

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC INVESTIGATION INTO)
EXCESSIVE WATER LOSS BY KENTUCKY’S) CASE NO. 2019-00041
JURISDICTIONAL WATER UTILITIES)

ESTILL COUNTY WATER DISTRICT NO. 1’S FINAL STATUS REPORT
ON COMPLIANCE WITH ORDER OF NOVEMBER 22, 2019

Pursuant to the Commission’s Order of April 7, 2020, Estill County Water District No. 1 (“Estill District”) submits the following report on the status of its efforts to comply with the Order of November 22, 2019.

1. **Compliance with 807 KAR 5:066, Section 16(1).** Estill District will replace all of its existing meters rather than test meters that been in service for more than ten years since their last accuracy test. On December 5, 2019, the Kentucky Infrastructure Authority’s (“KIA”) Board of Directors conditionally committed to loan Estill District up to \$2,399,450 to fund Estill District’s System Improvement and Meter Replacement Project. This Project includes the replacement of all existing customer meters, the installation of flow metering and backflow prevention devices, the development of a hydraulic model of Estill District’s system, and the replacement or relocation of five substandard existing creek crossings. Estill District submitted the minutes of December 5, 2019 KIA Board meeting and the Project’s Profile to the Commission with its May 21, 2020 report. Attached as **Exhibit 1** to this Report is a cost estimate for the meter replacement.

2. **Fire Department Water Usage.** Attached as **Exhibit 2** to this Report are the records of fire department water usage. In its submission of May 21, 2020, Estill District advised

the Commission that it had initiated a process by which it will contact fire departments by telephone or e-mail each month to confirm non-metered usage and will report total fire department usage on its monthly water loss reports. Attached as **Exhibit 3** is the revised tariff sheet to reflect this new procedure. This tariff sheet was filed today with the Commission.

3. **Written Procedure for Third Party Damage to Water District Policy.** Attached as **Exhibit 4** is Estill District's Policy for addressing damage to Estill District property and facilities caused by third parties, including excavation contractors.

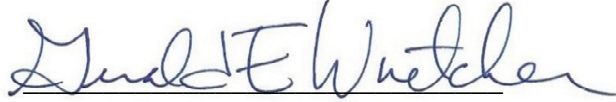
4. **Written Procedures and Policies.** Attached as **Exhibit 5** is Estill District's current Policies and Procedures Manual.

5. **Theft of Service Policy.** Attached as **Exhibit 6** is Estill District's policy regarding theft of water service.

6. **Results of Comprehensive Water Audit.** Estill District has conducted a water audit using the American Water Works Association's (AWWA) Water Audit Software v5.0. The audit was conducted using Estill District's operations for calendar year 2019. Estill District has arranged for Kentucky Rural Community Assistance Program conduct a Level 1 Water Audit Validation on the water audit results. When the validation process has been completed, Estill District will submit the validation results to the Commission. A copy of the audit results is attached as **Exhibit 7**. Embedded in the electronic version of this Report is an electronic copy of the water audit.

Dated: September 22, 2020

Respectfully submitted,



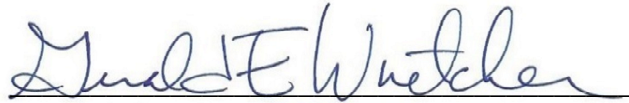
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Counsel for Estill County Water District No. 1

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, I certify that Estill County Water District No. 1's electronic filing of this Report is a true and accurate copy of the same document being filed in paper medium; that the electronic filing was transmitted to the Public Service Commission on September 22, 2020; that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding; and within 30 days following the end of the state of emergency announced in Executive Order 2020-215 this Report in paper medium will be delivered to the Public Service Commission.



Counsel for Estill County Water District No. 1

EXHIBIT 1



Lexington, KY | 859.278.5412
 Hopkinsville, KY | 270.886.5466
 Asheville, NC | 828.774.5499

OPINION OF PROBABLE PROJECT COST

Project: PHASE II (REVISED) **Client:** ECWD NO 1

Date: SEPTEMBER 2020 **Contract No.:**

Est. By: RAB **Checked By:**

SHEET: 1 **OF:** 1

No Design Completed
 Preliminary
 Final Design

Drawing No.: N/A

ITEM NO.	ITEM DESCRIPTION	QUANTITY		MATERIAL		LABOR		TOTAL COST
		NO.	UNIT	PER UNIT	TOTAL	PER UNIT	TOTAL	
1	NEW XX-INCH OMNI ZONE METER, SETTING	16	EA	\$22,000	\$352,000	\$5,000	\$80,000	\$432,000
2	RESIDENTIAL METER REPLACEMENT	2800	EA	\$500	\$1,400,000	xxxxx	xxxxx	\$1,400,000
3	STREAM CROSSING VIA DIRECTION DRILL	500	LF	\$225	\$112,500	xxxxx	xxxxx	\$112,500
4	TELEMETRY AT EACH ZONE METER SITE	16	EA	\$20,000	\$320,000	xxxxx	xxxxx	\$320,000
5	MISC. (BLACK TOP, ROCK, ETC.)	1	LS	\$35,500	\$35,500	xxxxx	xxxxx	\$35,500
TOTAL OPINION OF PROBABLE CONSTRUCTION COST								\$2,300,000

PROJECT COST		
1	ENGINEERING FEES - DESIGN	\$106,950
2	ENGINEERING FEES - CONSTRUCTION	\$41,550
3	ENGINEERING FEES - INSPECTION	\$106,000
4	MISCELLANEOUS	\$25,000
5	ENGINEERING FEES (OTHER)	\$20,000
6	LEGAL	\$25,000
7	ADMINISTRATIVE	\$65,000
8	LAND	\$10,000
9	CONTINGENCY	\$199,950
TOTAL OPINION OF PROBABLE PROJECT COST		\$2,899,450

EXHIBIT 2

ESTILL COUNTY FIRE DEPARTMENT

HYDRANT USAGE & WATER REPORT

TANKER USAGE:

DATE: March 25, 2020

TIME: 12:00 TO 13:00

HYDRANT LOCATION: 631 Dry Branch Rd.

AMOUNT: 700 GALLONS

HYDRANT CONTITION: Good,

(Hargett FD)

ENGINE DIRECT USAGE:

DATE: _____

TIME: _____ TO _____

HYDRANT LOCATION: _____

APPROX. AMOUNT: _____ GALLONS

OUTLET USED: 2 ½, 4 ½

HYDRANT CONDITION: _____

HYDRANTS NEED REPAIRED:

LOCATION: _____

PROBLEM: _____

ESTILL COUNTY FIRE DEPARTMENT

HYDRANT USAGE & WATER REPORT

TANKER USAGE:

DATE: July 22, 2020

TIME: 06:30 TO 08:00

HYDRANT LOCATION: 270 Winston Rd.

AMOUNT: 3,000 GALLONS

HYDRANT CONTITION: Good Pressure

1 of the 2 1/2" Caps is Stuck, won't come off

ENGINE DIRECT USAGE:

DATE: _____

TIME: _____ TO _____

HYDRANT LOCATION: _____

APPROX. AMOUNT: _____ GALLONS

OUTLET USED: 2 1/2, 4 1/2

HYDRANT CONDITION: _____

HYDRANTS NEED REPAIRED:

LOCATION: _____

PROBLEM: _____

ESTILL COUNTY FIRE DEPARTMENT

HYDRANT USAGE & WATER REPORT

TANKER USAGE:

DATE: July 14, 2020

TIME: 18:00 TO 19:00

HYDRANT LOCATION: 2500 Leighton Rd. before Macndonia Rd.

AMOUNT: 2,000 GALLONS

HYDRANT CONTITION: Good,

ENGINE DIRECT USAGE:

DATE: _____

TIME: _____ TO _____

HYDRANT LOCATION: _____

APPROX. AMOUNT: _____ GALLONS

OUTLET USED: 2 ½, 4 ½

HYDRANT CONDITION: _____

HYDRANTS NEED REPAIRED:

LOCATION: _____

PROBLEM: _____

EXHIBIT 3

AREA Estill County, Kentucky

PSC KY NO. 4

1st Revised SHEET NO. 22

Estill County Water District No. 1

CANCELLING PSC KY NO. 4

Original SHEET NO. 21

RULES AND REGULATIONS

b. Fire hydrants installed prior to June 7,1992, that do not meet the requirements set out in 807 KAR 5066, Section 10(2)(b), shall not be used for firefighting purposes. However, fire departments may access and withdraw water from flush hydrants to fill the tanks on a fire engine for firefighting or fire protection training purposes.

c. Unless otherwise permitted by the District, fire hydrants meeting the requirements of 807 KAR 5066, Section 10(2)(b) shall only be used for firefighting and fire training purposes, shall be used only by fire departments, and shall not be used by others to secure water for any purpose other than firefighting and fire protection training. The use of a fire hydrant by anyone other than properly authorized fire department personnel for firefighting or fire protection training shall be considered a “theft of service” and may be prosecuted in accordance with the laws of the Commonwealth of Kentucky. Unauthorized users shall be assessed an investigation charge, the cost of any damages to the District’s property, and the full cost of any water withdrawn.

d. The District will furnish water a fire department to fight a fire from a fire hydrant connected directly to its water main at each fire location for a period not to exceed a total of four (4) hours of usage. If more than four (4) hours of usage occurs in fighting a fire, the owner of the property where the fire occurs shall be liable for all water usage in excess of the four hours.

e. Except as noted paragraph d above, a fire department may withdraw water from the District’ water distribution system to fight a fire or train firefighters at no charge provided it maintains an estimate of the amount of water used for such purposes during each calendar month and reports the amount of this usage to the District on the “Fire Department – Water Usage Report Form” no later than the fifth day of the following calendar month. Negative reports of water usage are required. In lieu of a written report, a fire department may submit its report telephonically or in the form of a response to a telephone inquiry from an authorized District representative.

(N)
(N)

DATE OF ISSUE September 18, 2020
MONTH / DATE / YEAR

DATE EFFECTIVE November 1, 2020
MONTH / DATE / YEAR

ISSUED BY /s/D. Blain Click
SIGNATURE OF OFFICER

TITLE Chairman

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE
COMMISSION IN CASE NO. _____ DATED _____

EXHIBIT 4

Excavation Break Policy

The Estill County Water District No. 1 (“the District”) adopts the following policy and procedures to address instances of third-party damage to District property. This policy requires the issuance of an invoice to any third party who strikes, destroys, vandalizes, or interrupts service to the District’s water lines, pump stations, or other property.

- The District will first make every effort to identify who the party responsible for the damage.
- After identifying the party responsible for damage, the District will determine whether the responsible party followed guidelines laid out in the Kentucky 811 Call Before You Dig regulations.
- The District will determine if the District assets were properly marked before the responsible party for the damage began its excavation work.
- If the District determines the damage was caused by the responsible party’s negligence or failure to observe properly marked locations, it will determine the total financial loss resulting from the responsible party’s actions, including, but not limited to, physical asset replacement or repair, lost water, labor, and contractor expenses.
- Once the total financial loss has been determined, the District will serve a demand for reimbursement of its total financial losses in form of an itemized invoice and establish a time period for payment.
- If the responsible party fails to timely satisfy the District’s demand for reimbursement, it will consult with its legal counsel and initiate legal action to obtain compensation for its financial losses.

EXHIBIT 5

OPERATION AND MAINTENANCE MANUAL
FOR
WATER DISTRIBUTION AND STORAGE FACILITIES
ESTILL COUNTY WATER DISTRICT NO. 1

ADOPTED MARCH 2013

OPERATION AND MAINTENANCE MANUAL
WATER DISTRIBUTION SYSTEM AND STORAGE FACILITIES
ESTILL COUNTY WATER DISTRICT NO. 1

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CHAPTER 10
INTRODUCTION

A. GENERAL

1. The Estill County District No. 1 water distribution system provides potable water to mostly rural customers residing in Estill County. The distribution system plays an important role in the health and well-being of communities served. It is vital that the system is operated in a manner to provide sufficient quantities of water that meet Division of Water quality standards. In order to achieve this purpose, the system must be operated as intended by the designers and equipment maintained in good operating condition. The purpose of this manual is to describe those operating and maintenance procedures, which will enable the employees to provide water service to customers efficiently and economically.
2. All employees involved in the management, operation and maintenance of the system should read this manual and become familiar with its contents. This manual should be periodically reviewed by operation and management personnel and revisions made to reflect current operation and maintenance practices.
3. All employees should maintain a professional attitude and professional working relationships. The system should be maintained and operated in a manner that will merit the respect of the community. The effectiveness of the system and the cost of operations will be directly affected by the attitude and competence of the employees.

B. OPERATOR RESPONSIBILITY

1. It is the responsibility of the operator to put his/her training and knowledge to use in the operation and maintenance of the distribution system. The following is a list of functions to be performed by operating personnel which will result in efficient operation and maintenance of the system.
 - (a) Maintain all equipment, structures and grounds in accordance with manufacturer's instructions and this manual.
 - (b) Change the operation of the system to meet changing conditions.
 - (c) Keep complete and accurate records of all phases of operation and maintenance.
 - (d) Supervise, instruct and train subordinate personnel in operating theory and practice, maintenance, safety, record keeping and, if required, the art of getting along with each other.
 - (e) Prepare reports based on operating and maintenance records for management and/or regulatory agencies as required.
 - (f) As the need arises, be able to communicate in understandable language with employer, employees, the news media, service organizations, etc. on subjects relating to the distribution system.

- (g) Prepare operating budgets and keep such accounts as are necessary to justify budget requests.
- (h) Keep management advised, in writing, as to the status of the system, in relation to design factors, physical condition, need for expansion, etc.
- (i) Be able to inform management as to the regulations or laws governing his operations.
- (j) Participate in short courses and schools, when available.
- (k) Subscribe to and regularly read several of the periodicals related to water treatment/distribution.

C. MANAGERIAL RESPONSIBILITY

1. Management is responsible for the overall performance of the system, since management is in a position to correct any deficiencies which may occur in the operation of the system. Periodic inspections should be made to verify that the system is being operated correctly and maintenance records are being kept up to date. Mutual problems of management and operating personnel should be discussed and operation practices should be observed. The two most important functions of management are (1) provide qualified operating personnel and (2) budget adequate funds for plant operation and maintenance. Management should encourage the operator to feel free to consult with the consulting engineer at all times concerning either operation techniques or the need for making correction, improvements and/or revisions to this manual.
2. The following is a list of functions to be performed by management which will assist in efficient operation and maintenance of the distribution system.
 - (a) Maintain adequate operation and management records.
 - (b) Establish staff requirements, prepare job descriptions, develop organizational charts and assign personnel.
 - (c) Provide operational personnel with sufficient funds to properly operate and maintain the system.
 - (d) Ensure operational personnel are paid a salary commensurate with their level of responsibility.
 - (e) Provide good working conditions, safety equipment and proper tools for the operating personnel.
 - (f) Establish a harmonious relationship with operational personnel.
 - (g) Provide operating personnel with job security and career opportunities.

- (h) Establish operator training program.
- (i) Provide incentives for employees.
- (j) Motivate personnel to achieve maximum efficiency of operation.
- (k) Make employees aware of importance of proper system performance.
- (l) Make periodic inspections of the system to discuss mutual problems with the operating personnel and to observe operational practices.
- (m) Create an atmosphere that will make operational personnel feel that they can bring special problems to management's attention.
- (n) Maintain good public relations.
- (o) Prepare budgets and reports.
- (p) Plan for future facility needs.

D. DISTRIBUTION SYSTEM COMPONENTS

Water distributed by the Estill County District No. 1 is supplied from Irvine Municipal Utilities, which in turn draws it from the Kentucky River. The Estill County District No. 1 consists of water mains, storage tanks, pump stations, and other facilities. Details for these facilities are summarized in Tables 10-1 through 10-__ located in the Appendix.

Pipe materials used in the distribution system consist primarily of PVC, ductile iron and steel.

A map of the distribution system showing pipe size, location and valve locations is kept at the Estill County District No. 1 water office.

CHAPTER 20

PERMITS AND STANDARDS

A. GENERAL

The classification of water treatment plants and water distribution systems per the Kentucky Public & Semipublic Drinking Water Regulations is as follows:

Classification shall be generally in accordance with the classes listed in Section 6 of 401 KAR 8:030. However, the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) may make changes in classification in accordance with needs created by particular complexities of any specific plant or distribution system by reason of special features of design, or by reason of a source of supply that has characteristics that may make operation more difficult than normal, or a combination of such conditions. Due notice of any such change shall be given to the Owner of the treatment plant and/or water distribution system.

B. REPORT PROCEDURES FOR SPILLS OR INADEQUATELY TREATED WATER

1. General: It is very important that personnel at all levels be informed of the reporting methods for spills or improperly treated potable water. Quick reporting will aid spill clean-up and monitoring assistance can be set out to help prevent health hazards and environmental damage. Penalties for not reporting the conditions are also severe and public relations can be damaged.

2. Procedures On Reporting Spills In Kentucky

(a) Kentucky Reporting Requirements: The spill of a substance which threatens or contributes to pollution of state waters must be reported to the Kentucky Division of Water Quality as set forth in 401 KAR 5:015. The method by which the report is made depends on the type and circumstances of the spill (See Appendix).

A sewage system bypass must be reported prior to the occurrence when possible. Notification may be by any mode of communication, but must be given as far in advance of the discharge as possible.

An emergency or accidental spill or discharge, whether from a sewage system or from a container or pipeline used to transport or store substances which would contribute to water pollution, must be reported to the Division by the most rapid means of communication available. The person in charge of such activity is responsible for notifying the Division. This requirement can be satisfied by calling 502-564-3410 (during office hours) or 502-564-2150 (24-hour number).

