manager, a Distribution and Maintenance Foreman, a Bookkeeper / Office Manager, and Office and Field Staff.

See Appendix 2 for the Organization Chart.

6 COMMUNICATION

This section describes how the DSIMP is communicated to and between the Gas Company's management, personnel, the public and providers of essential supplies and services.

6.1 TOP MANAGEMENT COMMUNICATIONS

Top Management is responsible for receiving information required for the development, implementation, maintenance and continual improvement of the DSIMP as administered by the Gas Company. The following information shall be provided to Top Management:

1. The Integrity Management System Policy for review, input and approval;
2. Proposed revisions of the Integrity Management System Policy for review, input and approval;
3. An annual report of all activities pertaining to the DSIMP, as described in the Review and Continual Improvement Section.

6.2 PERSONNEL COMMUNICATIONS

Personnel identified as performing duties directly affecting the natural gas system integrity, shall be provided with a DSIMP Orientation session. Each year, there will be an annual review of the Gas Company's DSIMP, which will include:

1. A review of this plan for their input;
2. A review of the Emergency Procedures Manual;
3. A review of the process for requesting changes / improvements to all documents and procedures.

6.3 PUBLIC COMMUNICATIONS

The DSIMP Policy will be made available on the Gas Company's web site for the public.

6.4 ESSENTIAL SUPPLY AND SERVICE PROVIDER COMMUNICATION

At least annually, all providers of supplies and services identified as essential to the operation of the natural gas system, shall be contacted and any requirements which may affect their business with the Gas Company, will be identified.

7 ROLES AND RESPONSIBILITIES

Under this DSIMP, there are four dominant responsibilities for which employees with duties and responsibilities that impact the integrity of the natural gas system, must be held accountable. These responsibilities are:

1. The provision for a secure supply of natural gas;
2. To make available sufficient resources to ensure the continued delivery of the natural gas supply;
3. To ensure regulatory compliance with regard to the operations of the natural gas system;
4. To support the development, implementation and continual improvement of the DSIMP for the natural gas system.

7.1 TOP MANAGEMENT

The role and responsibility of Top Management is to:

1. Approve the Natural Gas DSIMP Policy;
2. Endorse the Operational Plan;
3. Obtain and provide sufficient resources to maintain and continually improve the DSIMP;
4. Complete annual reviews of the program;
5. Communicate with regulatory agencies and the public with regard to natural gas issues and the DSIMP.

7.2 THE GENERAL MANAGER

1. Is a member of Top Management;
2. Is responsible for the maintenance, review and upkeep of this document;
3. Oversees corporate operations and provides direction to front line supervisors with regard to operations within the parameters established through legislation, regulation and corporate policies, goals, strategies and guidelines;
4. Establishes corporate policies, goals, strategies and guidelines;
5. Ensures that qualified, competent and responsible front line supervisors are in place to manage the natural gas system;
6. Reviews monthly and annual financial statements, establishes budgetary goals and identifies budgetary restraints;
7. Provides direction to front line supervisors with regard to the preparation of budgets within budgetary goals and constraints;
8. Reviews and approves budget submissions to the Board of Directors;
9. Submits proposed annual budgets for approval to the Board of Directors;
10. Reviews new and amended legislation and regulations. Identifies, develops and implements changes to policies and procedures to maintain compliance,
11. Approves all requests for monetary expenditures required for the maintenance, modifications, and expansion of the distribution system as well as any training required.

7.3 DISTRIBUTION AND MAINTENANCE FOREMAN

1. Is a member of Top Management;
2. Oversees the natural gas system operations and maintenance;

3. Ensures that qualified, competent and responsible field staff and other personnel are in place to operate and maintain the system;
4. Identifies and communicates to the General Manager any need for additional resources required to ensure the continued provision of a secure supply of natural gas to the customers of the Gas Company;
5. Reviews and approves proposed changes to system and work processes and procedures;
6. Reviews operating procedures and submits to the General Manager for approval;
7. Reviews, comments on and approves capital improvements, reconstruction and refurbishment proposals;
8. Identifies and communicates to the General Manager, any need for major capital improvements, reconstruction and / or refurbishment proposals;
9. Approves and carries out the procurement of third party services, supplies and equipment necessary for the natural gas system operations and maintenance.
10. Provides direction to gas technologists and field staff with regard to the operation and maintenance of the system which meets the requirements of all relevant legislation and regulations, and the Gas Company's policies and procedures;
11. Provides direction to gas technologists and field staff, regarding the allocation of personnel and resources and assignment of work to meet legislative, operational and maintenance requirements;
12. Identifies, develops and implements changes to processes and procedures required to maintain legislative compliance;
13. Evaluates and ensures adequacy, safety and efficiency of current system and work processes and procedures;
14. Assigns, coordinates and supervises work of staff;
15. Ensures all staff receives the necessary annual certification to operate and maintain the natural gas system safely.

7.4 GAS TECHNOLOGISTS

includes D&M Foreman

1. Complete operations and maintenance duties for the gas system, in a manner that meets or exceeds the requirements of all relevant legislation and regulations;
2. Inspect, maintain and repair distribution system piping and appurtenances as assigned;
3. Investigate reports of gas leaks and ensure appropriate response (e.g. order evacuation etc.);
4. Ensures customer connections, disconnects, and safety inspections are performed in a manner that meets or exceeds the requirements of all relevant legislation and regulations;
5. Record operating activities on appropriate forms as required and in Gas Company provided journals;
6. Report incidents of deficiencies to the D&M Forman;
7. Obtain and keep current the licenses and certifications required for the position held and duties performed. Provide copies of these to the General Manager for filing;

8. Attend all required training and provide a copy of certificate of completion to General Manager for filing.

8.0 CORE COMPETENCIES

D&M Foreman, Gas Technologists

Gas Company operating personnel fulfill various rolls. The required competencies and certifications will vary for different rolls. As staff progress to higher levels within the Gas Company, training requirements and certification requirements will vary.