Any person notifying the Division of a spill should, as a minimum, report the following information:

- (1) Point of spill: The site such that it may be located on a road map.
- (2) Nature and quantity of the material spilled: The chemical and trade name, quantity and present condition of the material.

- (3) Party responsible for the spill: The company, facility and/or individual.
 - (4) Assessment of probable environmental impact: The stream(s) involved, wildlife affected, other associated effects.
- (b) Federal Reporting Requirements: As set forth in 33 CFR 153.203 published in the Federal Register, the discharge of oil or a hazardous substance in violation of the Federal Water Pollution Control Act must be reported immediately to the National Response Center in Washington, D.C. (800-424-8802, a toll-free 24-hour number).

If it is impractical to give notice to the National Response Center, the spill may be locally reported to the Environmental Protection Agency, Region IV Response Center (404-562-8700, a 24-hour number).

C. PENALTIES FOR BEING NEGLIGENT IN REPORTING

The penalties for not reporting spills or not treated sewage according to the permit are severe for persons responsible for allowing the violations to take place. All persons involved in the operation of a water utility should be familiar with the Kentucky Revised Statutes (KRS) Chapter 224 concerning Environmental Protection.

CHAPTER 30

DESCRIPTION, OPERATION AND CONTROL OF PUMPING STATIONS, STORAGE FACILITIES AND PIPELINES

A. GENERAL

1. The Estill County Water District No. 1 water distribution system is supplied water from the City of Irvine at two locations in the system.
2. The water distribution system is shown on a system map maintained at the office.
3. The system contains several hydrants. These hydrants are for maintenance/flushing and access to the system.
4. A number of valves are located in the distribution system to isolate sections of the system for maintenance. Under normal conditions all valves are in the open position.
5. Under normal operating conditions the system will provide a service water pressure between approximately 30 and 100 psi.

B. PUMP STATIONS

1. The system contains eight pump stations. See Appendix ___ for specifics for each station.
2. The pumps typically operate one at a time and are controlled by radio telemetry. They also can be manually operated from each station.
3. The pump stations should be inspected on a regular basis (weekly?) to prevent significant service outages should an equipment failure occur.

C. STORAGE TANK

4. The system contains nine storage tanks. See Appendix ___ for specifics for each tank.
5. The storage tanks serve two purposes: They provide adequate system operating pressure and provide water storage. One condition that can cause a rapid drop in water level and a corresponding drop in system pressure is a line break. It is essential that any line breaks be detected as quickly as possible so that the broken section of line can be isolated and repaired quickly.
6. The storage tanks should be inspected annually to check for degradation of the coating system, corrosion and general condition of the tank structure.

D. SYSTEM PIPING, VALVES AND APPURTENANCES

1. The water distribution system contains pipe ranging in size from 2" diameter to 12" diameter.

Most equipment is constructed to include a one-year guarantee period. During this period, the contractor has the responsibility to repair, correct or replace any equipment or material that fails to perform in accordance with the terms and provisions of the contract. Personnel should be cautioned that alteration of supplied equipment without the knowledge and consent of the contractor and manufacturer may result in refusal of these parties to accept responsibility for any subsequent problems. Equipment which is not regularly in service during the guarantee period must be maintained and should be operated periodically to prevent problems which might arise due to the equipment not being operated. The fact that a guarantee is in effect should not be cause to allow improper maintenance or operation of equipment and thus reduce its useful life.

L. CONTRACT MAINTENANCE

Certain maintenance tasks would be better handled by an outside specialized contractor. For example, motor repairs should be done only by an authorized repairman and repairs to control panel wiring should be handled only by an electrician. Similarly, plumbers, mechanics, or general contractors should be consulted for plumbing problems, machine malfunction and major changes to the plant, respectively. The cost effectiveness ratio of having outside contractors perform these duties will be greater, as will the quality of the work. The Owner should solicit competitive bids from at least three possible suppliers of each service and have the contracts bid each year in order to get the best and most economical cost.

M. EQUIPMENT IN THE ESTILL COUNTY WATER DISTRICT NO. 1 WATER DISTRIBUTION SYSTEM

1. General: As stated earlier, this Chapter is not intended to replace the equipment manufacturer's operation and maintenance manuals. The following section is intended to point out some of the main maintenance items on the major pieces of equipment. Every piece of equipment should be checked when the operator makes his daily rounds. If the operator discovers anything wrong, he should take the appropriate action to see that the proper corrective maintenance work is performed.
2. Pumps
 - a. Observation of Pump Operation: When it is necessary to operate pumps, daily inspections should be made and any irregularities in the operation of a pump should be reported immediately. This applies particularly to changes in the sound of a running pump, abrupt changes in bearing temperatures and stuffing box leakage. A check of the pressure gauges and of the flowmeter, if installed, should be made hourly. If recording instruments are provided, a daily check should be made to determine whether the capacity, pressure or power consumption indicates that further inspection is required.
 - b. Semiannual Inspection: The following should be done every six months. The free movement of stuffing box glands should be checked, gland bolts should be cleaned and oiled, and the packing should be inspected to determine whether it requires replacement. The pump and river alignment should be checked and corrected if necessary. Oil-lubricated bearings should be drained and refilled with fresh oil. Grease-lubricated bearings should be checked to see that they contain the correct amount of grease and that it is still of suitable consistency.

- c. Annual Inspection: A very thorough inspection should be made once a year. In addition to the semi-annual procedure, bearings should be removed, cleaned and examined for flaws. The bearings housings should be carefully cleaned. Antifriction bearings should be examined for scratches and wear. Immediately after cleaning and inspection, antifriction bearings should be coated with oil or grease.

The packing should be removed and the shaft sleeves - or shaft, if no sleeves are used - should be examined for wear.

When the coupling halves are disconnected for the alignment check, the vertical shaft movement of a pump with sleeve bearings should be checked at both ends with the packing removed. Any vertical movement exceeding 150% of the original clearance requires an investigation to determine the cause. The end play allowed by the bearings should also be checked. If it exceeds that recommended by the manufacturer, the cause should be determined and corrected.

All auxiliary piping, such as drains, sealing water piping and cooling water piping, should be checked and flushed. Auxiliary coolers should be flushed and cleaned.

The pump stuffing boxes should be repacked, and the pump and the driver should be realigned and reconnected.

All instruments and flow-metering devices should be recalibrated, and the pump should be tested to determine whether proper performance is being obtained. If internal repairs are made, the pump should again be tested after completion of the repairs.

- d. Record of Inspections and Repairs: The working schedule of the semiannual and annual inspections should be entered on individual pump maintenance cards, which should contain a complete record of all the items requiring attention. These cards should also contain space for comments and observations on the conditions of the parts to be repaired or replaced, on the rate of appearance of wear, and on the repair methods followed. In many cases, it is advisable to photograph badly worn parts before they are repaired.

In all cases, complete records of the cost of maintenance and repairs should be kept for each pump, together with a record of its operating hours. A study of these records will generally reveal whether a change in materials or even a minor change in construction may not be the most economical course of action.

CHAPTER 70

EMERGENCY RESPONSE PLAN

A. GENERAL

Emergency conditions can be imposed on a distribution system by natural disasters, strikes, civil disorders and equipment failures. Emergency planning is essential to insure continued effective operation of the system during such emergencies. This chapter of the operation and maintenance manual focuses upon an emergency response plan to be implemented during emergencies.

An Environmental Protection Agency report entitled "Design Criteria for Mechanical, Electrical and Fluid System and Component Reliability" contains information related to emergency planning.

B. BASIC CONSIDERATION

1. **Maintaining Adequate Engineering Drawings:** It is essential that engineering drawings of the treatment plant, pumping stations, storage facilities and distribution system be kept complete and up-to-date. Drawings should be updated each time a change, large or small, is made in the System.
2. **Notification to Appropriate State Agency in Case of Possible Contamination:** When a public water system experiences a line break, loss of pressure, loss of disinfection, or other event which may result in contamination of the water, the public water system shall immediately report to the cabinet by calling the Drinking Water Branch of the Division of Water in Frankfort at (502) 564-3410 or the appropriate regional field office of the Division of Water. If a report, required by 401 KAR Chapter 8, is made at a time other than normal business hours, it shall be made through the twenty-four (24) hour environmental emergency telephone number, (502) 564-2380.
3. **Personnel:** Properly trained personnel in sufficient numbers is of primary important in an emergency situation in any distribution system. In recognition of the possibility that only one operator may be on duty at a time in the Estill County Water District No. 1 water system, it is recommended that this operator exercise extreme care and request the assistance of management in the event of an emergency. The severity of the emergency may or may not require additional personnel and equipment.
4. **On-The-Job Injuries:** On-the-job injuries should be immediately reported to management. An accident report form (see Appendix), should be completed as soon as possible and given to management.
5. **Inoculations:** Management should see that all system employees are inoculated for tetanus, toxoid and typhoid in accordance with professional medical advice.

C. VULNERABILITY ANALYSIS

A vulnerability analysis is a study of adverse effects which could prevent proper water distribution. It is our opinion that the system could be adversely affected by strikes, tornadoes, freezes, sleet storms and lightning, as well as illness, there being only one operator.

1. Strikes: If system employees were to strike, members of the utility would be called upon to operate the system. The utility is required by law to satisfy its requirements at all times and must keep the pumping stations and distribution system in operation under all conditions.
2. Tornadoes: There is a remote chance that a tornado could strike the utility's service area. If the distribution system is damaged, all undamaged components should be utilized if possible.
3. Freezes: Normal freezing should not hamper pumping and distribution system operations. The area often has winter temperatures around or below freezing; however, the constant movement of water should prevent its freezing. In the event of extended periods of severe freezing, the pumps may be operated continuously to maintain water movement in both the storage tank(s) and mains.
4. Sleet Storms: Sleet storms occur occasionally in the utility's service area. The greatest threat during such storms is power failure, due to line breaks. Power outages of this nature normally do not exceed two hours. Notify management and the utility company should this occur.
5. Lightning: Lightning often causes trouble by knocking out breakers and sometimes burning out a transformer. Notify management and the utility company should this occur.

D. MUTUAL AID AGREEMENTS

Mutual aid agreements should be considered by the utility between several organizations which could benefit the system in an emergency. The following is a list of organizations to be considered:

1. Consulting engineers for the system
2. Industrial firms
3. Construction companies
4. Electric, gas and telephone companies
5. Fire and police departments
6. Civil defense organizations
7. Health department
8. Other community agencies

A sample mutual aid agreement format and a sample mutual aid contract are included in the Appendix. This contract may be adapted for use by the utility if desired.

E. PRESERVING DISTRIBUTION SYSTEM RECORDS

Essential records, maps and inventories should be protected. Records and inventories should be kept in the file cabinet to prevent loss or destruction by theft or fire. Copies of maps of distribution mains should be available at the water system-office and copies available for maintenance crews and service vehicles.

F. COORDINATING INSTRUCTIONS FOR LOCAL POLICE AND FIRE DEPARTMENTS

The distribution system's Emergency Response Plan should be coordinated with the local law enforcement agency and fire departments.

1. Law Enforcement (State Police or Sheriff)

- (a) Should check distribution system security measures.
- (b) Should make routine checks of distribution system, storage tanks and pump stations.
- (c) Should notify distribution system Superintendent in the event of a street spill of hazardous materials.
- (d) Should be prepared to assist during emergencies within the distribution system.

2. Fire Department

- (a) Should routinely check fire fighting equipment within the facility and inspect system for potential fire hazards.
- (b) Should provide first aid instruction to distribution system personnel.
- (c) Should coordinate with distribution system personnel on safety precautions to be used with electrical equipment and chemicals.

G. RESPONSIBILITIES OF DISTRIBUTION SYSTEM PERSONNEL

Management should have overall responsibility for the emergency program. The utility should be familiar with the Disaster Relief Act of 1970 (Public Law 91-606) and the Office of Emergency Preparedness Circular 4000.5C, Manual for Applications, Federal Disaster Assistance Program. If the administration is familiar with the procedures described in these documents, it will insure that Federal assistance is received in a prompt and efficient manner in the event of eligible damage to facilities.

CHAPTER 80

SAFETY

A. GENERAL

Safety and injury prevention are of prime importance to both employees and employers. Injuries not only result in physical pain and suffering experienced by the injured, but also cause family hardship, and often permanent disability, loss of income and may result in death. Employers lose man-hours, production efficiency and possibly the costs of hiring and training a replacement and increased insurance rates.

The Estill County Water District No. 1 water distribution system and storage facilities contain various potential hazards. Some of the potential hazards associated with the water system are bacterial infection, electrical, mechanical, explosion, fire, oxygen deficiency, chemical handling, etc. Employees should always be conscious of the potential for danger and should take action to reduce the potential for accidents and injuries and to eliminate dangerous conditions to the maximum extent possible. A thorough understanding of the equipment in the distribution system is a good first step toward reducing danger to the operator.

A continuing safety training program is recommended, as well as first aid courses. A knowledge of what to do and where to get assistance may mean the difference between life and death. Encourage your fellow employees to be safety conscious and to participate in first aid and safety instruction programs, the life you save may be your own.

B. PROTECTIVE DEVICES

The first important protective device is the fence around the structures and equipment. The fence and the locked gates are provided for protection of people who are unaware of the potential danger. Also, it is appropriate that signs be provided along the fence to designate the nature of the facility and advise against trespassing.

Guard railings, handrails or other protective devices are provided on stairs, openings, tanks, ladder ways and platforms to protect the operator during routine inspections of system operations. Warning signs are posted in all hazardous areas. Channels may be provided with plates or gratings to form walkways. The operator should take care to see that these covers are always in place, and that they have not slipped to one side leaving an edge without support. This situation is very dangerous because the plate may not support the weight of a man.

All mechanical equipment is supplied with guards for belts, gears, couplings and all exposed moving machine parts. These guards should always be replaced if they are removed for any reason.

Fire extinguishers are provided at the facilities. The operator should be familiar with their locations and use.

C. SAFETY PRACTICES

1. Personal Hygiene: The best defense against infection is the practice of good personal hygiene. The following safety guides should be observed whenever working around a water distribution system:

- (a) Hands and fingers should be kept from the nose, mouth, eyes and ears.
- (b) Rubber gloves should be used while handling chemicals or other possibly infecting materials. Protective measures are particularly important when the hands are chapped or burned or the skin broken from any wound.
- (c) After work and before eating, the hands should be washed thoroughly with plenty of soap and hot water. The nails should be kept short and foreign materials should be removed with a nail file or stiff brush. When the hands are soiled, smoking pipes or contaminated ends of cigarettes or cigars may introduce infectious material to the mouth. Care should also be exercised in laboratory work that contamination is not introduced in the mount from soiled pipettes.
- (d) Fresh work cloths-should not be stored in a locker with used work clothes.
- (e) All cuts and scratches must be reported and be given first aid treatment.
- (f) A shower should be taken after each work day.

2. Safety Rules and Procedures: All system employees are responsible for all safety rules and procedures established for the safety of the employees and the water facilities. They also should render any possible aid to safe operations and report all unsafe conditions or practices to the operations supervisor. The supervisor shall insist on employees observing and obeying every rule, regulation and order as is necessary for the safe conduct of the work and shall take such action as is necessary to obtain observance.

All employees shall be given frequent accident prevention instructions. Monthly safety meetings are important, with employees being given an opportunity for involvement. These meetings may include films, slides, lectures and discussions. Safe working conditions should include observance of the following rules of procedures and conduct:

- (a) Anyone known to be under the influence of alcohol or drugs shall not be allowed on the job while in that condition.
- (b) Horseplay, scuffling and other acts which tend to have an adverse influence on safety or well-being of the employees shall be prohibited.
- (c) Work shall be well planned and supervised to forestall injuries in the handling of heavy materials and in working with equipment.
- (d) No one shall knowingly be permitted or required to work while his ability or alertness is so impaired by fatigue, illness or other causes that might unnecessarily expose him or others to injury.

- (e) Employees shall not enter chambers, tanks or other similar places that receive little ventilation, unless it has been determined that the air contains no flammable or toxic gases or vapors.
- (f) Employees shall be alert to see that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies promptly to the operation's supervisor.
- (g) Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received specific instructions from their supervisor.
- (h) All injuries shall be reported promptly, so that arrangements can be made for medical or first aid treatment.
- (i) Any job related injury requiring a visit to a physician requires a physician's release in order to return to the job.
- (j) When lifting heavy objects, use mechanical equipment when possible. When lifting by hand, use the large muscles of the legs keeping the back straight as you lift.
- (k) Shoes with thin or badly worn soles shall not be worn.
- (l) Do not throw material, tools or other objects from buildings or structures.
- (m) Wash thoroughly after handling injurious or poisonous substances and follow all special instructions from authorized sources regarding this matter. Hands should be thoroughly cleaned just prior to eating if they have been in contact with material of unknown origin, paint or similar substances.
- (n) While climbing ladders, face the ladder and use both hands.
- (o) Gasoline shall not be used for cleaning purposes.
- (p) No burning, welding or other sources of ignition shall be applied to any enclosed or partially enclosed tank or vessel, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the immediate supervisor.
- (q) Any damage to scaffold, false work or other supporting structures shall be reported promptly to the operation's supervisor.
- (r) Hard hats shall be worn at all times when outside of the control room.
- (s) Keep faces of hammers in good condition to avoid developing mushroomed heads.
- (t) Hold cold chisels in such a way that the knuckles will be protected if the hammer misses the head. Chisels struck by others should be held by tongs or similar holding devices.
- (u) Do not use pipe or Stillson wrenches as a substitute for other wrenches.

- (v) Wrenches shall not be altered by the addition of handle extensions or "cheaters".
- (w) Files shall be equipped with handles. Never use a file as a punch or pry.
- (x) Do not use a screwdriver as a chisel.
- (y) Do not push wheelbarrow with handles in an upright position.
- (z) Do not lift or lower portable electric tools by means of the power cord; use a rope.
- (aa) Do not leave cords of portable electric tools where cars or trucks can run over them.
- (bb) In locations where the handling of a portable power tool is difficult, such as high places, suspend it from some stable object by means of a rope of similar support of adequate strength.
- (cc) Eye protection shall be worn when working in areas of eye hazard, such as power saws, jack hammers, etc.
- (dd) Do not attempt to operate machinery or equipment without special permission, unless it is a regular duty.
- (ee) Loose or frayed clothing shall not be worn around moving machinery or other sources of entanglement.
- (ff) Machinery shall not be repaired or adjusted while in operation. Nor shall oiling or moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.
- (gg) Air hoses shall not be disconnected to compressors until hose line has been bled.
- (hh) Employees should wear a uniform and proper footwear while working. Uniforms and work shoes should not be worn home. This practice is important for protecting the employee's family from various health hazards. Proper footwear shall be worn to protect the individual under varying circumstances. Rubber boots should be worn in wet areas and reinforced shoes should be worn in areas where there may be falling objects. All shoes should be constructed of heavy duty material. Footwear which is defective or not appropriate to the extent that its ordinary use creates the possibility of foot injuries shall not be worn.

3. Good Housekeeping: One of the most frequent causes of accidents or fire in system facilities is poor housekeeping. While it is impractical to list all hazards, the following good housekeeping guidelines may help eliminate causes for injuries and/or fire.

- (a) A routine program and schedule for housekeeping should be established. Personnel should be oriented to the program and to a schedule of regular management inspections.

- (b) All places of employment, passageways, storerooms and service rooms should be kept clean and orderly and in a sanitary condition.
- (c) The floor of every workroom should be maintained in a clean and, as far as possible, a dry condition. Where wet processes are used, drainage should be maintained and false floors, platforms, mats or other dry standing places should be provided.
- (d) Trash and loose debris and rubbish should be picked up from floors, stairways, passageways and platforms.
- (e) To facilitate cleaning, every floor, working place and passageway should be kept free of protruding nails, splinters, holes and loose boards.
- (f) Walkways should be kept free of grease, sludge and oil.
- (g) Splash guards and drip pans should be used whenever possible to keep oil and grease from machinery and pumps off the floor.
- (h) Walkways and roadways should be kept free of ice. If this is not possible, they should be salted and sanded.
- (i) Solvent-soaked and combustible wastes should be disposed of in airtight metal receptacles and removed daily from the plant.
- (j) Kick plates should be used on catwalks and raised platforms.
- (k) General housekeeping should be scheduled on a periodic basis. This should include the floor drains and traps.

4. **Oxygen Deficiency:** One of the hazardous conditions in any facility is that of oxygen deficiency. Normal air contains about 21 percent (by volume) oxygen and 79 percent nitrogen. Any atmosphere containing less oxygen is called an oxygen-deficient atmosphere. When the oxygen level drops to 12 percent or less it may be fatal.

Basically, oxygen deficiency is the result of poor ventilation. oxygen deficiency may occur by the displacement of air by some other gas. Oxygen deficiency also may occur because of the absorption, consumption or biochemical depletion of the available oxygen as a result of the decomposition of organic matter.

Oxygen deficiency in system facilities occurs primarily in manholes, in tightly covered pits or tanks regardless of depth, and in poorly ventilated rooms or basements.

Safe practice requires an awareness of the potential problem, detecting the existence of oxygen deficiency, and proper ventilation to restore a normal atmospheric condition.

In any of the potential areas listed above where there is no assurance of ample oxygen, an oxygen deficiency detector should be used to sample and test the conditions before entry.

Correction of oxygen deficiency includes ample ventilation and removal of noxious gases if present. In rooms or structures, ventilation may be secured by opening doors or windows or through the operation of fans. In tanks, pits and manholes, ventilation may be attained with compressed air or portable air blowers. The discharge pipe or hose should extend to near the bottom of the structure.

5. **Noxious Gases and Vapors:** A noxious gas or vapor is one directly or indirectly injurious or destructive to the health or life of human beings. It may present a hazard by causing burns, explosions, asphyxiation or poisoning.

Operators of water distribution systems should be thoroughly familiar with the characteristics, sources and means of testing for the common gases associated with water facilities. These gases may occur in pumping stations, chlorine facilities, sewers and sewer manhole tunnels, and all other enclosed areas. Safe practice requires that, before entering any manhole or vault, tests should be conducted for the presence of dangerous gas with approved gas indicators.

When there is evidence of flammable or toxic gases, the manhole or vault should be purged before it is entered by forcing fresh air into the enclosure with a blower and flexible hose. While work is in progress, periodic checks should be made to determine if gas is accumulating. If this is the case, pumping and/or blowing should be continuous.

At the start-up of a new process, it is safe practice to suspect and test for gas in all potential gas producing or accumulating areas. Evidence of gas may require adjustment of faulty operations or adjustment in the ventilation system in a particular area.

6. **Explosive and Flammable Gases:** Flammable or burnable gases, when mixed with air (oxygen) in certain proportions, will explode violently upon ignition. No explosion will occur when the mixture is outside this range. The minimum concentration of a gas-air or vapor-air mixture is outside this range. The minimum concentration of a gas-air or vapor-air mixture which will explode if ignited is known as the lower explosive range of the particular gas or vapor.

Work places which are most likely to be subject to a noxious gas or vapor situation or oxygen deficiency, and which should be carefully investigated before entering are any tightly covered pit, tank or valve chamber, regardless of depth.

Detection of an existing gas or vapor hazard and taking steps to remove or to protect against it are the sure ways to prevent accidents and loss of life. Fortunately, a fairly simple method of detection of the common hazards is available at reasonable cost. Tests should be made on the order given below. Tests may be made through a ventilation hole in a manhole cover, under a partially removed cover, or with the cover entirely removed. Care must be taken in all cases to avoid the creation of sparks. It is common practice to test at a depth about six feet above the manhole or tank floor, assuming that lighter-than-air gases will be vented from the top. If flammable gas is detected, it is wise to continue testing for the entire depth of the structure.

Test for Flammable or Explosive Gases: These gases may be any of those which are explosive. They may be detected by relatively inexpensive combustible gas indicators. These instruments are battery operated units which oxidize or burn a sample of the atmosphere under test over a heated catalytic filament which is part of a balanced electrical circuit. Any

combustible gas or vapor in the tested sample will unbalance the circuit, cause a deflection of an indicator needle to show, on a scale, the concentration of combustible gases or vapors in the sample. This scale is graduated in percent of the lower explosive limit of the gas being tested. For example, if methane alone were present in the sample and the scale pointer read "1150 percent", then 2-1/2 percent of methane by volume is present in the atmosphere (since the lower explosive limit of methane is 5 percent). This would be a hazardous condition and the manhole should be ventilated and retested. In general, readings in excess of 20 percent of the lower explosive limit should be considered hazardous. The sample is obtained by a tube or probe lowered to the desired depth in the structure and a bulb is used to aspirate the sample through the unit. The instruments are usually calibrated for petroleum vapors and do not give exact accuracy for other vapors. They are sufficiently close, however, so as to give a degree of accuracy which is adequate for complete safety of personnel.

Test for Hydrogen Sulfide: Lead acetate, in a cotton mesh covered ampoule which may be crushed between the fingers and exposed in the atmosphere under test for one minute, turns from yellow to brown in color in the presence of hydrogen sulfide. The color may be compared to a chart which indicates concentrations from 5 to 25 ppm. Precautions to be taken are given on the chart. A concentration of 20 ppm is indicated as the maximum allowable for eight hour exposure.

Test for Carbon Monoxide: Ampoules similar to those described above are used for this test. They contain palladium chloride which, when exposed to the gas, turns from yellow to dark gray. A color chart is used to determine gas concentration up to 0.1 percent by volume. The chart points out the precautions which should be taken. The exposure time for these ampoules is ten minutes freezing. A maximum allowable concentration for eight hour exposure is indicated to be 100 ppm.

Test for oxygen Deficiency: This test is made by aspirating a sample of the atmosphere through a sampling tube and over a flame in an oxygen deficiency indicator. The test equipment, other than the sampling tube, should never be lowered into an atmosphere where hydrogen might be present, such as in a sewer. The instrument should be equipped with a hydrogen flame flashback arrester. Oxygen deficiency is indicated by the extinguishing of the flame or by a decrease in the height of the flame. If an explosive amount of flammable gas is present, the flame will flare up and then be extinguished. The flame will usually be extinguished by an atmosphere containing less than 16 percent of oxygen and always by one containing less than 13 percent of oxygen. The extinguishing of the flame is a good indication, therefore, of oxygen deficiency; however, at elevations -over 5,000 feet above sea level, the flame may continue to burn in an atmosphere dangerous to life.

7. Summary of Safe Practices in Enclosed Places

Condition I: Tests show no hazardous situation as to gases, vapors or lack of oxygen. Workmen entering enclosed places over ten feet deep should wear safety belts with at least two men available at the top. Even though tests show no hazards, the situation may change or the workmen may be injured. No one should smoke within the manhole and sparks from tools should be prevented by the use of non-sparking, beryllium-copper alloy tools. Rubber footwear should be worn, and only approved safety lighting should be used. Tests should be repeated at intervals if the work is prolonged.

Condition II: Tests show noxious gases or vapors or oxygen deficiency. The structure should be thoroughly ventilated, with extreme care taken to avoid ignition of flammable gas and retested. Ventilation may be done in one of several ways:

- (a) By placing a canvas or metal deflector, to direct natural air currents into the manhole with adjacent manhole covers removed. Moderate to strong winds are necessary.
- (b) A fire hose stream directed into the manhole with adjacent covers open may create sufficient draft.
- (c) Introduce compressed air from a hose to a point near bottom of manhole.
- (d) Use a portable blower with discharge hose well down in manhole, and with engine or motor-driven unit well away from manhole to prevent ignition and to keep exhaust fumes away. After thorough ventilation, and tests indicate a safe situation, proceed as in Condition I. Condition III. Tests show a hazardous situation, but an emergency exists because of flooding or a workman may have been overcome. Workmen, in addition to the provisions of Condition I, must be equipped with the proper type of respiratory apparatus. If tools are needed, only non-sparking, beryllium copper alloy tools should be used. Great care must be exercised to void all sources of ignition. Work in flammable gas atmospheres is extremely hazardous and must never be attempted except by those fully aware of the dangers.

8. Gas Masks:

Respiratory Apparatus: This type of apparatus should be relied upon only when the situation does not permit the creation of a safe atmosphere by ventilation. Most respiratory apparatus consist of a face piece with adjustable head straps so that it may be fitted snugly; a flexible hose from the mask leads to a source of safe air or oxygen supply, and a discharge valve or tube to remove the respired atmosphere. It is essential that the face piece fit it tightly so that gas cannot enter under it. The usual test for this is to pinch closed the flexible supply tube and take a quick, deep breath. The face piece, if tight, will collapse against the face.

Canister Type Masks: Canister type masks of the filter type should never be worn in manholes, pump suction wells or other places where there may be a deficiency of oxygen. They serve only to filter out or neutralize a low concentration of a particular gas for which a special canister must be supplied. With the proper canister, these masks are suitable for attending to small chlorine gas leaks where there is no oxygen deficiency and less than two percent noxious gas. They do not supply oxygen.

The Hose Mask: The hose mask is suitable for all situations where a supply of fresh air can be obtained by using up to 25 feet of hose without a blower (up to 150 feet for one or two men with a blower). This is the safest and most dependable device.

Self-Contained Breathing Apparatus: One type of oxygen supplying equipment consists of a canister containing a chemical, potassium tetroxide, a vigorous oxidizing agent, which supplies oxygen. This device is not recommended for use in sewer manholes, PUMP suction wells or

other locations where oil, grease or gasoline might come into contact with the neck of the canister and cause its deterioration or possible combustion and resulting injury to the user.

Another self-contained device supplies oxygen from a cylinder, has a rubber breathing bag, a regenerator and mouthpiece, or face piece, with the necessary regulating valves. This device is also hazardous in atmospheres containing petroleum vapors which might cause its deterioration and should be used only in their known absence.

Other Self-Contained or Demand-Type Apparatus: Demand-type apparatus, as supplied by several manufacturers, furnishes oxygen from a cylinder or compressed air as required to a face piece. The safe time limit for strenuous work with this device is one-half hour, when supplied from an oxygen cylinder. The same hazard exists with the type oxygen-supplied apparatus in the presence of petroleum vapor, oil or grease, and thus, safe practice dictates that it should not be used in sewer manholes and pump suction wells. With a compressed air cylinder, the above hazard is removed and the device can be supplied from a back-packed cylinder lasting 30 minutes or from a large cylinder, located remotely, through reinforced feed hose for six to eight hours.

Proper maintenance and repair of gas masks and the renewal of canisters is vital.

9. **Safety With Chlorine:** This paragraph contains general information regarding handling of liquid chlorine. A general knowledge of chlorine may be helpful to the operator at some time during the operation or maintenance of the water system.

Anhydrous liquid chlorine is available as follows:

- In 100, 105, 150 lb. cylinders
- In One-ton containers
- In tank cars of 16, 30 and 55 tons capacity

Each container is a steel cylinder equipped with special connections and safety relief valves. The small cylinders have a fusible plug built into the valve. All the ton containers each have three fusible plugs in each end. The standard Chlorine Institute valve on cylinders and ton containers is similar in design but the latter has a larger internal opening and does not have the fusible plug. In both types of cylinders the fusible plugs are designed to melt between 1500 and 165°F. Chlorine cylinders and ton containers, empty or full, should never be dropped or permitted to strike each other with any force. Tank cars have a spring loaded safety valve located at the center of the dome. This relief is set to be gas tight at or below 180 psi gauge and pops off at 225 psi. Cylinders and ton containers should be stored in a cool, dry place away from direct sources of heat and away from combustible or flammable materials. It is recommended that cylinders be stored on end and ton containers on their side, both with valve protectors in place. It is further recommended that containers longest on storage be used first. Cylinders should be moved about carefully, preferably on a hand truck with a strap to secure the cylinder to the truck. Ton containers should be moved about only by an approved lifting bar chins at end and never by any type of sling.

Connections to cylinders and containers are made by clamp adapters or by union connections. See that connecting surfaces and threads are clean and always use a new gasket of standard

material. connections are always a possible source of leakage and so is the packing of valves. Do not use a wrench over six inches long on a cylinder or ton container valve.

When making a new connection, open valve slightly and test for chlorine leakage with a swab, wet with ammonia, held close to valve and connection. White fumes of ammonium chloride indicate a leak. If connection and valve are tight, one full turn of valve gives full capacity of flow. Avoid getting ammonia on valves and connections, for it removes some types of plating. Leaks around valve stems can usually be stopped by slightly tightening the packing nut. All connections in chlorine lines should be tested frequently. The slightest leak of chlorine should be corrected, because chlorine is very corrosive in the presence of moisture and small leaks increase rapidly in size. Every user of chlorine should obtain from the supplier, and post conspicuously, the telephone number of the nearest emergency service for severe chlorine leaks. The manufacturers of chlorine have developed measures for dealing with leaks from serious situations such as broken valves, holes in containers and other conditions.

The handling of chlorine tank cars must be done in compliance with requirements of the Interstate Commerce Commission and the Association of American Railroads. Suppliers have prepared helpful suggestions in their bulletins. Private sidings must be provided, and reliable persons must be properly instructed and made responsible for compliance with regulations.

10. Gasoline and Volatile Solvent Hazards: Mention has been made of the possible presence of flammable vapors of gasoline and other volatile solvents. Such vapors may come in from the sewer and accumulate at low points. Gasoline vapor is heavier than air and presents all the hazards of asphyxiation and explosion.

Such places should be provided with forced ventilation. All electrical switches, lights, motors and fixtures should be explosion proof and smoking should be prohibited. Tests should be made frequently for the noxious vapors and, when found, investigations should be made to determine and remove the source.

11. Electrical Safety: Most equipment in a water system uses electricity as the power source. The maintenance of the equipment requires exposure to electrical hazards that may result in shock or death unless safe practices are strictly followed. The following list of general safety practices should be considered as a start in establishing complete electrical safety rules and procedures at a specific water plant:

- (a) Allow only qualified and authorized personnel to work on electrical equipment and wiring or to perform electrical maintenance.
- (b) Provide and use lock-out switches and tags at all remote locations or where the starter is remotely located from the equipment.
- (c) Electrical equipment and lines should always be considered to be energized unless they are positively proven to be de-energized and properly grounded. If it is not grounded, the circuit is not dead.
- (d) The use of metal ladders or metal tape measures around electrical equipment should be prohibited.

- (e) Two men should work as a team on energized equipment.
- (f) Use approved rubber gloves on voltages above 300 V.
- (g) An electrical control panel should never be opened unless the job requires it.
- (h) Before work is performed on a line or bus that operates at 440 V or above, it should be de-energized, locked out and grounded in an approved manner.
- (i) No part of the body should be used to test a circuit.
- (j) Personnel should avoid grounding themselves in water or on pipes, drains or metal objects when working on electrical equipment or wiring.
- (k) No electrical safety device should be made inoperative or bypassed.
- (l) When working in close quarters, all energized circuits should be covered with insulating blankets.
- (m) All tools should have insulated handles.
- (n) Metal-cased flashlights should never be used.
- (o) Jewelry should not be worn when working with or near electric circuitry.
- (p) All electric tools should be grounded or double insulated.
- (q) Rubber mats should be used at control centers and electrical panels.
- (r) All electric motors, switches and control boxes should be kept clean at all times.