At a minimum:

1. The D& M Foreman and gas technologists shall have Gas Technologist Level 3 and Level 2 certifications as issued by Technical Standards and Safety Authority;
2. As required, at least one gas technologist will have a Gas Technologist Level 1 certification as issued by Technical Standards and Safety Authority;
3. Gas technologists are encouraged to obtain a Gas Technologist Level 1 certification when they are eligible;
4. The D&M Foreman shall also have a pipeline inspector's certificate with at least one gas technologist holding this certification;
5. The D&M Foreman will train all outside personnel on plastic pipeline construction and maintenance, once per year. The certification will be valid and recognized by the Gas Company, for 12 months;
6. All personnel shall have a valid driver's license as recognized by the Province of Ontario;

9.0 TRAINING

Training will be provided as determined by legislative and regulatory requirements and Gas Company policies in terms of operational requirements for the natural gas system, the equipment used to maintain the system, and under the safety and health program.

The Gas Company personnel who work on the natural gas system, fulfill various roles. The competencies and certifications vary from roll to roll. As such, the training requirements to fulfill the rolls, will vary. It is the Gas Company's position that the required training, will be provided for all employees to assist them in attaining the competencies and certifications required to maintain the safety of the gas distribution system.

To assist and ensure personnel receive training to meet and attain required competencies and certifications, three categories of training are defined.

1. **CORE TRAINING** is provided to meet regulatory requirements, Gas Company requirements, and to enable distribution and maintenance personnel to meet the minimum required competencies and certifications.

2. **COMPETENCY MAINTENANCE TRAINING** is provided to meet regulatory requirements, Gas Company requirements, and to enable distribution and maintenance personnel to maintain certifications and competencies achieved.
3. **COMPETENCY ENHANCEMENT TRAINING** is provided to allow personnel that have met the required competencies and certifications to acquire enhanced knowledge and skills relevant to their duties and to enhance the education requirements for upgrading.

9.1 PROVISION OF TRAINING

Training will be provided to staff as identified by the D&M Foreman and changing regulatory requirements. Various methods of training will be used to provide training. These are:

1. Policy and procedure reviews provided by and completed by Gas Company personnel;
2. Theory training provided by Gas Company personnel and contracted outside professional trainers and technical experts;
3. Practical training provided by Gas Company personnel and contracted outside professional trainers and technical experts;
4. Training that is available on-line and completed independently by Gas Company personnel.

9.2 INDEPENDENT STUDIES

Six Nations Natural Gas encourages and supports staff in their efforts to remain current and to upgrade their skills, knowledge and qualifications in order to enhance their work performance and improve their potential for assuming increased responsibilities. Certain expenses will be re-imboursed for approved studies completed outside of an employee's regular working hours.

9.3 TRAINING RECORDS

Proof of training records shall be maintained as required by the regulatory process and the Gas Company.

Personnel are responsible for and are required to provide copies of proof of training received from third party training providers or independent study.

Personnel are responsible for providing copies of regulatory certification licenses.

10 PERSONNEL COVERAGE

As mentioned in Section 7.3, the D&M Foreman is responsible for coordinating and directing the activities of gas technicians.

The customer service group hours are:

from Labour Day to Victoria Day:	Monday to Friday from 8:00am to 4:30pm.
from Victoria Day to Labour Day:	Monday to Thursday from 7:00am to 4:30pm and 7:00am to 12 noon on Friday.

There is one certified gas technician on call at all times during off hours. He does have the authority to call in other gas technicians should the need arise.

The main office is open from 8:30am to 4:00pm Monday to Friday. During off hours, the phone system is covered by an off location answering service, which is provided with the phone number of the on-call gas technician.

11 ESSENTIAL SUPPLIES AND SERVICES

The Gas Company requires suppliers to provide current documentation that their products have undergone testing to meet the required standards for materials used in the natural gas distribution system. This ensures quality in the supplies and services employed by the Gas Company in the maintenance of its infrastructure to provide natural gas to our customers.

The Essential Supplies and Services List found in the Appendix, identifies those supplies and services considered essential to the continued supply of natural gas to our customers.

11.1 QUALIFICATIONS OF CONTRACTORS & CONSULTANTS

Assessment of the technical qualifications for consulting and contracting services is the responsibility of the person procuring the services.

As much as possible, it is Gas Company personnel who are directly involved in the construction and repair of the distribution system. In this way, core competencies and certifications of those involved, are ensured and tracked.

If outside contractors are involved in the construction and repair of the distribution system, they must follow the standard procedures of the Gas Company and applicable legislation and regulations.

Whenever a Request For Proposal is sent out for contractor / consultant tender, proof of competency and licensing will be a part of all submitted bids. As well, the Gas Company's DSIMP will be referred to on the RFP. It will become a part of the website so that it can be easily obtained.

12 DOCUMENTS AND RECORDS CONTROL

Documents provide the foundation for the development and ongoing maintenance of the DSIMP. These documents include policies, operational plans, capital plans, maintenance

plans, and procedures, legislation, regulations, standards and records. Documents are revised from time to time to reflect current legislation, regulations and operational conditions. Control of the documents must be consistent to ensure they are current, accurate, available and accessible at all times, when and where required.

Records are documents which provide proof of activities performed and results achieved. These are historical evidence of what has been done and **must not be changed.** Records include employee log books, system performance data, completed forms, and photographs.

13 CHANGE MANAGEMENT

DSIMP is a living program, as such it is flexible. It will be continually evaluated and modified to accommodate changes in pipeline design and operation, changes in the regulatory environment and other integrity related information. This is to ensure the DSIMP takes advantage of improved technology and remains integrated with the business of the Gas Company and supports its goals.