D. HAZARDS AND SAFETY PROCEDURES

1. Smoking: Observe NO SMOKING signs, remember hazardous gases are produced and emitted in various areas around the facilities. Also, there are many flammable materials stored in shop and storage sheds.
2. Below Surface Work Areas: The principal below surface work areas are sewer manholes and pump station vaults that must be inspected, maintained and cleaned. Other below ground work may include repair and maintenance of sewers, pipes, tunnels, trenches, pits, basins and tanks. The primary hazards include oxygen deficiency, explosive and toxic gases, falling, cave-ins and exposure to chemicals.

The following procedures are recommended in these operations:

- (a) Warning devices, barriers, barricades or guard rails should be placed to protect the public and operators before manhole covers or gratings are removed.

- (b) Trucks and other equipment should be placed to present the least impediment or hazard to traffic. If possible, trucks or equipment should be placed between the working area and oncoming traffic. The vehicles should have a rotating warning light in operation.
- (c) Smoking should not be permitted in any underground structure or enclosure.
- (d) Before entering any below-surface work area, tests should be made for oxygen deficiency and the presence of dangerous gas with approved gas indicators.
- (e) If the atmosphere is normal, a worker with a safety harness attached to a life line may enter the below-surface work area.
- (f) For extended jobs, forced air ventilation should gas tests should be repeated at intervals depending circumstances.
- (g) While work is in progress in a manhole, two men stationed at the surface of the opening to hand line, if necessary.
- (h) When a gas or oxygen deficiency is found, the below-surface area should be purged by forcing fresh air into the enclosure before entering. Adequate ventilation must be maintained during work and tests frequently repeated.
- (i) In an emergency, if it becomes necessary for an employee to enter when gas or oxygen deficiency is present, a hose mask should be worn.
- (j) Extreme care should be taken to avoid all sources of ignition if flammable gas is present. Non-spark tools and shoes with rubber soles should be used, along with safety lights.
- (k) A portable, non-conductive ladder should be used wherever space allows. Otherwise, in-place units may be used.
- (l) On first entering, a careful inspection for unsafe conditions should be made. Defects such as cracks and loose bricks in the roof, walls, floor ducts and sumps should be reported to the immediate supervisor.
- (m) Only one employee at a time should be permitted on a manhole ladder. Others should not stand directly under the ladder.
- (n) Manhole rungs should be checked and weak or faulty rungs should be reported to the immediate supervisor.
- (o) If a liquid found in a manhole or vault is thought to be flammable, it should be tested by an approved method. If the liquid is found to be flammable, it should be removed before other work is performed.
- (p) Each employee should wear proper protective clothing such as hard hat, rubber gloves and rubber boots.

3. **Material Lifting:** Many types of objects are handled in normal operation and maintenance in a Water Distribution System. Care should be taken in handling heavy or bulky items because they are the cause of a considerable number of accidents. There are certain fundamentals in the proper lifting of materials to void back injuries:

- (a) The size, shape and weight of the object to be lifted must be considered. A person should not lift more than he can handle comfortably.
- (b) The feet should be placed far enough apart for good balance and stability. The footing should be solid.
- (c) The worker should get as close to the load as possible. The legs should be bent about 90° at the knee.
- (d) The back should be kept as straight as possible.
- (e) The object should be gripped firmly.
- (f) To lift the object, the legs are straightened from their 90° bend.
- (g) A worker should never carry a load that he cannot see over or around.
- (h) When setting an object down, the stance and position are identical to that for lifting. The legs are bent at 90° at the knees and the object lowered.

When two or more men are required to handle an object, coordination is essential to ensure that load is lifted uniformly and that the weight is equally divided between the persons carrying the load. When carrying the object, each employee, if possible, should face the direction in which the object is being carried.

In handling bulky or heavy items, the following guidance should be followed to avoid injury to the hands and fingers:

- (a) The item should be inspected for metal slivers, jagged edges, burrs and rough or slippery surfaces.
- (b) The hands should be free of oil, grease or water that might prevent getting a firm grip.
- (c) Grease, oil or dirt should be wiped off before handling bulky or heavy items.
- (d) Gloves should be used when necessary.
- (e) The fingers should be kept away from any points that may cause the fingers to be pinched or crushed, especially when setting the object down.
- (f) A firm grip on the object is essential.

Mechanical and power lift equipment should be used for heavy or bulky objects whenever possible. These mechanisms should be operated only by authorized and trained employees.

4. Ladder Operations

Falls are the second largest causes of work-related injuries. Besides the fall hazards within the plant, ladders present a major accident hazard. The following general guidance is furnished in regard to safe practices when using ladders:

- (a) All ladders should be equipped with approved safety shoes.
- (b) The distance from the foot of a straight ladder to the support it rests against should equal one-fourth the length of the ladder.
- (c) An employee should not work or stand on either of the top two rungs of a ladder (this does not apply to safety platform ladders).
- (d) Short ladders should never be spliced together.
- (e) A ladder should never be placed against an unsafe support.
- (f) Ladder feet should be placed on a substantial support.
- (g) Ladders should not be used as scaffold platforms.
- (h) Whenever possible, a straight ladder should be tied at the top to a firm support.
- (i) A step ladder should be held by at least one employee when the worker is performing 10 ft. (3 m), or more above the floor.
- (j) Step ladder legs should be spread fully when the ladder is in use.
- (k) Step ladders should not be used as straight ladders.

5. Fire

Burns can cause very serious injury. Avoid the accumulation of flammable material and store any material of this type in approved containers at proper locations. Know the location and proper use of the fire fighting equipment.

6. Noise

Loud noise from gas engines can cause permanent ear damage. Operator and maintenance men must wear the proper ear protecting devices whenever working in noisy areas for any length of time.

E. EMERGENCY CONTACTS

IN THE EVENT OF THE FOLLOWING OCCURRENCE, THE PERSONNEL OR AGENCY LISTED BELOW SHOULD BE CONTACTED.

1. Interruption of Power

	Jackson Energy	Kentucky Utilities
Phone:	(800) 262-7480	(800) 383-5582

2. Emergency at Facilities

(a) Emergency Medical Rescue Service and Fire Calls
Phone: (606) -

(b) Your Supervisor

3. Crime and/or Emergency

(a) Police Department
Phone: (606) -

(b) Your Supervisor

4. Injury to Personnel: Medical services may be obtained at the following emergency hospitals:

(a)

 Phone: (606) -

F. SAFETY REFERENCES: Following is a list of recommended safety related books and publications:

EPA Technical Bulletin
American Water Works Association
Accident Prevention Manual for Industrial Operations, Fifth Edition

G. FIRST AID

1. General: First aid can be defined as immediate temporary care given to a sick or injured person before the services of a doctor can be obtained. It should be noted that in all cases of serious injury, the services of a physician should be obtained as soon as possible. It is beyond the scope of this manual to include a comprehensive treatment of first aid; however, a few generally accepted procedures are included. Employees should have access to and study First Aid Manuals. Participation in training courses offered by Red Cross organizations and others with qualified instructors is recommended.

2. Resuscitation: When a person has been overcome by gases, vapor or oxygen deficiency, rescue must be followed immediately by resuscitation. The heart will stop beating in six to ten

minutes after the lungs stop functioning. This shows the extreme importance of workers wearing a safety belt in hazardous locations.

3. **Rescue Breathing:** Rescue breathing is the use of a person's breath to revive someone who is unable to breathe for himself. It is the oldest and most effective method of resuscitation.

Absence of breathing movements or blue color of lips, tongue and fingernails are danger signs indicating a lack of oxygen in the blood and the need for help with breathing. When in doubt, begin rescue breathing. No harm can come from its use, but grave consequences follow if it is not used promptly.

Whether or not the unconscious person is trying to breathe, chances are that his breathing is fully or partially blocked by his tongue. Tilting the head backward, or displacing the jaw forward moves the tongue out of the throat and allows air to reach the lungs. Sometimes the victim who is not breathing will start breathing by himself if the tongue obstruction is relieved. The air you breathe is not "spent". It contains enough oxygen to save a person's life. If you breathe twice as deeply as usual, your exhaled breath contains more than enough oxygen for any adult victim. When each inflation expands the victim's chest, you can be sure rescue breathing is working. Inflate the adult's chest at least ten times each minute. Infants require smaller and more frequent inflations, at least 20 times each minute.

4. **Clearing Victim's Throat:** Place the victim on his back and begin rescue breathing. Any delay may be fatal. **DON'T WASTE TIME BY:** Feeling victim's pulse ... finding special equipment moving the victim ... going for help ... getting to shore. Only a short time without oxygen can cause serious damage to the brain.

If the first inflation effort fails, make sure the tongue or some foreign object is not blocking air flow to the lungs. Sweep your fingers through his throat to clear any obstructions.

If obstructing foreign material is obviously present, such as food particles, secretions, false teeth, blood or blood clots, or chewing gum, it must be removed immediately with the fingers or by any other means possible. The first blowing effort will determine whether or not obstructions exist, and in the absence of obstruction, will provide the urgently needed oxygen. Clear throat.

If aspiration of foreign body is suspected in an adult after failure of mouth-to-mouth ventilation to move air into the lungs, the victim should be placed on his side and a sharp blow administered between the shoulders to jar the obstructing material free. Again, the rescuer's fingers should sweep through the victim's mouth to remove such material.

An asphyxiated small child suspected of having a foreign body in the airway should be suspended momentarily by the ankles, or inverted over one arm, and given two or three pats between the shoulder blades in the hope of dislodging obstructing material.

5. **Rescue Breathing for Adult Victims:** Lift the neck and tilt the head backward. Hold the head tilted as far back as possible. One hand pushes the head, the other pulls the chin. The extreme tilt-prevents obstruction. Halfway tilt is not enough, full extreme tilt is necessary.

Take a deep breath. Open your mouth as wide as you can. Seal your lips on the victim's cheeks around nose. If the lips press the victim's nostrils, your mouth is not open wide enough.

Blow air into the victim's mouth until you see the chest rise. To do this, push his mouth open as you blow, or pull his lower lip down. Seal your lips around his opened mouth and press your cheek against his nostrils to stop air leaks.

Then remove your mouth to let him breathe out. Take your next breath as you listen to the sound of his exhalation. Reinflate his lungs again as soon as he has exhaled. Continue inflations at least 10 times a minute.

2. The distribution system contains several valves to isolate various portions of the system. Under normal conditions all these valves remain open. Depending on location of the valve, closing of certain valves can affect system pressures and the ability to fill the storage tank. Although the valves will normally remain open, it is recommended that the valves be "exercised" on a regular basis, at least once a year. Failure to exercise the valves may result in the valves being inoperable when they are needed.
3. To reduce turbidity of potable water, the distribution system should be flushed by opening hydrants a minimum of twice a year, once in the spring and once in the fall. When flushing, begin with sections nearest the source of water and progress to sections away from the source. Flushing should continue until all traces of turbidity and color are gone. It may be necessary to flush some sections of the system more often than twice a year if taste, odor, water color or turbidity in those sections are objectionable. Flushing is also required when system water turbidity exceeds the specified NTU, if the minimum chlorine residual cannot be maintained, or if the specified HPC count is exceeded.

E. SYSTEM DISINFECTION

1. It is important that the distribution system be maintained in a manner that water delivered to customers will be safe for use. To do this, all system repairs and extensions must be disinfected before use and the system must maintain a minimum of 0.2 ppm of free chlorine residual at all points throughout the distribution system.
2. Repairs or extensions are to be disinfected with chlorine or chlorine compounds in amounts to produce a minimum concentration of 50 ppm, and a residual concentration of 25 ppm at the end of the 24 hours. Lines are not to be placed into service until bacteriological samples are shown to be negative. Other procedures may be used if approved by the Environmental and Public Protection Cabinet. For emergency repairs, regulation 401 KAR 8:150 allows these requirements to be suspended under certain conditions - refer to this regulation for further information.

F. CHLORINATION STATIONS

1. _____

G. TELEMETRY/CONTROLS

1. A radio telemetry system is utilized to control and monitor the entire water distribution system.

H. SYSTEM TESTING

1. The Kentucky Public and Semipublic Drinking Water Regulations require water systems and treatment facilities be tested for a variety of items. Most of the testing is performed in conjunction with the treatment process. Included in this O & M Manual is sampling/testing requirements for chlorine residual and coliform bacteria.

2. Samples are to be tested for chlorine on a daily basis from representative portions of the system: As discussed previously, a minimum concentration of 0.2 ppm free chlorine shall be maintained.

3. Samples are to be tested for coliform density as required by 401 KAR 8:200.

4. All samples shall be analyzed by a laboratory certified to perform drinking water analysis in Kentucky.

I. METERING

1. Master meters are located at each point of purchase for other water systems to totalize the amount of water purchased.

2. It is important that all meters be tested and calibrated in accordance with Public Service Commission regulations.

J. ALTERNATIVE WATER SUPPLY

1. The Estill County Water District No. 1 currently does not have any alternate water supply.

CHAPTER 40

PERSONNEL

A. GENERAL

Regardless of the care which goes into the design and construction of a water system, the full capabilities of the facility cannot be realized unless adequate, qualified operating personnel are provided. A well thought out staffing plan will assist management as it seeks funds for staffing its facility. To meet the high quality potable water standards set forth by the Environmental Protection Agency through the Safe Drinking Water Act, qualified personnel are required. In order for the utility to retain qualified personnel to operate its system, it must compete with other governmental agencies and private companies in terms of salary and benefits.

Up-to-date training for operating and maintenance personnel is stressed as being of critical importance in the proper functioning of the water distribution system. Training is a continuing process, and training programs which are provided by state and federal agencies should be taken advantage of. Completion of each training course is a step toward increased competency as well as potential advancement in certification. Adequate operator training will serve to protect the utility's investment in equipment from damage, and to ensure the high quality of the water provided by others is distributed to all customers.

All persons employed for the operation and maintenance of the system should be properly trained, motivated, energetic and capable of performing the necessary tasks.

B. MANPOWER REQUIREMENTS

1. Superintendent/Operator: The nature and size of the distribution system is such that several full-time operating and maintenance person are required. The utility will provide additional part-time personnel as required to assure proper operation and maintenance. Part-time employees shall be responsible for all operational and maintenance functions, as well as any other responsibilities as may be delegated by the Superintendent/Operator.

The duties of the Superintendent/Operator include, but are not necessarily limited to, the following:

- (a) Daily monitoring of the distribution system.
- (b) Insure that regularly scheduled maintenance of all operating equipment within the system is performed.
- (c) Performance of all operating tests on a regular basis.
- (d) Adjustment to water usage etc., as required to maintain maximum operating efficiency.
- (e) Reading of meters and preparation of files.
- (f) Obtaining samples and arranging for their analysis on a periodic schedule as required for reporting.

- (g) Preparation and filing of compliance reports and other operating reports as may be required by State or Federal control agencies.
- (h) Inspection of service connections prior to use by customers to assure proper construction.
- (i) Location and repair of leaks in the distribution system.
- (j) Performance of emergency repairs to equipment.
- (k) Maintaining adequate supplies of chemicals, fuel, lubricants, office supplies and other consumable as required for the efficient operation of the system.
- (l) Reporting any operation and/or maintenance problems beyond his capabilities.
- (m) Other duties as may be assigned.

2. Management: The Commissioners shall be directly responsible for management of the system, including:

- (a) Setting of rates and budgets.
- (b) Collection of fees and disbursement of funds.
- (c) Planning and implementation of expansion and improvements to the existing water system, as appropriate.

3. Consulting and Contracting Services: All services by outside contractors or consultants shall be by direct agreement with the Commissioners or by the superintendent with approval of the Commissioners. Such services will include, but not necessarily be limited to:

- (a) Engineering Services
- (b) Legal Services
- (c) Accounting Services
- (d) Laboratory Analysis
- (e) Equipment Repair and Incidental Construction Services

C. JOB DESCRIPTIONS

The utility proposes to utilize an adequate number of permanent employees for the operation and maintenance of the system. These individuals should, therefore, be capable of performing all tasks associated with the general supervision, operation and maintenance of all components of the system.

The job descriptions provided below have been developed as a guideline applicable to the situations in general and imply the availability of a full complement of personnel. They are included herein to illustrate the nature and variety of responsibility which is undertaken by the Superintendent/Operator.

1. Superintendent: The superintendent should be knowledgeable and skilled in many areas. The more education, training and varied experience he has, the more effective he will be. The superintendent should be familiar with the operation of the distribution system in detail, including:
 - (a) Theory and practice of the operations of the distribution system.
 - (b) Characteristics of the treated water to be distributed as well as the flow patterns.
 - (c) Personnel, public relations and employee grievance procedures.
 - (d) Planning, programming and budget procedures.
 - (e) Developing operating and preventive maintenance programs.
 - (f) Coping with any type of emergency that may affect the system and the establishment of a safety program.

2. Local, state and federal laws that apply to the operation of the system. The following list of responsibilities describe the basic duties of the superintendent:
 - (a) Maintain efficient system operation and maintenance.
 - (b) Maintain the system's operational, maintenance and administrative records.
 - (c) Based on management objectives and goals, develop staffing requirements, job descriptions, organization charts and personnel assignments.
 - (d) Budget for sufficient funds to operate and maintain the distribution system effectively.
 - (e) Ensure that operational personnel are paid a salary commensurate with their duties and responsibilities.
 - (f) Provide a good, safe working environment with proper safety equipment and tools for personnel.
 - (g) Analyze operational data to determine changes and improvements required to accomplish the objectives more effectively.
 - (h) Assure that personnel receive indoctrination in the proper rules and procedures for safe operation and practices.
 - (i) Establish an operator training program for more efficient operation of the system and advancement of the employee.

- (j) Motivate personnel to achieve maximum efficiency of operation.
 - (k) Establish a cost-conscious environment with emphasis on reductions in material and energy expenditures.
 - (l) Establish a harmonious relationship with operating personnel.
 - (m) Develop a first aid capability throughout the work force and maintain an injury record and investigative system.
 - (n) Maintain a continuous communication capability with operational personnel to identify operational problems and corrective measures.
 - (o) Maintain good public relations.
 - (p) Prepare plans for management guidance as to future system needs.
 - (q) Maintain communication with management regarding operation of the system, personnel and any problem conditions which may occur from time to time.
3. Operator: Under the direct supervision of the superintendent, the operator is responsible for the day-to-day operation of the distribution system which comprises the mechanical components of the system. It is the operator's primary responsibility, on a daily basis, to perform all functions necessary to the proper and efficient operation of the distribution system, including but not limited to:
- (a) Flow control from the master meters and pump stations.
 - (b) Checking each piece of equipment to assure proper operation.
 - (c) Collection of samples for analysis.
 - (d) Leak detection, as appropriate.
 - (e) Other duties as may be assigned.

Detailed information concerning the operation of the system can be found in Chapter 30 of this manual.

4. Maintenance Personnel: The responsibility of the maintenance person(s) is the regular inspection and maintenance of all operating equipment in accordance with manufacturer's recommendations. This responsibility includes such items as:
- (a) Lubrication.
 - (b) Mechanical adjustments.

- (c) Checking and adjustment of liquid level controls for high service pumps.
- (d) Checking electrical controls.
- (e) Grass cutting and yard maintenance.
- (f) Other duties as may be assigned.

Details regarding the maintenance of major equipment items may be found in Chapter 60 of this manual. Although addressed more fully in Chapter 80, a word of caution should be given here regarding safety. The maintenance function is the most hazardous activity related to a water system, and assistance should be sought whenever a maintenance task must be performed which might present a danger to distribution system personnel or others. In particular, assistance should be sought in performing electrical work such as pulling pumps, or handling dangerous chemicals such as chlorine.

Only properly trained personnel may be expected to perform satisfactory inspections, repairs and preventive maintenance tasks. Even with a properly trained preventive maintenance staff, however, some tasks will be beyond its capabilities. In those areas, consultants or factory representatives may be called in to perform certain maintenance functions. Some work must be sent out, such as electrical motor rewinding and machining of large items. In addition, consultants or contractors may be needed to carry out infrequent but labor intensive tasks of short duration.

D. OPERATORS QUALIFICATIONS AND CERTIFICATION

The certification rules and regulations of water treatment and water distribution plant operators are addressed in KRS Chapter 223. The Kentucky Public and Semipublic Drinking Water Regulations as set forth by the KEPPC contain additional requirements due to the Safe Drinking Water Act. These requirements are listed in 401 KAR 8:030 of the regulations.

CHAPTER 50
REPORTS AND RECORDS

A. GENERAL

1. Introduction: Report writing is the main means by which those who have information communicate with those who need it. Any business transaction or operation requires records for efficient management. This is also true for the operation of water distribution systems. Operators must communicate effectively with management, regulatory agencies and the general public on the operation of their system and on requests for additional funds for improvements and personnel. The administrator, superintendent and operator of a water distribution system should know the cost and efficiency of their system. Well kept records will make the task of reporting system costs and operating efficiency much easier.

2. Importance of Records: It is extremely important for every water system to have a history of its water source, treatment processes and operational performance. For example, by reviewing past bacteriological analysis, one can pinpoint a particular part of the distribution system that may have cross connections. By reviewing past chemical analysis, a system may find that a chemical substance has been gradually entering their raw water source or distribution system instead of suddenly appearing when a particular industry locates in the community. By reviewing records of past violations, it can be determined if violations occur during a certain time of the year or at random. View these records as problem solvers, not problems. Accurate and complete records can serve as the best defense against efforts to discredit a water system or its employees.

Records are needed for the following reasons:

- (a) Records are needed to show the type and frequency of maintenance provided for the various operating units and to evaluate the effectiveness of maintenance programs.
- (b) Records can provide data upon which to base recommendations for modifying system operation and facilities.
- (c) Records of past performance and operational procedures are invaluable tools for the engineer in the evaluation of present performance, and serve as a basis for the design of future facilities.
- (d) Records are used to support budget requests for personnel, additional facilities, or equipment.
- (e) Records may be needed in the event of a damage suit brought against the city for alleged poor operation, property damage or injury. They can be especially helpful to the operator if an accident occurs. As soon as possible after an accident someone should record the chain of events leading to the accident, exactly what happened and any preventive or corrective action taken.
- (f) Records for public health aspects are required by regulatory agencies.

- (g) Records provide the base data for the preparation of weekly, monthly or annual reports to administrative officials, the public and regulatory agencies.
- (h) Records must be permanent, complete and accurate. Write entries on data sheets in ink or with an indelible pencil. A lead pencil should never be used because notations can smudge and be altered or erased.
- (i) Record keeping costs time and money, and only useful records should be kept. A public water system must be kept on the premises or at a convenient location near the premises for a designated period of time.

Actual lab reports must be kept or the data may be transferred to a tabular summary if certain required information is included. Kentucky Public & Semipublic Drinking Water Regulations 401 KAR 8:020 Section 2, details the information required if a tabular summary of lab reports is used instead of keeping the actual lab reports. All these records are public and are subject to Open Records Act (KRS 61.870 to 61.884).

Periodically, records no longer useful should be discarded. The recommended time frame for keeping certain records is listed below:

- (1) Records of violations and the actions taken by the system to correct violation of primary drinking water regulations shall be kept at least ten (10) years after the last action taken with respect to the particular violation involved.
- (2) Records of sanitary surveys, copies of any written reports, summaries of communications relating the sanitary surveys of the system, conducted by the system, a private consultant, or any local, state or federal agency, shall be kept at least ten (10) years after completion of the sanitary survey involved, at which time they may be transferred to the cabinet.
- (3) Records concerning any variance or exemption granted to the system shall be kept at least five (5) years following the expiration of the variance or exemption.

Some compromise is necessary between collecting useless records and avoiding the frustrations of not finding needed information. Keep your records neat and organized. A record misfiled is a record lost, and a lost record is worthless.

- (j) Written reports may be required by management. Such a report serves many purposes. A written report gives the operator or manager an opportunity to exhibit his qualifications and knowledge of the water distribution system and its operation. It can serve as a basis of a request for additional budget in personnel, main extensions, or changes in system operation. It should be visualized as an opportunity to tell your story to your supervisor, management or the general public. The report should be a narrative type covering all significant information for the reporting period (month, quarter or year).
- (k) To many, the thought of writing a report represents a task that is to be approached with fear and with a sense of inadequacy. This need not be the case. Anyone who can read and is willing to put forth the effort can prepare an adequate report. A report should be

written as if the writer was explaining to a visitor what happened in the system last month or last year.

B. LOGS, RECORDS AND REPORTS

1. General: All owners and operators of water distribution systems shall keep on or near the premises the following records:

(a) Data summaries - Either actual laboratory reports shall be kept or data shall be transferred to tabular summaries. The following information shall be included:

- (1) The date, place and time of sampling, and the name of the person who collected the sample.
- (2) Whether the sample was a routine distribution system sample, check sample, raw or processed water sample or other special purpose sample.
- (3) The date of analysis.
- (4) The laboratory and person responsible for performing analysis.
- (5) The analytical technique/method used.
- (6) The results of the analysis.

(b) Laboratory analysis

(c) Records of violations and the action taken

(d) Records of sanitary surveys

2. Laboratory Records: The major portion of laboratory results will be recorded in the monthly report to state agencies as described under paragraph 3, which follows. Prior to completing the monthly report, laboratory records should be kept in a notebook in a form that suits the operator. Once the operator has become familiar with testing and reporting procedures, he may wish to develop standard printed forms for use in recording laboratory results.

3. Monthly Operating Reports: The main report required by Division of Water (DOW) is the Monthly Operating Report (MOR), see Appendix. The distributor of water shall file complete monthly operating reports with the KEPPC. The operator or person in charge of each public water system must file this report on forms provided or approved by the KEPPC and shall be received at the DOW, Frankfort office Park, 18 Reilly Road, Frankfort, KY 40601, no later than ten (10) days after the end of the month for which the report is filed. The report will vary in its content, depending upon the classification of the water system.

Information required on the distribution system MOR includes daily amount of water purchased, daily amount of chlorine used, and free available chlorine residual taken at different points in the distribution system.

The MOR is an excellent management tool, but like most tools, it is useless unless used properly. The well-run water system uses the MOR to develop trends, identify potential problems, and more importantly, solve those problems. Completing the MOR should not be viewed as a burden. Effective use of the MOR can pay tremendous dividends.

The permit requires that you submit monthly reports to the state agency without fail. This report is also helpful to the operator and his supervisor to keep them informed of problem areas.

4. Boil Water and Consumer Advisories: All advisories and other public notifications shall be issued by a public water system as required by 401 KAR Chapter 8.
5. Annual Report: This report should be prepared by the operator with the aid of management, or directly by management. In addition to summarizing the information contained in the monthly and/or quarterly reports with respect to operation and maintenance, the annual report should include statistical information relative to the financial status of the utility, such as amount of water purchased, sold, used by the system, and any unaccounted for water. Comprehensive financial information and peak monthly and daily water usage are also included. It will therefore form the basis of such managerial functions as employment and salary adjustment, capital investment policy and rate adjustments (with approval of the Kentucky Public Service Commission, if necessary).
6. Maintenance Records: The maintenance records should be maintained in a diary form. This record will help the operator in performing regular maintenance and lubrication activities on time. An advance schedule of weekly (monthly, three-month, six-month, etc.) maintenance and lubrication activities should be prepared by the operator to help to remind him to provide proper maintenance.
7. Operation Cost Record: A monthly cost data report has been prepared and is presented in the Appendix.
8. Personnel Records: It is beyond the scope of this manual to cover the subject of personnel management and records in depth. It should be pointed out, however, that a complete personnel file should be maintained for each employee, using forms acceptable to the District. This file should include the following information, as applicable:

Work Experience
Annual Leave Record Sick Leave Record
Wage Adjustments
Other Pertinent Data

A description of short courses completed and grades accomplished should also be in the personnel record. Any other data that could enable management to evaluate the services and qualifications of the personnel should also be in the record.

9. Emergency Conditions Records

A description of all emergencies should be written up and filed in a record for future reference. This information could be quite important in case of law suit or citation from the governing agencies.

- (a) Reports of Failure to Comply. Public water systems shall report to the cabinet, within forty-eight (48) hours, by phone or in writing, the failure to comply with any provision of 401 KAR Chapter 8, including the failure to comply with monitoring requirements.
- (b) Emergency Reports. When a public water system experiences a line break, loss of pressure, loss of disinfection, or other event which may result in contamination of the water, the public water system shall immediately report to the cabinet by calling the Drinking Water Branch of the Division of Water in Frankfort at (502) 564-3410 or the appropriate regional field office of the Division of Water. If a report required by paragraph (c) of this subsection is made at a time other than normal business hours, it shall be made through the twenty-four (24) hour environmental emergency telephone number, (502) 564-2380.

10. OSHA Records

The Federal Occupational Safety and Health Act requires the maintenance and/or submittal of certain records relating to occupational injuries and illnesses. However, the act excludes employers with less than 10 employees from record keeping requirements of the Act, as well as most of the requirements of reporting. Reporting is required in the event of (a) death, or (b) hospitalization of five or more employees. A copy of OSHA Form 301 (Injury and Illness Incident Report of) is provided in the Appendix.

11. Other Reports and Records

- (a) Characteristics of the Water. A written description of treated water which includes chemical constituents and bacteriological standards.
- (b) Complaint Record. A complaint file should be maintained on all complaints (written or oral). The record should include name and address of complainant, the date, nature of complaint and action taken. Records should be maintained for five (5) years after resolution of the complaint.

CHAPTER 60

MAINTENANCE

A. GENERAL

This Chapter of the manual is designed to assist the operator in establishing a general maintenance program. This manual is meant to supplement, rather than replace, the various equipment manufacturer's operation and maintenance manuals. Any specific problems or questions should be referred to the manufacturer's manual. All persons involved in the management, operation or maintenance of the Estill County Water District No. 1 water distribution system should become familiar with this manual and the manufacturer's manuals. Copies of both should be kept readily accessible at the water office. Questions regarding the manufacturer's manuals can be answered by contacting the manufacturer or his local representative.

A good maintenance program will cover everything from mechanical equipment to the care of the grounds, buildings and structures. For a successful maintenance program the operators must recognize tasks that may be beyond their capabilities and request assistance when needed, and the management must understand the need for and benefits from equipment that operates continuously as intended. Disabled or improperly working equipment will endanger the quality of the treated water and in addition, repair costs for poorly maintained equipment usually exceed the cost of routine maintenance.

One method of equipment maintenance records is presented in this Chapter. The Superintendent should study this method to arrive at the best system to serve the needs of the Estill County Water District No. 1 water distribution system

B. MAINTENANCE RECORDS

An equipment record system is a set of organized procedures developed to assist the personnel in providing economical and effective maintenance for system equipment and structures. The system helps the personnel organize their time and budget for a maintenance program. The system also provides a means of anticipating problems and performing minor maintenance routinely to prevent major equipment breakdown.

C. EQUIPMENT RECORDS

1. **Equipment Numbering System:** The Superintendent should assign each piece of equipment an identifying number. Several methods may be used. A number, where the first several digits indicate the Chapter of this O&M Manual where the equipment is discussed (30, 40, etc.), the next digit indicates the section of the Chapter (A, B, C, etc.) and the last identify the piece of equipment from other equipment in that section is one method.

A simple numbering system from the pumps to the customer meter would also work in a system like the Estill County Water District No. 1 water distribution system where there is not a lot of equipment. The Superintendent can decide on the method that best suits his needs.

2. **Equipment Catalog:** A file system should be set up by the personnel to include a file card for each piece of equipment containing the information considered necessary for proper maintenance of that particular piece of equipment.

A preventive maintenance file should be established by the Superintendent, using the maintenance schedules from the equipment manuals supplied by the manufacturer. The equipment service record card contains spaces for the person performing the scheduled maintenance to fill in the date the maintenance was performed, his remarks and signature. A sample of the equipment service card is shown in the Appendix.

The schedule supplied in this Manual should be used to prepare work schedules on a daily basis. Each day, the personnel will do the scheduled daily work. One day each week (for example, Wednesday) should be set aside for weekly work. Therefore, each Wednesday, the personnel will list the daily maintenance and the weekly maintenance. Likewise, certain days should be set up for monthly, semiannual and annual maintenance tasks. The following is a suggested schedule:

<u>Maintenance</u>	<u>Day</u>
Daily	Every Day
Weekly	Every Wednesday
Monthly	First Tuesday of the Month
Semiannual	Last Thursday of March and September
Annual	Last Thursday of June

The personnel must remember the importance of insuring that all necessary parts, materials and, if required, outside help are available when the maintenance is scheduled, be it preventive or corrective.

D. PLANNING AND SCHEDULING

Water distribution systems are operated and maintained 365 days a year. Variations in demands and maintenance work loads occur, making it imperative that maintenance be planned and scheduled so that there is no idle time or excessive workload periods. Maintenance planning and scheduling involves time, personnel, equipment, schedules, costs, work orders and priorities. The personnel should continuously monitor the operations to determine other maintenance work to be accomplished. Any indications of trouble or equipment malfunction should be reported to the Superintendent. A suggested equipment malfunction report form is shown in the Appendix. When emergencies and breakdowns occur, work must be initiated to return the system to its full capacity and efficiency.

1. Preventive Maintenance Schedules: The preventive maintenance schedules to be set up for each major piece of equipment in the system will assist the Superintendent in the planning and scheduling of his maintenance workload. As explained in Section 60-C.2, the procedure for using these preventive maintenance schedules is simple and, when followed, will provide the personnel with a complete maintenance program.
2. Work Order System: A work order system should be established in order to initiate all routine and non-routine (corrective) maintenance tasks. The use of this system will aid the personnel in identifying the work to be done, the priority of the job, and any special information (such as tools or parts needed) on aspects of the equipment or job.

Also, copies of these work orders will record when the work order was initiated and when the job was completed. The work orders should be numbered to provide a means of maintaining accountability. Records of these work orders help the personnel estimate future non routine

(corrective) maintenance. A suggested work order form is given here as the Appendix. This form can be used to initiate preventive or corrective work and to record what work was done, by whom, and when the job was completed.

As previously described, during the daily inspections the needs for non-routine maintenance on various structures or pieces of equipment may become evident. If the personnel have time, the work should be done as the need arises; therefore, no backlog of pending work will develop. If there is more work than can be done immediately, then a backlog of work will develop. The personnel can then use this backlog (or list of jobs to do) in effectively planning the maintenance schedule to smooth out the workload. When a backlog develops, the most critical unit should be repaired first if parts and materials are available. Any part orders should be placed immediately. When the parts arrive, the job should then be scheduled with regard to the unit's importance in system operation.