As such, the DSIMP will be evaluated at least once a year by a meeting between the D&M Foreman. His / her staff and the General Manager. Other meetings beyond the annual meeting will occur as required. Issues to be discussed should include, but not be limited to:

1. Performance measures
2. Testing and inspection successes and failures
3. Document / Records control
4. Hazard identification
5. Root causes of recent failure investigations
6. Inspection program performance
7. Alternative repair methods
8. Staffing for inspections, testing and repairs
9. Process enhancement / changes
10. Recommended changes for the DSIMP
11. Additional training requirements necessary for DSIMP
12. Past and present program assessment results
13. Data integration and risk assessment information
14. Additional preventative and mitigating actions
15. Additional items as necessary to aid in the success of the DSIMP

The reporting of these findings is essential for the continual improvement of the DSIMP. The results of any review shall be documented as well as any and all recommendations brought forth from such a review and included as part of the documentation provided to Top Management prior to the Management Review.

13.1 RECOGNIZING CHANGE

To keep the DSIMP current, the Gas Company will identify changes that could impact any of the risk factors identified in the programs. Such changes may include:

1. Adding to, abandoning sections of or modifying the distribution system;
2. Changes in the operating conditions of the distribution system that may affect the risk prioritization and mitigation measures;
3. Changes to the operating pressure of the distribution system;
4. Changes to existing procedures or addition of new procedures;
5. Changes in records;
6. Changes along the right-of-way, such as changes in land use;
7. Regulatory changes.

13.2 CHANGE MANAGEMENT PROCESS

Changes related to the design, construction and operation of the distribution system, are the responsibility of the D&M Foreman.

13.3 UPDATES TO THE DSIMP

Any of the above changes may impact all or portions of the DSIMP. When changes are identified, the following issues shall be evaluated:

1. What are the reasons for the change? Are they valid?
2. Have the potential impacts or affected impact zones been altered?
3. Should data be added, deleted or modified in the records?
4. Does the change impact data that was input or assumptions made during the risk assessment?
5. Does the change affect inspection, prevention or mitigation plans?
6. Should the change lead to a revision of the Distribution System Integrity Management Plan?
7. Does this change impact any performance measures or criteria?
8. Does this change need to be communicated to any other affected parties?

Affected parts of the program shall be modified as necessary to reflect the changes.

14 RISK ASSESSMENT

The Gas Company has developed a process to ensure that potential hazardous events and situations and their impact on the distribution system integrity are identified. As such, appropriate monitoring, control and response measures will be taken to mitigate the risks associated with the hazards.

This process is a fluid dynamic.

14.1 HAZARDS AND HAZARDOUS EVENTS IDENTIFICATION

Hazards and hazardous events are identified through information available to the Gas Company. These include distribution system drawings, Union Gas points of delivery, end use customers and the potential events, both internal and external, that can occur and resulting hazards for each event.

A list of events is found in Appendix 3.

14.2 RISK VALUE ASSIGNMENT

A Risk Value is assigned to each hazard identified by completing an assessment of the associated risk, based on the probability and the consequence of the hazard and hazardous event.

1. Probability is assessed by examining how often a hazardous event or hazard has occurred and how likely it is to re-occur.
2. Consequences are assessed by evaluating the projected health impact of a hazardous event or hazard if not controlled and the portion of the serviced population that may be at risk.
3. For each hazardous event and hazard, a three level rating of A, B or C is assigned .
   An A level rating is the highest level, meaning most likely to occur.
   A B level rating is medium with some likelihood of occurring.
   A C level rating is the lowest level with little likelihood of occurring.

14.3 OPTIONS FOR RISK REDUCTION AND HAZARD CONTROL

1. **Operator (Gas Company) error** – options to reduce frequency:
   a. Personnel training and employee evaluations / assessments;
   b. Improved system monitoring methods;
   c. Modified maintenance practices;
   d. Improvements or modifications made to piping and equipment used.
2. **External interference** – options to reduce frequency:
   a. Participate in Ontario One Call utility locations and advertise our membership;
   b. Improve public awareness and education programs regarding the presence of the gas distribution system;
   c. Vegetation control to improve right-of-way visibility;
   d. Use of markers and signs to identify the presence of underground natural gas system;
   e. Improved procedures for gas distribution system location and excavation;
   f. Maintain or improve right-of-way inspections and patrols such as annual leak survey;

g. Installation of structures or materials to protect the system.

3. **Defects or malfunctions** – options to reduce frequency:
   a. Maintain and improve failure detection methods: sight, pressure tests, soap bubble tests;
   b. Maintain frequency of equipment calibration and inspection such as fire extinguishers and gas detectors;
   c. Temporary reduction in distribution pressure;
   d. Assessment, repair, rehabilitation and replacement programs.
4. **Natural Hazards** – options to reduce frequency:
   a. Inspection and evaluation of areas subject to washout erosion, freeze-thaw, settlement due to seasonal change and construction / development;
   b. Increased frequency of right-of-way inspections;
   c. Relocation;
   d. Installation of structures or materials to protect the system from external loads.

14.4 CONSEQUENCE REDUCTION

These are options that may be used to reduce the consequences associated with system failure or damage:

1. Improved public awareness and education programs;
2. Improved emergency response procedures;
3. Improved methods to limit the size of natural gas release;
4. An evaluation of hazards to identify recommended areas of change to management processes or infrastructure
5. Recommendations to be summarized and documented.

15 INTEGRITY MANAGEMENT PROGRAM PLANNING

Currently, except for two RailLink Railway crossings, the distribution system of The Gas Company comprises of P/E natural gas pipe.

At the two rail crossings, P/E carrier pipe is protected by approximately 36 m of coated steel casing pipe which also has corrosion protection.

There is one river crossing of approximately 500 m. A four inch P/E pipe has been bored under the Grand River. The carrier pipe has been fed through black plastic casing pipe and is bored through shale bedrock.