E. STOREROOM AND INVENTORY SYSTEM

A well-stocked spare parts inventory should be developed and maintained. The exact amount and type of spares which will be kept in this inventory can be determined only by the personnel's experience with the system. Too large or too small an inventory can result in the wasting of time and money.

The proper inventory should be developed by periodic review of the maintenance records. Appropriate changes may be made by increasing stocks of some equipment or decreasing others as determined by experience.

1. Spare Parts List: A recommended spare parts list for each piece of equipment should be made by the Superintendent. These parts should be kept on hand for normal scheduled maintenance or repair of equipment.
2. Storeroom Inventory System: For most items, the inventory should be kept in stock to insure that at least one of each part is available. The parts inventory should be checked at least quarterly, and orders should be placed to restock low items. Annual maintenance records should be reviewed to increase or decrease the inventory in order to assure that the system efficiency is maintained with a minimum amount of money invested in spare parts.

The critical nature of parts should be considered in developing the inventory. Spare parts for the pumping equipment and major distribution system units can be considered critical items and should be on hand at all times so that the repairs to these units can be started as soon as they are required.

A card system should be set up to record information on quantity, item number, description, when last purchased, cost, date, vendor, etc. When items were taken from stock, the date and use should be noted on the card file. A store ticket or withdrawal slip should also be completed when any items are used. The ticket will provide a record showing when the item was used and for what purpose. This information can then be transferred to the card to aid in determining what is needed when reordering is required. This system will provide an inventory of items currently in stock. A recommended card for the stockroom inventory system and withdrawal slip is shown in the Appendix.

3. Purchase Orders: Purchase order forms should be used whenever equipment, supplies, parts, etc. are to be ordered. This form should be filled out in duplicate. The first copy will be sent to order the requested material; the second copy should be filed for future reference. By tabulating the costs of equipment purchased through these order forms, the Superintendent can control expenses and include purchase order costs in budget figures.

When the shipment is received, the purchase order information should be reviewed to insure that all the material requested has been received. Any discrepancies between the purchase order and the actual shipment should be noted and corrective action taken.

F. MAINTENANCE PERSONNEL

In Chapter 40, the job requirements of the operating personnel are defined. These persons have the responsibility of performing the day to day maintenance on the system equipment.

Maintenance performed by the personnel should be limited to routine maintenance in the way of lubrication, replacing worn parts, etc. Special maintenance requirements such as electrical work, instrumentation calibration, etc. should be reserved for qualified contractors to be hired by the Superintendent periodically to perform the necessary work.

G. MAINTENANCE COSTS AND BUDGETS

Before an accurate estimate of maintenance costs can be made or a budget developed, it is necessary to have divided the maintenance operations into service categories. These categories are: (1) preventive maintenance performed without interrupting operation, (2) corrective maintenance performed when a unit is taken out of service, and (3) major repairs performed by contracted help.

It is important that sufficient information be maintained to permit proper monitoring and control of maintenance costs and the maintenance work force. By maintaining thorough cost records, a maintenance budget for preventive maintenance, corrective maintenance major repairs, and contract maintenance can be more easily prepared. An example of a maintenance cost trend form is in the Appendix. This should be used to prepare maintenance budgets and to illustrate cost trends to management personnel responsible for purchasing supplies and equipment.

H. HOUSEKEEPING

Housekeeping duties include general yard work, painting of buildings and structures, general cleaning, janitorial duties and grounds keeping. It is the duty of the Superintendent to see that whatever tools, equipment, paint, supplies, etc. are needed are obtained without delay. This equipment should be stored in a safe, permanent place.

A regular schedule for certain duties should be drawn up. Duties such as grounds keeping and cleaning will have to be done often and regularly. In addition, painting should be done on a regular schedule but less frequently (annually or bi-annually). A recommended housekeeping schedule is included in the Appendix. The general cleaning and upkeep may be handled by a contract janitorial service. The housekeeping should be handled by the operating personnel within the distribution system.

I. SPECIAL TOOLS AND EQUIPMENT

Tools are an important part of a complete system maintenance program. They should be kept in good condition and used only for the purpose for which they are intended. The Superintendent should conduct inspections of all tools and replace any tool which is found to be worn out or broken. A list of recommended tools is in the Appendix. This list should be checked periodically and updated to maintain a complete tool inventory.

Housekeeping of tools is also important, not only for their care, but also for the prevention of accidents. Any special tools or equipment should be stored in a specific tool storage area when not in use. A tool board is one of the most convenient ways for storing tools. All tools should be returned to the appropriate shelf, rack, locker, etc. immediately after the personnel have finished using and cleaning them. When tools are checked out of the tool room, they should be signed for, so as to maintain a control system for the tools. A suggested withdrawal form for the toolroom is shown in the Appendix.

J. LUBRICATION

One of the most important points in a preventive maintenance program is to use proper lubricants and adhere strictly to an established lubrication schedule.

For most equipment, lubrication recommendations are supplied by the manufacturer. A suggested lubricant may be determined by using the tables in the Appendix. The information on these tables is derived from an article entitled "Plant Engineering Develops First Interchangeability Lube Chart", by Plant Engineering Magazine, August 22, 1968, p. 63.

The lubrication chart shown in the Appendix can be used to determine which AGMA No. (grade) or SAE No. (viscosity rating) should be used for a specific type of lubricant. For example, if a heavy inhibited hydraulic and general-purpose oil is called for, by referring to Table 60-3, this oil has a SSU (Saybolt Seconds Universal) rating of 630-770 at 1000F. It is then possible to determine the correct SAE No. by referring to Table 60-4. Here the SSU rating in the range of 639-770 is 700. Then by moving across Table 60-4 to the SAE Viscosity No. column, it can be seen that the lubricant should be a No. 40.

Table 60-5 is provided as a cross-reference lubricants chart. It may be used with the above discussed tables to determine a proper lubricant for a certain application. For example, if an application called for a light gear oil, the personnel would look on Table 60-3 to determine the general reference number, which is No. 17 for a light gear oil. Also assuming that the plant was using Texaco products, No. 17 on Table 60-5 corresponds to Texaco Regal Oil F (R&O inhibited). The table may also be used to determine which oil to use when an oil of a different manufacturer is specified. For example, if the manufacturer specified Shell Tellus 69 oil or equal and the plant was using Mobil Oil products, the equivalent lubricant may be determined by locating the No. 4 lubricant under the Mobil Oil heading which is Mobil DTE Oil Extra Heavy.

In most cases, it is possible to consolidate to one or two greases. Ordinarily, a general purpose, lithium-based extreme-pressure grease may be used for all but special applications. It is also recommended that a local oil company be consulted for a recommendation on total facility lubrication. Generally, they will be happy to establish this complete lubrication program in exchange for the privilege of selling the lubricants.

K. WARRANTY PROVISIONS

Return to: **Division of Water
Drinking Water Branch
14 Reilly Road
Frankfort, KY 40601**

DRINKING WATER SANCTION EXCEPTION FORM

FROM: _____ FOR: _____
Water System: _____ Name: _____
Address: _____ Address: _____
Telephone: _____ # of Occupants: _____
Water Usage (gpd): _____

Sanction Type: Water Line Extension Water Line Tap
Structure Type: Apartment Complex House
 Restaurant Factory

Exception to a sanction will be considered for the following conditions. Check the appropriate box and submit the required information to the address listed below.

- | | |
|--|--|
| <input type="checkbox"/> Corrections implemented at the water treatment plant or distribution system have rectified some or all of the problems outlined for the sanction being imposed. Submit a list of the specific corrections and the completion date. | <input type="checkbox"/> Proposed structure replaces an existing structure currently connected to the water system. This change is essentially relocating a meter without an increase in water demand. |
| <input type="checkbox"/> The Division of Water granted approval for the project prior to the sanction being imposed. Submit the plans and specifications DW number approved by the Drinking Water Branch or the State Clearinghouse SAI number for the Federal Assistance Request. | <input type="checkbox"/> Structure had water service or a tap-on fee paid prior to the date of the tap-on sanction. Submit a dated receipt or a notarized affidavit from the water utility stating that the entire fee was received and the date the fee was paid. |
| <input type="checkbox"/> For requests to remodel a structure currently receiving water service identify how the structure will be altered. Consideration will be given to the type and amount of flow to be generated by the addition. Submit a notarized affidavit from the water utility stating that water service is currently being received. | <input type="checkbox"/> Building/Plumbing permit was issued prior to the date of the sanction. Submit a copy of the dated permit. |
| | <input type="checkbox"/> Medical reasons verified by a doctor, such as treatment and care of a chronic illness. |
| | <input type="checkbox"/> Other. Provide a detailed explanation and all supporting documentation. |

Each request must be accompanied by the required information to warrant consideration. The Division of Water will notify the water utility and, where appropriate the Division of Plumbing once a decision has been reached. Questions regarding this request should be directed to Amanda Yeary, Drinking Water Branch, at (502) 564-3410.

*This form will not be reviewed unless signed by an authorized representative of the water utility or documented that the water utility refused to submit necessary information.

Signature of authorized representative

Form Revised 1/25/2000

DISTRIBUTION/PURCHASING SYSTEM

Instructions for Completing the Monthly Operation Report (MOR)

NOTE: The MOR (original) must be sent to the Division of Water in Frankfort as well as a copy to the applicable Field Office no later than 10 days after the end of the month. The water supply must keep a copy as well.

NOTE: On the electronic MOR, each page is on a separate worksheet (listed at the bottom of the spreadsheet) within the MOR spreadsheet. Each page is named according to the information it contains. In order to print out the MOR, go to "File" then "Print". In the section titled "Print What" click next to "Entire Workbook". All pages will then print.

If using the electronic MOR, it is recommended that the MOR first be saved as a "Blank"; this can then be used as a template for each month. Call up the "Blank" and save as the current month (i.e. MORJan01). This way you will avoid having to erase data from one month in order to have a working file for the current month.

If using the electronic MOR, do not enter "0" (zero) in any space in which there is no data (for example, do not enter "0" in the spaces for the 31st day of the month if there are only 30 days in the current month). The Average calculations will not be correct if "0's" are used. Do not use the letter "o" instead of the number "0" in any space.

Cover Sheet:

PWS Name	Name of System
Date Mailed	Date Mailed in month/day/year
Source Name	Name of source of water for the water plant
Operator(s) in Responsible Charge	Name and certification number of operators responsible for operating the distribution system; if operators rotate shifts, a separate page can be included with the pertinent information
Purchasers Complete:	If more spaces are needed to record the Producer/PWSID and Total Amount Purchased, make additional copies of the cover sheet
Sellers Complete:	Same comment as for Purchasers Complete

Page 6 Distribution:

Distribution System Operation

No change

PURCHASE/DISTRIBUTION
INSTRUCTIONS FOR COMPLETING THE MONTHLY OPERATING REPORT

Cover Page

PWS Name: Name of your water system

Date Mailed: Month, day, and year

Source Name: Where your water system gets its water (i.e., lake, stream, river, well, supply name, etc.) Include name of waterway if possible.

County: County where your system is located.

Operator & Number: Person who is responsible for shift & their certificate number.

Design Capacity: Amount approved by this Cabinet per last plans approved.

Type of Filtration used: i.e., dual media, mixed, media, slow sand, rapid sand, etc.

Design Filtration Rate: Rate approved by this Cabinet per last plans approved.

Percent Backwash Water Used: Gallons backwash/gal. produced X 100.

Date Flocculation Basin(s) Cleaned: Month, day, and year

Date Settling Basin(s) Cleaned: Month, day, and year

PWSID: Seven digit number assigned to your water system.

Plant ID: Letter code assigned to the plant for multiple plant systems.

Report Date: Month and year only for reporting period (i.e., 0819195, 101995).

Total Water Treated (gallons):

Amount of water treated in gallons that month. Must be the same figure as the one at the bottom of page 3 under the water treated column.

Maximum Pumpage:

Most amount of water treated for any one day.

Days in Operation:

Number of days water produced and treated for that month.

Signature of Principal Executive:

Person who can verify how their report was filled out and that the information on it is correct.

Date:

Date the principal executive signed the report, month, day, and year.

KENTUCKY DIVISION OF WATER
 DRINKING WATER BRANCH
MONTHLY OPERATION REPORT--DISTRIBUTION/PURCHASING SYSTEM

MONTH & YEAR OF: _____

DEP Form 4009--Revised 11/2001

PWSID NUMBER: _____	PLANT ID: _____	DATE MAILED: _____	
PWS NAME: _____		COUNTY: _____	
SOURCE NAME: _____			
SUPERINTENDENT: _____	OPERATOR(S) IN RESPONSIBLE CHARGE _____	CLASS _____	CERTIFICATION NUMBER _____
SHIFT 1: _____	_____	_____	_____
SHIFT 2: _____	_____	_____	_____
SHIFT 3: _____	_____	_____	_____

THIS REPORT MUST BE RECEIVED BY THE DIVISION OF WATER AND APPLICABLE FIELD OFFICE NO LATER THAN 10 DAYS AFTER THE END OF THE MONTH.

TREATMENT PLANTS COMPLETE:

1. DESIGN CAPACITY (gpm): _____
2. TYPE OF FILTRATION USED: _____
3. DESIGN FILTRATION RATE (gpm/sq. ft.): _____
4. PERCENT BACKWASH WATER USED: _____
5. DATE FLOCCULATION BASIN(S) LAST CLEANED: _____
6. DATE SETTLING BASIN(S) LAST CLEANED: _____

SURFACE AND GROUNDWATER SOURCE SYSTEMS COMPLETE:

REPORT DATE	TOTAL WATER TREATED (gallons)	MAXIMUM PUMPAGE (gallons per day)	DAYS OF OPERATION
MM/YYYY	_____	_____	_____

PURCHASERS COMPLETE:

REPORT DATE	PRODUCER PWSID NUMBER	TOTAL AMOUNT PURCHASED (gallons)
MM/YYYY	_____	_____
_____	_____	_____
_____	_____	_____

SELLERS COMPLETE:

REPORT DATE	PURCHASER PWSID NUMBER	TOTAL AMOUNT SOLD (gallons)
MM/YYYY	_____	_____
_____	_____	_____
_____	_____	_____

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. See KRS 224.99-010 and 401 KAR 8:020. (Penalties under this statute and regulation may include fines up to \$25,000 per violation or by imprisonment for not more than one year, or both.)

 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

 DATE

NREPC/KENTUCKY DIVISION OF WATER
DRINKING WATER BRANCH

DISTRIBUTION SYSTEM MONTHLY OPERATION REPORT

PWS ID: _____

REPORT MONTH: _____

DISTRIBUTION SYSTEM OPERATION												COMMENTS
WATER PURCHASED GALLONS	CHEMICALS ADDED			TEST RESULTS								
	CHLORINE BOOSTER	CHLORINE BOOSTER	CHLORINE BOOSTER	TOTAL (T) / FREE (F) CHLORINE RESIDUAL								
				NORTH		SOUTH		EAST		WEST		
	LBS	LBS	LBS	T	F	T	F	T	F	T	F	
			PPM		PPM		PPM		PPM			
1												
2												
3												
4												
5												
6												
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COPY AS NECESSARY

**NREPC/KENTUCKY DIVISION OF WATER
DRINKING WATER BRANCH**

OPERATION REPORT FOR MONTH OF

PWS NAME: _____

DATE MAILED: _____

SOURCE NAME: _____

COUNTY: _____

OPERATOR(s) IN RESPONSIBLE CHARGE: _____

CERTIFICATE: _____

SHIFT 1
SHIFT 2
SHIFT 3

TREATMENT PLANTS COMPLETE:

1. DESIGN CAPACITY (gpm):
2. TYPE OF FILTRATION USED:
3. DESIGN FILTRATION RATE (gpm/sq ft):
4. PERCENT BACKWASH WATER USED:
5. DATE FLOCCULATION BASIN(S) LAST CLEANED:
6. DATE SETTLING BASIN(S) LAST CLEANED:

SURFACE AND GROUNDWATER SOURCE SYSTEMS COMPLETE:

PWS ID	PLANT ID	REPORT DATE M M Y Y Y Y	TOTAL WATER TREATED (gallons)	MAXIMUM PUMPAGE (gal per day)	DAYS OF OPERATION
_ _ _ _ _ _ _	_	_ _ _ _ _	_ _ _ _ _ _ _	_ _ _ _	_ _

PURCHASERS COMPLETE:

PWS ID	REPORT DATE M M Y Y Y Y	SELLER ID	TOTAL AMOUNT PURCHASED (gallons)
_ _ _ _ _ _ _	_ _ _ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _
		_ _ _ _ _ _ _	_ _ _ _ _ _ _
		_ _ _ _ _ _ _	_ _ _ _ _ _ _
		_ _ _ _ _ _ _	_ _ _ _ _ _ _
		_ _ _ _ _ _ _	_ _ _ _ _ _ _

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN. BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE KRS 224.99 - 010 AND 401 KAR 8:020. (PENALTIES UNDER THIS STATUTE AND REGULATION MAY INCLUDE FINES UP TO \$25,000 PER DAY OF VIOLATION OR BY IMPRISONMENT FOR NOT MORE THAN ONE YEAR, OR BY BOTH.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT _____

DATE _____

**THIS REPORT MUST BE RECEIVED BY THE DIVISION OF WATER NO LATER THAN TEN (10)
DAYS AFTER THE END OF THE MONTH**

COPY AS NECESSARY

(DRAFT 08/19/2004)
PROPOSED REVISIONS TO THE
BACTERIOLOGICAL ANALYSIS REPORT FORM
AND IMPLEMENTATION OF ELECTRONIC DATA SUBMITTAL

The Drinking Water Branch (DWB) is currently implementing changes in its data management system. The existing outdated data system is being replaced with a new database system known as SDWIS/STATE. This system has been developed and provided by EPA to assist states in meeting increasing demands for data reliability and the mandated reporting of Public Water Supply data to EPA's SDWIS/FED database. The new database system provides a common data structure that is currently in use in more than thirty states.

To effectively implement the new system, certain changes in the DWB's data management practices are required. As a first step, DWB is developing a new data entry application to accommodate entry of bacteriological sampling data into the new data system. DWB data-entry staff will be entering data into the system from these new forms. The forms currently in use for the reporting of bacteriological sampling data do not capture all the required data elements necessary for efficient utilization of the new system nor does the current data entry application provide for sufficient validation and edit checking to insure reliability and accuracy of data. The revised form has been designed to be compatible with the new data system and is expected to dramatically increase the performance and efficiency of DWB data processing.

As a second step, DWB is proposing to provide laboratories and water suppliers a tool to allow for the electronic submission of data through the use of Electronic Data Interchange (EDI). This EDI application is currently under development and will closely resemble the data-entry system being developed for in-house use by DWB. Laboratories and water suppliers electing not to participate in EDI will be asked to begin using the new forms for reporting the results of bacteriological analyses to DWB. Laboratories and water suppliers wishing to pursue the use of EDI may find the format of the new forms helpful when entering data into the EDI application.

What is EDI? How does it work?

The EDI application currently under development is an MS-ACCESS database application that can be used on a stand-alone or networked PC in a laboratory. The most typical use will likely involve data-entry staff at the laboratory entering bacteriological sampling records (creating batch files) into the EDI database. Tables contained in the database are used to validate data items such as PWS ID and SAMPLING POINT. These reference tables can be periodically replaced or updated via email or downloaded from a website. When data-entry is complete for a particular batch, the application will reformat the data into a format that can then be transmitted to DWB via email. The formatted text files arrive at DWB ready for loading to the SDWIS/STATE database. Records entered in the laboratory's EDI application can either be flushed from the system after generation of the text file or they can be preserved in "history" tables within the EDI application. The second option is recommended. If an error in the text file is encountered during loading to SDWIS/STATE the record will be rejected. DWB will transmit any rejected records back to the laboratory. The laboratory can then recall the specified records from the history tables into a new batch file, make the necessary corrections and then re-submit a text file of corrected records.

Options?

The EDI application will be provided to laboratories and water suppliers configured to function as described above. The data-entry screens will closely resemble the proposed paper forms and the data entry order on the screen will conform to the order suggested by the form. Laboratories wishing to alter the appearance of the data entry screen or rearrange the items on the screen to suit their own requirements and data-entry preferences (eg. prefer to use their own paper forms) should feel free to do so. The only requirement is that the final text file be produced in the specified format. Additionally, laboratories with existing Laboratory Information Management Systems (LIMS) may choose to develop their own programming procedures for producing the formatted text files. The table structures and program units contained in the EDI application should serve as a useful guide in this endeavor.

INSTRUCTIONS FOR BACTERIOLOGICAL ANALYSIS REPORT FORM

DESCRIPTION OF DATA ELEMENTS:

PWS ID

Public Water System ID. Uniquely identifies a water system. This is a required data element for all sampling reports. Sampling reports received without a valid PWS ID cannot be processed for compliance purposes. Each form can contain samples from only one PWS.

COMPLIANCE PERIOD (mmyyyy)

Indicates the monthly period to which the samples will be applied. Generally this is the month in which the samples are collected. However, if a Routine Sample is collected at the end of the monthly compliance period and the Repeat Samples are not collected until the first day of the following month, this data element allows the repeat samples to apply to the correct monitoring period (ie. the month in which the positive routine sample was collected.)

COLLECTION DATE (mmddyyyy)

This is the date the samples were collected. Each form can contain only samples that have been collected on the same day. Use a new sheet for each day that samples are collected.

LAB ID

This is the 5-digit code assigned by Kentucky to each laboratory certified to conduct bacteriological analyses. Uniquely identifies the laboratory that performs the analysis of the sample.

LAB RECEIPT DATE (mmddyyyy)

Optional data element to be used by the laboratory. Identifies the date the sample was received at the laboratory.

ANALYSIS DATE (mmddyyyy)

This is the date the sample was analyzed by the laboratory.

TOTAL COLIFORM ANALYSIS METHOD CODE

Coded value that represents the Total Coliform analysis method used for all the samples listed on the sampling sheet. (See revised list of Analysis Method Codes)

E. COLI ANALYSIS METHOD CODE

Coded value that represents the E. coli analysis method used for any samples listed on the sampling sheet that have been analyzed for E.coli following a positive Total Coliform result.

SAMPLE TYPE

Coded value that represents the type or purpose of the sample collected. There are only three acceptable values for this code. **Routine (RT)** samples (formerly known as Distribution samples) are those collected for the purpose of compliance with the Total Coliform Rule and are collected on a monthly basis. **Repeat (RP)** samples (formerly known as Check samples) are collected after the PWS has been notified that a Routine sample has tested positive for Total Coliform. Repeat samples must reference the Laboratory Sample Number of the original positive Routine sample. (See discussion under heading **Original Lab Sample Number**). **Special (SP)** samples are collected in response to conditions or situations specific to the PWS such as line breaks, emergency repairs, line extensions, etc. Special samples are NOT to be used for determinations of compliance and cannot substitute for any failure to collect the required minimum number of Routine Samples nor can any Special Samples be considered a substitute for Repeat Samples

SPECIAL SAMPLE REASON

Coded value indicating the reason special samples were collected. Special Sample Reason codes are listed in the key on the report form.

REPLACEMENT SAMPLE (Y or BLANK)

Indicates that the sample is a replacement for a sample that has resulted in confluent growth (CNFG) or Too Numerous to Count (TNTC) but negative for total coliform.

LOCATION CODE

This is the 3-digit code for the Sampling Point referencing the address or location where a sample was collected within the distribution system of a PWS. A list of approved Sampling Points is stored in the Kentucky Drinking Water Database (SDWIS/STATE). Routine (**RT**) compliance samples will be rejected if the Sampling Point is not reported on the form or is not listed as an approved site in the database. When reporting a set of Repeat Samples (**RP**), the repeat sample taken from the original total coliform positive site must be reported with the same Sampling Point identified on the original positive routine sample. It is not expected that the upstream and downstream Repeat Samples will be collected from approved sites. The pre-defined generic Sampling Points **RPU** and **RPD** should be used to identify the upstream and downstream Repeat Sampling Points respectively. If the original sample was **RPU** or **RPD**, then use **RPO**. Sampling Points for Special samples (**SP**) should be entered on the form but need not be listed as approved in the database.

REPEAT LOCATION CODE

This element characterizes the Sampling Point for the Repeat Sample (**RP**) as one of three types: Original (**OR**), Upstream (**UP**), or Downstream (**DN**). This element is required if the Sample Type is **RP**. If a Repeat Location Code is entered for any other Sample Type the entry will be ignored by the data system. If Repeat Location Code is not entered for a Repeat Sample (**RP**), the sample will be rejected by the data system and may result in a violation.

SAMPLE TIME

Time (24 hr) the sample collection was collected. Must consist of 4 numeric characters. Do not indicate AM or PM. Examples: 0710 = 7:10 am; 1325 = 1:25 pm

FREE CHLORINE

Free Chlorine Disinfectant Residual. A PWS using chlorine-based disinfectants other than chloramines is expected to report free chlorine residual measurements. Reporting of total chlorine residuals is optional for these systems. Values are expressed as mg/L or ppm.

TOTAL CHLORINE

A PWS using chloramines for disinfection is expected to report total chlorine residual values. Values are expressed as mg/L or ppm.

LAB SAMPLE NUMBER

This number provides a **unique identifier** for all bacteriologic samples analyzed by a particular laboratory within a given year. Can contain up to 8 characters.

ANALYSIS TIME

Time (24 hr) the sample collection was analyzed in the laboratory. Do not indicate AM or PM. Examples: 0710 = 7:10 am; 1325 = 1:25 pm

RESULT

Enter the total coliform count if coliform bacteria are present and a count is appropriate to the analytical method being used. If coliforms are not present, leave blank. Do not enter 0. This column will also accept the values **TNTC** and **CNFG** for "Too Numerous to Count" and "Confluent Growth".

TOTAL COLIFORM (P/A)

Indicate Presence (**P**) or Absence (**A**) of coliform bacteria in the sample. If a Total Coliform Count is entered as **TNTC** or **CNFG** and Total Coliform (P/A) is entered as **A**, the laboratory shall advise the PWS to collect a Replacement Sample (replacement of a Routine Sample) to insure that the required number of Routine Samples are analyzed during the monthly monitoring period. If Total Coliform Count is entered as **TNTC** or **CNFG** and Total Coliform (P/A) is entered as **P**, then the PWS will be required to collect a set of three Repeat Samples (**RP**).

E. COLI (P/A)

Following a determination that a sample is total coliform positive (Total Coliform (P/A) = **P**), the laboratory must analyze for the presence/absence of E. coli bacteria. Use this column to indicate the presence (**P**) or absence (**A**) of E. coli. Make no entry in this column if the total coliform analysis was negative (Total Coliform (P/A) = **A**) and no analysis was performed for E. coli.

LAB SAMPLE NUMBER OF ORIGINAL SAMPLE

When a Routine Sample (RT) is positive for total coliform, the PWS must collect a set of three Repeat Samples (RP). Each of the Repeat Samples must reference the Lab Sample Number of the original coliform positive Routine Sample. Failure to record the Original Lab Sample Number on a Repeat Sample will not cause the data system to reject the sample; however, if the Original Lab Sample Number is not recorded on each of the three Repeat Samples, the data system will not be able to confirm compliance with the requirement to collect three Repeat Samples and a violation may be issued. It is also advisable to reference an original Lab Sample Number when submitting a Replacement Sample.

Budget Summary

	Actual 2000	Budget 2001	Estimate 2002
<u>Utility Operating Income</u>			
Operating Revenues	\$ _____	\$ _____	\$ _____
Operation and Maintenance Expenses	_____	_____	_____
Depreciation Expense	_____	_____	_____
Amortization Expense	_____	_____	_____
Taxes Other Than Income	_____	_____	_____
Income from Utility Plant Leased to Others	_____	_____	_____
Gains (Losses) from Disposition of Utility Property	_____	_____	_____
Net Utility Operating Expenses	_____	_____	_____
Utility Operating Income (Loss)	\$ _____	\$ _____	\$ _____
<u>Other Income and Deductions</u>			
Net Results/Merchandising, Jobbing & Contract Work	\$ _____	\$ _____	\$ _____
Interest and Dividend Income	_____	_____	_____
Allowance for Funds Used During Construction	_____	_____	_____
Nonutility Income	_____	_____	_____
Miscellaneous Nonutility Expenses	_____	_____	_____
Taxes Other Than Income	_____	_____	_____
Interest Expense	_____	_____	_____
Total Other Income and Deductions	_____	_____	_____
Income Before Contributions & Extraordinary Items	\$ _____	\$ _____	\$ _____
Proceeds from Capital Contributions	_____	_____	_____
Net Extraordinary Items	_____	_____	_____
Change in Net Assets	\$ _____	\$ _____	\$ _____

USoA
Acct #

Actual
2000

Budget
2001

Estimate
2002

Operating Revenues

Sales of Water (sub-category)

460 Unmetered Water Revenue

461.1 Metered Water Revenue - Residential

461.2 Metered Water Revenue - Commercial

461.3 Metered Water Revenue - Industrial

461.4 Metered Water Revenue - Public Authorities

461.5 Metered Water Revenue - Multiple Family Dwellings

461.6 Metered Water Revenue - Bulk Loading Stations

462 Fire Protection Revenue

465 Sales to Irrigation Customers

466 Sales for Resale

Subtotal Sales of Water

Other Water Revenues (sub-category)

470 Forfeited Discounts

471 Miscellaneous Service Revenues

472 Rents from Water Property

473 Interdepartmental Rents

474 Other Water Revenues

475 Provision for Rate Refunds

Subtotal Other Water Revenues

Total Operating Revenues

Operation and Maintenance Expenses

601 Salaries and Wages - Employees

603 Salaries and Wages - Commissioners

604 Employee Pensions and Benefits

Medical/Life Insurance

Retirement Benefits

Other

Account #	Description	Actual 2000	Budget 2001	Estimate 2002
460	Unmetered Water Revenue			
461.1	Metered Water Revenue - Residential			
461.2	Metered Water Revenue - Commercial			
461.3	Metered Water Revenue - Industrial			
461.4	Metered Water Revenue - Public Authorities			
461.5	Metered Water Revenue - Multiple Family Dwellings			
461.6	Metered Water Revenue - Bulk Loading Stations			
462	Fire Protection Revenue			
465	Sales to Irrigation Customers			
466	Sales for Resale			
	Subtotal Sales of Water			
	<u>Other Water Revenues (sub-category)</u>			
470	Forfeited Discounts			
471	Miscellaneous Service Revenues			
472	Rents from Water Property			
473	Interdepartmental Rents			
474	Other Water Revenues			
475	Provision for Rate Refunds			
	Subtotal Other Water Revenues			
	Total Operating Revenues			
	<u>Operation and Maintenance Expenses</u>			
601	Salaries and Wages - Employees			
603	Salaries and Wages - Commissioners			
604	Employee Pensions and Benefits			
	Medical/Life Insurance			
	Retirement Benefits			
	Other			

USoA
Acct #

	Actual 2000	Budget 2001	Estimate 2002
Subtotal Employee Pensions and Benefits			
610 Purchased Water			
615 Purchased Power			
616 Fuel for Power Production			
618 Chemicals			
620 Materials and Supplies			
631 Contractual Services - Engineering			
632 Contractual Services - Accounting			
633 Contractual Services - Legal			
634 Contractual Services - Management Fees			
635 Contractual Services - Other			
641 Rental of Building/Real Property			
642 Rental of Equipment			
650 Transportation Expenses			
656 Insurance - Vehicle			
657 Insurance - General Liability			
658 Insurance - Workers' Compensation			
659 Insurance - Other			
660 Advertising Expense			
665/667 Regulatory Commission Expense			
670 Bad Debt Expense			
675 Miscellaneous Expenses			
Total Operation and Maintenance Expenses			
Depreciation Expense			
403 Depreciation Expense on Utility Plant			
Amortization Expense			
406 Amortization of Utility Plant Acquisition Adjustments			
407 Amortization Expense			
Total Amortization Expense			

USoA
 Acct # Actual 2000 Budget 2001 Estimate 2002

Taxes Other Than Income

408.10 Utility Regulatory Assessment Fees _____
 408.11 Property Taxes _____
 408.12 Payroll Taxes _____
 408.13 Other Taxes and Licenses _____
Total Taxes Other Than Income _____

Income from Utility Plant Leased to Others

413 Income from Utility Plant Leased to Others _____
Gains (Losses) from Disposition of Utility Property _____
 414 Gains (Losses) from Disposition of Utility Property _____

Net Utility Operating Expenses _____
Utility Operating Income (Loss) _____

Other Income and Deductions

Net Results of Merchandising, Jobbing and Contract Work

415 Revenues from Merchandising, Jobbing and Contract Work _____
 416 Costs & Expenses of Merchandising, Jobbing & Contract Work _____
Net Merchandising, Jobbing and Contract Work _____

Interest and Dividend Income

419 Interest and Dividend Income _____

Allowance for Funds Used During Construction

420 Allowance for Funds Used During Construction _____

Nonutility Income

421 Nonutility Income _____

Miscellaneous Nonutility Expenses

426 Miscellaneous Nonutility Expenses _____

Taxes Other Than Income



CONTRACT FOR WATER SERVICE

THIS AGREEMENT made and entered into this _____ day of _____

20____, between _____

whose address is _____

party of the **FIRST PART**, hereafter called the "Customer", and the Estill County Water District No. 1, West Irvine, Kentucky, party of the **SECOND PART**, hereafter called the "District".

WITNESSED THAT for and in consideration of the effort by the District to secure financing for the construction of this project, and in consideration of the other customers signing similar contracts, the Customer hereby agrees to connect to the Waterworks System subject to the following conditions.

1. The Customer agrees to pay with the signing of this agreement a deposit of \$25.00 which is evidence of his good faith and intention to connect to the system upon completion. The deposit shall be applied to the total connection charge, the Customer will pay the remaining amount upon demand by the District. If plans to construct the new lines are abandoned, or if the lines are constructed and water is not made available to the Customer, the deposit made shall be fully refunded.
2. The District shall install a cut-off valve and water meter for each service and shall have sole right of use of the valve and water meter. The District shall have the right to determine the size and location of the water meter and service line connected to the system.
3. The Customer will install and maintain at his own expense a service line which shall begin at the water meter and extend to the place of use. The Customer shall also install a check valve and cut-off valve at the place of use.
4. The Customer agrees not to resell or give away any water purchased from the District. A separate meter must be installed for each residence.
5. The Customer agrees to comply with other rules and regulations as the District now has in force or as may be legally enacted or ammended. The Customer also agrees to pay for water at such time, place, and rates as shall be determined by the District. Rates will be reasonable and subject to approval by the Public Service Commission.
6. It is agreed that the Customer will began to use water from the system on the date that it is available. Water charges shall begin on the date that service is available regardless of whether or not the Customer is connected.

If the Customer refused to connect to the system when it is completed, he will pay each month the minimum bill set by the District. If later, the same Customer wishes to connect to the system, he shall first pay the accumulated monthly charges, and shall then pay the full tap on charge as may be in effect at the time of application for service.