All pipe, when installed, has copper tracing wire attached to it and is buried a minimum of 1 meter.

At each road corner, where pipe will tee off, there are a minimum of two emergency shut off valves. There are plastic line markers at the location of each valve.

At the service tee to large commercial users, schools, arenas, institutional buildings, community gathering buildings, shut off valves have been installed.

Plastic line markers are installed along the natural gas right of way as per regulations.

15.1 INSPECTIONS, TESTING, PATROLS, MONITORING

The following ongoing inspections will take place as part of the DSIMP. The timing or frequency of inspections and monitoring will change as required to reduce risk of system failure and improve system operations.

1. Upon completion of construction of a main system lateral or a customer service line, the constructed pipe will be pressure tested to a minimum of 100 psi for 60 minutes.
2. A leak detection survey will be conducted at least annually on the natural gas system. This will take place on approximately one third of the system, such that, the total system is covered every three years.
   In the core area of Ohsweken, the leak detection will occur every two years, at the same time as the general leak survey.
   For new lateral distribution line construction, that line will be leak surveyed at the same time as the general leak survey, following one winter of operation. After this, the lateral will be surveyed once every three years at the time, it's area is surveyed.
   This will allow for the distribution system right of way, to be visually monitored by an outside agency / contractor, as they do the leak survey.
   At the same time as the leak survey, the odourant levels will be tested at the end of the system furthest from the city gate, and in the core area of Ohsweken.
   All completed leak detection survey records are filed in the front office. These are held for a minimum of seven years.
3. The Gas Company is a member of Ontario One Call. All requests for a line locate will be done within two business days. If it is an emergency locate, we will accommodate the request as soon as possible.
   If construction is to occur around the location of the 6" pipe running east west on Third Line, Gas Company personnel will be present during any digging by outside contractors.
   A locate, once performed on paper, is valid for thirty (30) days from the date on the map provided.
4. Corrosion protection points at the two railway crossings will be monitored annually.
5. Emergency shut off valves will be exercised annually and recorded.
6. Gas leak monitoring devices are to be calibrated at least quarterly.
7. For pipeline breaks, TSSA will be contacted with the names of all parties involved.

Following any incidents, a debriefing of all Gas Company personnel and outside contractors involved in the incident and used by the Gas Company will occur. This will happen at the monthly safety meetings. The incident will be reviewed and analyzed to determine the cause of the incident and what if any, potential actions can be taken to reduce the risk of similar future occurrences.

An advertising campaign will be done annually to remind the public to 'Call Before You Dig.' This will be done with the monthly invoice mailings and through the papers.

15.2 MONITORING AND MEASUREMENT

All written records, charts, photographs supporting inspections, testing, patrols and monitoring will be kept at the Gas Company offices.

1. For service line installations, all written records, including maps, pressure tests, safety inspections are filed at the main office and maintained by the D&M Foreman;
2. For the distribution line, all construction records are maintained and stored by the D&M Foreman;
3. Leak detection records are maintained by the General Manager in the main office;
4. An Index of all forms monitored and stored, is found in the Appendix.

15.3 INCIDENT INVESTIGATIONS

Upon notification of an incident that adversely affects the integrity of the distribution system and the operations of delivering natural gas within the Gas Company's franchise area, an investigation will commence.

Incidents to be investigated under this procedure include, but not limited to:

1. Pipeline breaks due to outside contractors digging around the gas distribution system;
2. Pipeline failures;
3. System control failure or damage (metering and regulating equipment);
4. Damage to system due to equipment / vehicular contact collision.

It is up to the gas technician attending the incident to ensure all necessary information is collected. This information will include, but not be limited to:

1. Time of arrival at scene;
2. If a pipeline break, flow pressure at outlet of break;
3. Size of pipeline puncture or break;
4. Time of flow of natural gas to external environment;
5. Materials used in correcting the incident;
6. Photographs;
7. Measurements of distances and depths;
8. A completed incident report that includes the above information as well as the number of Gas Company employees used, the name of the person who caused the breach of system integrity, and signatures where possible of the gas technician, person responsible and Gas Company General Manager.
9. A copy is to be given to the offending party, once signed.

16 REVIEW AND IMPROVEMENT

The DSIMP is a living, organic document. It is to be flexible to accommodate improvement and change in operation, the physical and regulatory environment, changes in materials used, as required. Continuous evaluation is required to be sure the program takes appropriate advantage of improved technology and that the program remains integrated with business practices and effectively supports the Gas Company's goals.

A meeting to review the DSIMP, will be held once per calendar year. Other periodic meetings beyond the annual meeting will be scheduled as needed. Issues that will be reviewed at each meeting may include, but not be limited to:

1. Performance measures;
2. Testing and inspection successes and failures;
3. Documentation and Records Control;
4. Hazard identification;
5. Root causes of failure investigations;
6. Inspection program performance;
7. Alternative repair methods;
8. Staffing;
9. Process enhancements;
10. Recommended changes for the DSIMP;
11. Additional training requirements;
12. Data integration and risk assessment information;
13. Additional preventive and mitigating actions;
14. Additional items as necessary to aid in the success of the DSIMP.

16.1 MANAGEMENT REVIEW

Management will review at a minimum, once every twelve months, the performance of the DSIMP. Deficiencies that are noted, will be acted upon.

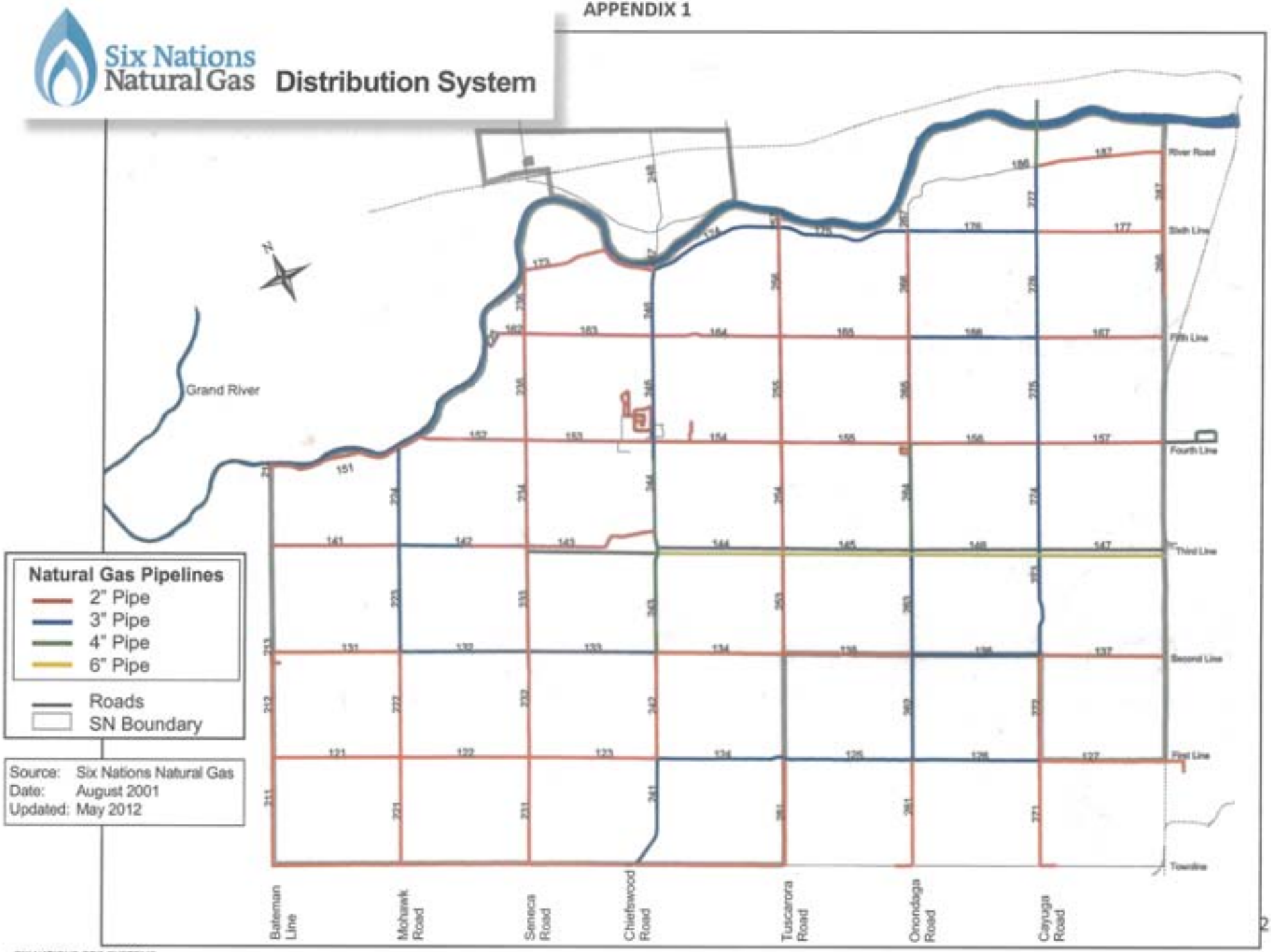
APPENDICES TO DISTRIBUTION SYSTEM INTEGRITY MANAGEMENT PROGRAM

APPENDIX 1

DISTRIBUTION SYSTEM MAP

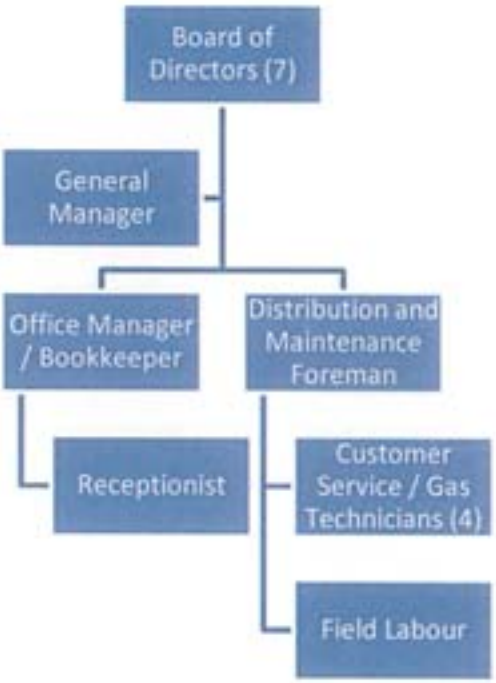
APPENDIX 1

Six Nations Natural Gas Distribution System



APPENDIX 2

SIX NATIONS NATURAL GAS ORGANIZATION CHART



APPENDIX 3

ESSENTIAL SUPPLY AND SERVICE PROVIDERS

Sandale Utility Products	Brantford, ON	519-754-1366
TSSA Head Office	Dave Ellis Toronto, ON	519-442-9684
Action Spills Center	Ministry of the Environment	866-663-8477
KTI Products	Mississauga, ON	905-727-8807
HETEK Solutions	London, ON	519-659-1144
G-Tel	Barry Smith London, ON	866-692-0208

APPENDIX 4

HAZARDS AND HAZARDOUS EVENTS IDENTIFICATION

1. **Gas Company / Operator Error**
   Probability of occurrence is low. Level C

   Consequence to general public and company property in terms of life and property damage is high, should a severe event occur. Level A

2. **External Interference**
   a) Public from not calling before digging, willful damage to company property such as removal of warning posts is low. Level C.
   b) Terrorism, vandalism is low. Level C.
   c) Outside contractors those with experience , the probability of occurrence is low. Level C.
   d) Outside contractors without experience, the probability of occurrence is medium. Level C.

   Consequence to general public and company property in terms of life and property damage is high, should a severe event occur. Level A

3. **Defects and Malfunctions**
   Probability of occurrence is low. Level C

   Consequence to general public and company property in terms of life and property damage is high, should a severe event occur. Level A

4. **Natural Hazards / Environment**
   These include wash outs due to excessive rain fall, earth quakes, car accidents.
   Probability of occurrence is low. Level C.

   Consequence to general public and company property in terms of life and property damage is medium, should a severe event occur. Level B

Level Classification

Level A: Is high. Likely occurrence is 6 times per year or more.

Level B: Is medium. Likely to occur between 2 to 5 times per year.

Level C: Is low. Likely to occur not at all or once a year.

Consequence Classification

Level A: Potential damage to life, limb and property is severe.

Level B: Potential damage to life, limb and property is moderate.

Level C: Potential damage to life, limb and property is minimal to not at all.

APPENDIX 5

SIX NATIONS NATURAL GAS COMPANY

EMERGENCY PLAN

Six Nations Natural Gas Company

Emergency Procedures Manual

For The

Natural Gas Distribution System

Emergency Procedures Manual For The Natural Gas Distribution System

INDEX

SECTION 1: GENERAL

1.01 STATEMENT OF POLICY FOR SIX NATIONS NATURAL GAS

1.01.01 The steps and procedures outlined in this document are intended to serve as a guide in the event of an operational emergency to the natural gas distribution system.

1.01.02 Each emergency situation must be judged in the light of actual conditions and these procedures therefore **should not** be construed as the only acceptable means of handling emergencies. These procedures will provide a basis for consideration when an emergency arises.

1.01.03 Anyone who undertakes, or has the authority to direct an emergency task, is under a legal duty to take reasonable steps to prevent bodily harm to any person, arising from the work or task performed, in the event of an emergency.

1.02 PURPOSE

1.02.01 The purpose of this Statement of Policy is to establish minimum guidelines in the event of an emergency disruption to the natural gas distribution system.

1.02.02 Each Gas Company employee or contractor hired by the Gas Company involved in an emergency situation, is required to act in accordance with his / her training and experience to keep the potentially negative effects of the emergency to a minimum.

1.02.03 The following will serve as basic requirements during all emergency conditions:

a. Safeguard the life and property of the public.
b. If at all practical, maintain the natural gas supply to customers not affected by the emergency.
c. Minimize the effect of any disruptions.
d. Restore normal operations as quickly as possible.

1.03 SCOPE

1.03.01 This Statement of Policy and Procedure applies to all employees and contractors hired by the Gas Company.

1.04 RESPONSIBILITIES

1.04.01 The senior manager, in consultation with the Distribution and Maintenance Foreman, is responsible for developing, implementing and maintaining the Emergency Procedures Manual For The Natural Gas Distribution System.

1.04.02 On-site managers are responsible for the safe return to normal operations as quickly as possible while ensuring the safety of employees and contractors under their supervision and minimizing damage to property.

1.04.03 On-site managers must operate within the guidelines of the Gas Company's Occupational and Safety Policies and Procedures at all times.

1.04.04 Each employee is responsible for working under the direction of the on-site manager and working safely in compliance with accepted safe work practices, procedures and legislated standards.

1.04.05 Contractors and their workers are responsible for working under the direction of the Gas Company's on-site manager and meeting or exceeding the Gas Company's accepted safe work practices, procedures and legislated standards.

1.05 REFERENCES

a) CSA Z662-07 Oil and Gas Pipeline Systems
b) CSA B149.1-10 Natural Gas and Propane Installation Code
c) Technical Standards and Safety Act, Ontario
d) Technical Standards and Safety Regulations, Ontario
e) Occupational Health and Safety Policy and Procedures, Six Nations Natural Gas Company.

1.06 DEFINITIONS

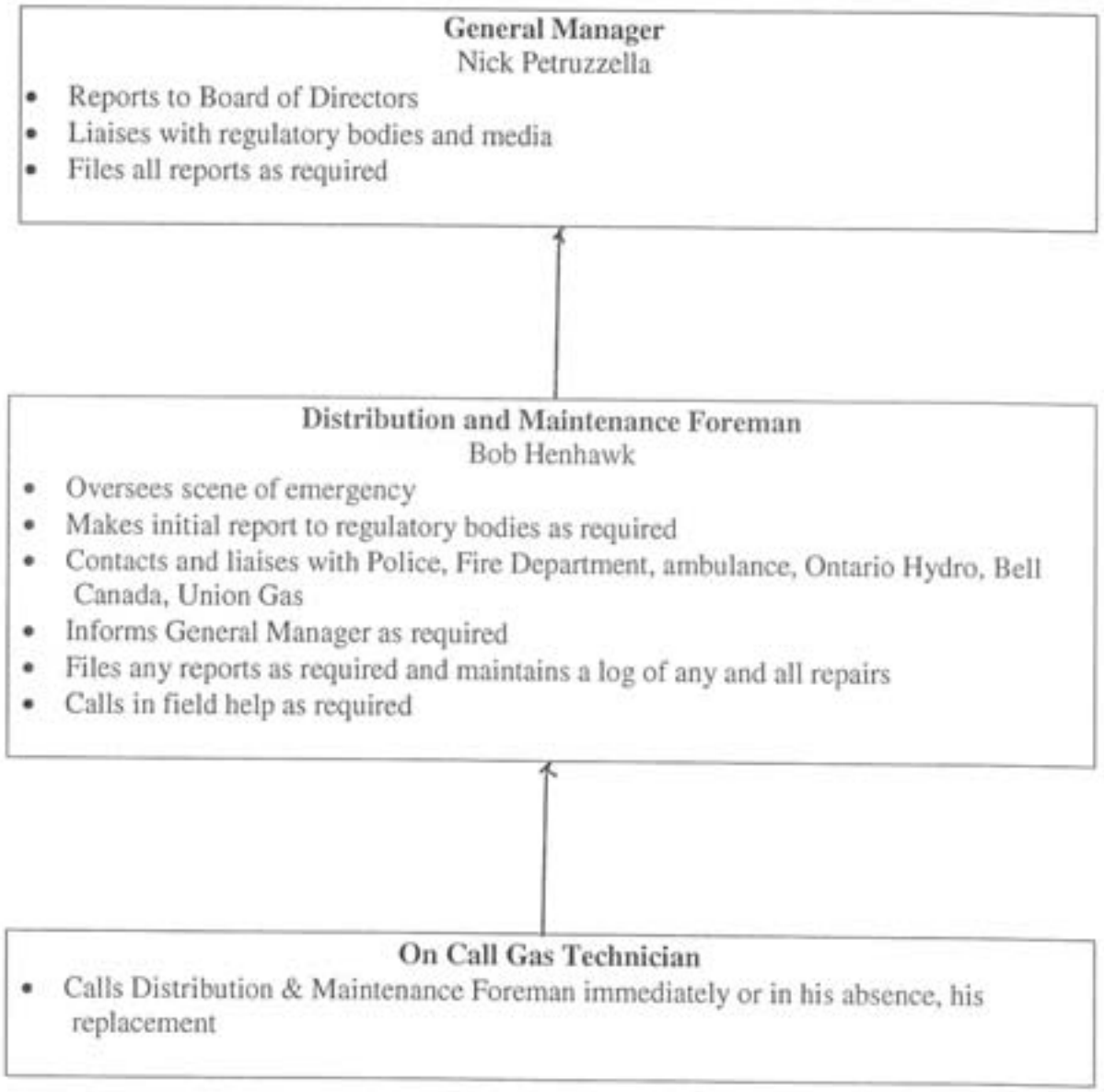
None

1.07 ATTACHMENTS

APPENDIX A Organizational Chart

APPENDIX A

ORGANIZATIONAL CHART FOR EMERGENCY PROCEDURES



REVISION CONTROL

ISSUE DATE	REVISION	EFFECTIVE
July 21, 2010	Supersedes Emergency Planning Manual, issued July 27 1994	July 21, 2010
July 27, 1994	Supersedes Emergency Planning Manual, issued July 26 1993	
July 26, 1993		

SECTION 2: DAMAGE TO DISTRIBUTION SYSTEM

2.01 POLICY

2.01.01 The safety of employees responding to an emergency, and the public at large, is the first priority in any given situation.

2.01.02 Damage to the distribution system by company or outside forces must be classified as emergency and must be repaired immediately.

2.01.03 A qualified gas technician of the Gas Company will be available to deal with emergency calls 24 hours a day, 7 days per week. At a minimum, the gas tech will be certified by the Gas Company annually, to deal with pipeline breaks and repairs. Each gas tech on call, will have with him at all times a company issued pager and cell phone.

2.02 PURPOSE

2.02.01 In responding to a hazardous and / or emergency situation, the concerns should be as follows:

a. Protection of the public, Gas Company personnel and property.
b. Prevention or minimization of loss of service to customers.
c. The safe shut-down and return to safe operating conditions.

2.03 SCOPE

2.03.01 This statement of policy and procedures applies to all employees and contractors hired by the Gas Company during the response to an emergency situation covering the natural gas distribution system.

2.04 RESPONSIBILITIES

2.04.01 The gas technician initially responding to the initial call regarding a potential emergency to the distribution system, will assess the situation. If necessary, he must call the Emergency Co-ordinator or his / her replacement and any other employee to bring the situation under control.

2.04.02 Once the Emergency Co-ordinator has been called the responding gas technician will pass responsibility to him / her once they have arrived on site.

2.04.03 It is the responsibility of the on-site manager to ensure that all employees under his / her operate in a safe manner to minimize any bodily harm.

2.04.04 It is the responsibility of the on-site manager to record all emergency repairs. These shall be kept for the life of the pipeline. A copy is to be given to the General Manager.

2.05 PROCEDURES

2.05.01 The Emergency Co-ordinator will work in conjunction with the local Police and Fire Department if they are on site and direct all employees working on site.

2.05.02 Records, consisting of maps and suitable forms, must be signed and dated by the Emergency Co-ordinator, the General Manager and customer. The original is to be kept by the Emergency Co-ordinator with copies given to the General Manager.

2.05.03 To call for other utility locates as soon as possible to minimize damage to any underground plants not owned by the Gas Company.

2.05.04 All gas services emanating from the general vicinity of a pipeline breach, shall be rendered inactive, on the recommendation of the Emergency Co-ordinator.

2.05.05 All basements in the immediate area shall be checked for gas indications and vented accordingly, on the recommendation of the Emergency Co-ordinator.

2.05.06 All street openings in the immediate area shall be checked for gas indications and vented accordingly on the recommendation of the Emergency Co-ordinator.

2.05.07 Upon the recommendation of the Emergency Co-ordinator, bar hole testing should be performed and the results recorded. Bar hole testing should be done in the following sequence, consistent with good judgment:

1. Completely around the affected building or buildings near the foundation.
2. On any service or services entering an effected building.
3. Any other location deemed desirable by the Emergency Co-ordinator.

2.06 FORMS

1. Six Nations Natural Gas Service/Leak/Emergency Report.
2. Any maps / plots as required.

2.07 DEFINITIONS

None

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SECTION 3: NOTIFICATION

3.01 POLICY

3.01.01 It is the policy of The Gas Company that all regulatory bodies, governmental agencies, and management, within the framework of The Gas Company, be notified as reasonably soon as possible and within the context of the law.

3.01.02 The Spill Action Centre shall be notified of all reportable incidents within 24 hours at tel. 1-800-268-6060.

3.02 PURPOSE

3.02.01 To ensure The Gas Company is in compliance with regulatory bodies or governmental agencies in terms of reports to be generated and issued.

3.02.02 To ensure The Gas Company is not monetarily fined or punished by regulatory bodies or governmental agencies.

3.02.03 To ensure the General Manager and the Board of Directors of The Gas Company are aware of any and all incidents.

3.03 SCOPE

3.03.01 This Statement of Policy and Procedure applies to all employees and contractors hired by the Gas Company.

3.04 RESPONSIBILITIES

3.04.01 It is the responsibility of the answering gas technician to an event, to contact the Emergency Co-ordinator, or in his absence, his replacement.

3.04.02 It is the responsibility of the Emergency Co-ordinator to contact the Fire Department, the Police Department, TSSA and the General Manager, as required.

3.04.03 The Emergency Co-ordinator is to direct and monitor the activities of all on site personnel during a given situation and ensure their safety.

3.04.04 The Emergency Co-ordinator is responsible for the decision to close any safety valves on the distribution line and re-open when it is safe to do so.

3.04.05 It is the responsibility of all on site personnel during a given situation to take direction from the Emergency Co-ordinator. The staff is to gather all information as required and directed.

3.04.06 It is the responsibility of the General Manager to follow up with TSSA, and to contact any other regulatory bodies such as the Ministry of Labour or WSIB as required. The General Manager will contact the Gas Company Board of Directors.

3.05 PROCEDURES

3.05.01 The Emergency Co-ordinator, or in his / her absence, the temporary Emergency Co-ordinator, is to be informed immediately following:

a. Fire or explosion.
b. A building evacuation due to a natural gas leak.
c. Where large accumulations of gas have made it necessary to evacuate a building. Such notification should not preclude what is deemed to be a necessary and prompt action.
d. All low pressure and medium pressure main breaks.
e. All instances of customer outages caused by any type of distribution system failure
f. All instances where personnel have been injured through any exposure to system facility failure.

3.05.02 Necessary forms can be found in the Gas Company's Occupational Health and Safety Manual.

3.05.03 The Spill Action Centre is to be notified within 24 hours of a reportable incident.

a. Property damage on the utility side of the meter exceeds $5,000.
b. Property damage on the utilization side of the meter exceeds $5oo.
c. Death or serious injury has occurred. At this time, the Police, the Ministry of Labour and WSIB is to be informed with the necessary forms filled out.
d. It appears carbon monoxide poisoning or asphyxiation has occurred.

3.05.04 Telephone numbers appear in Appendix A.

3.06 DEFINITIONS (cont'd on next page)

3.06 DEFINITIONS

Reportable Incident:

a. Fire or explosion.
b. A building evacuation due to a natural gas leak.
c. Where large accumulations of gas have made it necessary to evacuate a building. Such notification should not preclude what is deemed to be a necessary and prompt action.
d. All low pressure and medium pressure main breaks.
e. All instances of customer outages caused by any type of distribution system failure.
f. All instances where personnel have been injured through any exposure to system facility failure.

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4.0 APPENDIX A

4.01 PHONE NUMBERS

Gas Company Personnel

Bob Henhawk (D & M Foreman), Emergency Co-ordinator	519-861-4449
Ed Maracle	519-861-4448
Dan Martin	519-861-4450
Brad Williams	519-861-4451

Six Nations Fire Department		911
Six Nations Police Department		911
Six Nations Ambulance		911
Six Nations Public Works		519-445-4242
Spill Action Centre		800-268-6060
Technical Standards and Safety Authority (TSSA)		877-682-8772
Ontario One Call		800-400-2255
Union Gas		800-265-5230
Sandale	Office	519-754-1366
	Sandro D'ambrosie (cell)	519-761-8876
	Ed Fifield (cell)	519-757-6366
	Ed Fifield (home)	519-752-3471
HETEK	Office	888-432-8422

APPENDIX A

ORGANIZATIONAL CHART FOR EMERGENCY PROCEDURES

General Manager
Nick Petruzzella

- Reports to Board of Directors
- Liaises with regulatory bodies and media
- Files all reports as required

Distribution and Maintenance Foreman
Bob Henhawk

- Oversees scene of emergency
- Makes initial report to regulatory bodies as required
- Contacts and liaises with Police, Fire Department, ambulance, Ontario Hydro, Bell Canada, Union Gas
- Informs General Manager as required
- Files any reports as required and maintains a log of any and all repairs
- Calls in field help as required

On Call Gas Technician

- Calls Distribution & Maintenance Foreman immediately or in his absence, his replacement

Six Nations Natural Gas
P.O. Box 300
Ohsweken, ON N0A 1M0
(519) 445-4213

Report No. 2378

SERVICE/LEAK/EMERGENCY REPORT

OCCUPANT'S NAME		ROAD SECTION
OWNER ❑ TENANT ❑	ADDRESS	TELEPHONE NUMBER
OWNER'S NAME	ADDRESS	TELEPHONE NUMBER

DATE OF REPORT	DATE REPORTED	TIME REPORTED
LOCATION OF LEAK/PROBLEM ABOVE GROUND	BELOW GROUND	IN HOUSE

NATURE OF LEAK:	COMBUSTIBLE ❑	CO ❑	OTHER ❑
LEAK STATUS:	A ❑	B ❑	C ❑

COMMENTS/PROBLEM

REMEDIAL ACTION TAKEN

OCCUPANT'S SIGNATURE _____ DATE _____

TECHNICIAN'S SIGNATURE _____ DATE _____

GENERAL MANAGER'S SIGNATURE _____ DATE _____