7. The Customer agrees to permit the District to lay, maintain, repair, remove or disconnect a service line and meter, and to read meters at a point designated by the District on the customer's property with the right of access for these purposes across property. Additionally, the Customer agrees to grant an easement for the construction, access, and maintenance of the water mains. The easement will be 12' in width; will extend across the front of the property; and will be adjacent to the public road right of way line, or adjacent line if there is no road along the property.
8. The failure of the Customer to pay water charges duly imposed, shall result in the automatic imposition of the following penalties:
 - A. Non-payment of accounts on the due date will be subject to a penalty of ten per cent of the delinquent account.
 - B. Non-payment within ten days form due date will result in the water being shut off form the Customer's property.
 - C. In the event it becomes necessary for the District to shut off the water a fee as set by the District will be charged for reconnection of the service. The Customer will also be required to pay all delinquent accounts and pay the minimum water bill for the time the meter was disconnected.

IN WITNESS whereof, we have executed this agreement as of the date entered of the first page.

WITNESSED:

Estill County Water District No.1

By: _____
Secretary

By: _____
Chairman
Board of Commissioners

By: _____
Customer

11/20

AGREEMENT POLICY
ESTILL CO WATER DISTRICT
76 CEDAR GROVE ROAD
IRVINE, KY 40336

In accordance with the policies of the above named Water System and in order to either prevent the disconnection of or restore the water service in my name, I hereby agree to pay the sum of \$_____ today and \$_____ per _____ on the unpaid balance plus keep current my regular water payments on the account listed below, until the account is paid up-to-date.

I understand that if at any time I do not live up to this agreement and make the payments exactly as stated, that my service will be discontinued at the account listed below plus any other accounts listed in my name. I also understand that none of these services will be restored until all accounts are paid up-to-date and any necessary Service Charges are paid.

Account Number _____

Customer's Name _____

Address of Service Delinquent _____

Date of Signature _____

Signature _____

Employee _____

HIDDEN UNDERGROUND LEAK

ADJUSTMENT FORM

Ref: Service Address _____

Account Number _____

Service Number _____

1. Date repairs were made _____

2. Who made the repairs _____

3. List of Materials used _____

4. Exact location of the Leak _____

_____ feet from the meter box.

_____ feet from the house.

5. Attach copy of plumber's statement or receipt of materials used.

I understand that adjustments are figured by the difference between my average water bill and the bill that reflects the leak. The adjustment is then based on Estill County Water District No. 1 assuming 50% of the loss and I am responsible for the other 50% of the loss plus my average bill. I further understand that even though an adjustment is to be considered, I am still responsible for the bill and that should I be disconnected for non-payment, the entire amount plus \$10.00 reconnect fee must be paid before service will be restored and any adjustment made will be credited to my account.

I also understand that during the lifetime of my water service line, only two leak adjustments will be permitted. Each of these adjustments may cover a maximum of two billing periods. Before a third adjustment can be considered, the entire water service line from the meter box to my house or structure must be replaced and that I must submit evidence of this fact before the third adjustment is given. I plastic pipe is used for any repair of underground water service lines, it must be no less than class 200 p.s.i, CTS pipe. THE USE OF RADIATOR CLAMPS, KING NIPPLES, OR THE EQUIVALENT CANNOT BE ACCEPTED.

I realize that no adjustment will be made until this form (completed in its entirety, signed and dated) and my plumber's statement are returned to Estill County Water District No. 1.

I hereby verify that I have read the information given above and that all statements true and correct, and that the excess usage in my plumbing system has now been corrected.

Signed _____

Initials _____

Dated _____

Estill County Water District No. 1

76 Cedar Grove Rd.
Irvine, Ky. 40336
Phone: (606) 723-3795
Fax: (606) 726-9083

Roy L. Embs
Chairman

E. Ralph Howe
Secretary

Jeffery Q. Brinegar
Treasurer

REPORT OF INCIDENT

Date of Incident: _____ Time of Incident: _____

Name: _____

Business Name/Address: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____ Evening Phone: _____

Description of Incident: _____

Witnesses, Name, Address and Daytime Phone: _____

Were you a customer of our business at the time the incident occurred? _____

Description of Injuries Received: _____

Has this area of your body been injured before? If yes, describe: _____

Is there anything unusual about your injuries? If yes, describe: _____

Was medical treatment sought? If yes, describe: _____

Witness Date

Signature of Injured Party

Manager on duty at time of accident: _____

Estill County Water District No. 1

76 Cedar Grove Rd.
Irvine, Ky. 40336
Phone: (606) 723-3795
Fax: (606) 726-9083

Roy L. Embs
Chairman

E. Ralph Howe
Secretary

Jeffery G. Brinegar
Treasurer

CUSTOMER SECURITY DEPOSIT WAIVER

Date: _____

In lieu of a customer security deposit in the amount of

_____, I, _____
of _____

hereby agree to be responsible for any outstanding balance
owed for _____ located
at _____.

Signed: _____

Phone: _____

EASEMENT INFORMATION FORM

OWNER NAME: _____

NAME OF SPOUSE:
(IF ANY, IF NONE,
STATE "SINGLE") _____

OWNER ADDRESS: _____

OWNER TELEPHONE: _____

PROPERTY ADDRESS:
(IF DIFFERENT) _____

SOURCE OF TITLE:

IF DEED, ATTACH COPY OF DEED(S) OR STATE:

NAME OF PERSON(S) WHO DEEDED PROPERTY TO OWNER(S):

DATE OF DEED: _____

DEED BOOK NO. _____ PAGE NO. _____

IF INHERITED, ATTACH COPY OF RECORDED AFFIDAVIT OF DESCENT OR WILL
OR STATE:

NAME OF PERSON FROM WHOM INHERITED:

WAS THERE A WILL? _____

IF SO, WILL BOOK NO. _____ PAGE _____

IF NO WILL, WAS THERE AN AFFIDAVIT OF DESCENT? _____

IF SO, DEED BOOK NO. _____ PAGE _____

LIST ANY OTHER PERSONS WHO MAY HAVE AN INTEREST IN THE PROPERTY,
AND EXPLAIN: _____

Monthly Water Loss Report

A.	Water Produced	_____ Gal.	
	Water Purchased	_____ Gal.	
	Total		_____ Gal.
B.	Water Sold		
	Residential	_____ Gal.	
	Commercial	_____ Gal.	
	Other Sales	_____ Gal.	
	Total		_____ Gal.
C.	<u>Revenue Accountable Water Usage</u>		
	Water Treatment Plant	_____ Gal.	
	Waste Water Treatment Plant	_____ Gal.	
	Hydrant Flushing	_____ Gal.	
	Fire Department	_____ Gal.	
	Total		_____ Gal.
D.	Difference [A-(B+C)]		_____ Gal.
	% Difference		
E.	<u>Non Revenue Water Loss</u>		
	Breaks	_____ Gal.	
	Storage Tank Overflow	_____ Gal.	
	Other	_____ Gal.	
	Total		_____ Gal.
	% Non Revenue		_____ Gal.

DEFINITIONS FOR PAGES 27 AND 28 OF THE
ANNUAL REPORT FOR WATER UTILITIES

Line 4 includes All water produced or purchased by the Company. These volumes should be metered regardless of the source.

Line 7 includes all water sold to Residential, Commercial, and Industrial customers, sales for resale, contract sales, and sales to other Public Authorities. (These sales are usually metered.)

Line 9 includes water used by Fire Protection Services and any Free customers. (Estimate portions not metered.)

Line 10 includes water used by the Company for Hydrant Flushing, Water Treatment Plant Use, etc. (Estimate portions not metered.)

Line 11 includes all water lost due to leakage, storage tank overflow, metering errors, etc. (This figure is usually derived by subtracting the known water usage from the total water produced or purchased figure.)

**WORKSHEET FOR CALCULATION OF
CUSTOMER CONTRIBUTION FOR WATER MAIN EXTENSION**

Name of Extension: _____
 Location - Beginning at: _____
 Ending at: _____
 Date placed in service: _____
 Date refund period expires: _____

- | | | | |
|--|---|----|--------|
| 1. Total cost of construction of main
(not including meter connections) | | \$ | |
| 2. Divided by total length of water
main in feet | + | | ft. |
| 3. Cost per foot of main | = | \$ | /ft. |
| 4. 50 feet times cost/foot | x | | 50 ft. |
| 5. District's portion of cost per
customer | = | \$ | |
| 6. Times number of customers
connected to main | x | | |
| 7. District's total portion of cost | = | \$ | |
| 8. Total cost of construction of
main (Line 1) | | \$ | |
| 9. Minus District's total portion of
cost (Line 7) | - | | |
| 10. Part to be paid by customers | = | \$ | |
| 11. Divided by number of customers
(Line 6) | + | | |
| 12. Each customer's required
contribution for the water main
extension itself (Subject to
refund) | | \$ | |
| 13. Plus the approved "Tap-on-fee"
(Not refundable) | + | \$ | |
| 14. Total contribution to be paid by
each customer connected to the
main extension at this time | = | \$ | |



CHAPTER 90

UTILITIES

A. GENERAL

Utility companies provide electrical power, water and electrical service for the distribution system. Frequent or prolonged interruption of service can have significant effects on the operation of the system, especially when power and communication is involved.

B. ELECTRIC UTILITY

Kentucky Utilities
Phone: (800) 383-5582

Jackson Energy
Phone: (800) 262-7480

C. TELEPHONE

Alltel
Phone: (800) 752-6007

D. NATURAL GAS

Columbia Gas
Phone: (800) 432-9345

E. CABLE

Irvine Community TV
Phone: (606) 723-4240

APPENDIX A
ESTILL COUNTY WATER DISTRICT NO. 1 – TABLES AND FORMS

OPERATION & MAINTENANCE PLAN - STORAGE FACILITIES

Description of storage facilities (type, construction, capacity, overflow elevation, height to overflow, head range, diameter, interior & exterior coatings, in-service date, contractor & nameplate information)

TANK	Wisemantown	Winston	Iron Mound	Sandhill	Palmer	HWY 851	Barnes Mountain	Cobb Hill	Knob Lick
Type	Cleated Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe
Construction	Welded Steel, Painted	Welded Steel, Painted	Welded Steel, Painted	Welded Steel, Painted	Glass Coated, Bolted Steel	Glass Coated, Bolted Steel	Glass Coated, Bolted Steel		
Capacity (gals)	250,000	200,000	200,000	112,000	113,000	108,000	116,000	116,000	116,000
Overflow Elevation (ft)	155,000	955	1032	1000	848	1032	963	1434	1434
Height to Overflow (ft)	115	50	78	72	99	72	72	70	70
Head Range (ft)									
Diameter (ft)	15	25		18					
Interior Coatings									
Exterior Coatings									
In Service Date	2007 1964 2007	1978	1984						
Contractor	Pratie Caldwell	Caldwell Tanks		Laurel Constr	KY Glass-Lined Tanks	KY Glass-Lined Tanks	KY Glass-Lined Tanks	Malloy Aaron	Malloy Arrow
Nameplate Information									

2 Chestnut Stand
2805 Bladder Tanks
2007

OPERATION & MAINTENANCE PLAN - STORAGE FACILITIES

Description of storage facilities (type, construction, capacity, overflow elevation, height to overflow, head range, diameter, interior & exterior coatings, in-service date, contractor & nameplate information)

TANK	Wisemantown	Winston	Iron Mound	Sandhill	Palmer	HWY 851	Barnes Mountain	Cobb Hill	Knob Lick
Type	Clear Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe	Standpipe
Construction	Welded Steel, Painted	Welded Steel, Painted	Welded Steel, Painted	Welded Steel, Painted	Glass Coated, Bolted Steel	Glass Coated, Bolted Steel	Glass Coated, Bolted Steel		
Capacity (gals)	250,000	200,000	200,000	112,000	113,000	108,000	116,000	116,000	116,000
Overflow Elevation (ft)	955	1032	1000	848	1032	963	1426	1434	1434
Height to Overflow (ft)	115	50	78	72	99	72	72	70	70
Head Range (ft)									
Diameter (ft)	15	25		18					
Interior Coatings									
Exterior Coatings									
In Service Date	2007	1978	1984						
Contractor	Prarie Caldwell	Caldwell Tanks		Laurel Constr	KY Glass-Lined Tanks	KY Glass-Lined Tanks	KY Glass-Lined Tanks	Malloy Aaron	Malloy Arrow
Nameplate Information									

2 Chestnut Stand
2805 Bladder Tanks
2007

Level cont. telemetry (type, manufacturer, model, contractor, supply pump station, pumps on & off)

TANK	Wisemantown	Winston	Iron Mound	Sandhill	Palmer	HWY 851	Barnes Mountain	Cobb Hill	Knob Lick
Type	Altitude Valve								
Manufacturer									
Model									
Contractor									
Supply Pump Station			Dry Branch	Sandhill	Ivory Hill	So Irvine	HWY 851	Cobb Hill	

Inspection (schedule)

The tanks are checked on a regular basis and are continuously monitored by telemetry. Visual inspection of tanks is made routinely on site visits. Scheduled inspections are made every five years, along with cleaning. Repairs are made as needed and as recommended by inspection reports.

Safety

All tanks are equipped with safety climbing devices and all personnel use safety belts when climbing tanks. All tanks have security devices over the climbing ladder and also have alarm switches for unauthorized entry. The alarms are controlled by telemetry which sends signals back to the water office. All water company personnel are instructed and trained on using safety equipment.

OPERATION & MAINTENANCE PLAN – MASTERMETER FACILITIES

Description of mastermeter facilities (mastermeter, type, size, bypass, bypass size, in-service date, contractor & nameplate information)

MASTERMETER	IMU Original	Dry Branch								
Manufacturer										
Type										
Size (in)	6	6								
Bypass										
Bypass Size (in)										
In Service Date										
Contractor										
Nameplate Information										

Inspection (schedule)

The mastermeters are checked on a regular basis. Visual inspection of each mastermeter is made routinely on site visits. Repairs are made as needed and as recommended by inspection reports.

Safety

All mastermeters have alarm switches for unauthorized entry. The alarms are controlled by telemetry which sends signals back to the water office. All water company personnel are instructed and trained on using safety equipment.

ESTILL COUNTY WATER DISTRICT

VENDOR _____

DATE _____

ACCOUNT# _____ AMOUNT PAID _____

APPROVED BY _____

DATE PAID _____ CHECK# _____

ESTILL COUNTY WATER DISTRICT NO. 1
UNMETERED WATER USAGE
KNOWN WATER LOSS

FIRE HYDRANT - (direct usage)

Date: _____

Location: _____

Duration of usage: _____

Outlet size: _____

* * * *

FLUSH HYDRANT - (tanker)

Date: _____

Location: _____

Load size: _____

Times filled: _____

Mail to: ESTILL COUNTY WATER DISTRICT NO. 1
76 CEDAR GROVE RD
IRVINE, KENTUCKY 40336-7607

Form for filing Rate Schedules

FOR ESTILL COUNTY, KENTUCKY
Community, Town or City

P.S.C. KY. NO. _____

SHEET NO. _____

ESTILL COUNTY WATER DISTRICT NO. 1

CANCELLING P.S.C. KY NO. _____

SHEET NO. _____

CLASSIFICATION OF SERVICE

RATE
PER UNIT

MONTHLY RATES

5/8"x3/4" Meter

First 2,000 gallons	\$ 10.28 (Minimum Bill)
Next 3,000 gallons	4.89 per 1,000 gallons
Next 5,000 gallons	4.74 per 1,000 gallons
Over 10,000 gallons	3.24 per 1,000 gallons

1" Meter

First 5,000 gallons	\$ 24.95 minimum bill
Next 5,000 gallons	4.74 per 1,000 gallons
Over 10,000 gallons	3.24 per 1,000 gallons

2" Meter

First 16,000 gallons	\$ 68.09 minimum bill
Over 16,000 gallons	3.24 per 1,000 gallons

Monthly Surcharge to Cobhill customers
(in addition to existing rates)

\$ 4.81

Bulk Loading Station

\$ 3.52 per 1,000 gallons

Bulk Meter sales to Powells Valley Water Dist.

\$ 1.91 per 1,000 gallons

Connection Charges 5/8"x3/4"

\$350.00 per connection

All Others

Actual Cost of Installation

PUBLIC SERVICE COMMISSION
OF KENTUCKY
IT-5011E

OCT 22 1999

PURSUANT TO KPA 5011,
SECTION (1)

BY: [Signature]
[Title]

DATE OF ISSUE 9/23/99
MONTH DATE YEAR

DATE EFFECTIVE 10-22-99
MONTH DATE YEAR

ISSUED BY Roy L. Embs
SIGNATURE OF OFFICER

TITLE Chairman

Issued by authority of an Order of the Public Service Commission of Kentucky in Ca
No. _____ dated _____.

ESTILL COUNTY WATER DISTRICT NO. 1
LEGAL NOTICE

In accordance with Chapter 65 and 424 of the Kentucky Revised Statutes, the following information and supporting data may be inspected by the general public at 76 Cedar Grove Rd from _____ between the hours of 8a.m. and 4p.m. Estill County Water District No. 1

Chairman: _____
Secretary: _____
Treasurer: _____

Summary of Financial Statement
Estill County Water District No. 1

For Fiscal Period _____ to _____

Beginning Cash on hand	_____\$	_____
Receipts			
User Fees	.....	\$	_____
Miscellaneous	.....	\$	_____
Interest Income	.....	\$	_____
Total Receipts	.....	\$	_____
Expenditures			
Administration	.....	\$	_____
Salaries	.....	\$	_____
Operations/Water Purchased	.....	\$	_____
Debt Retirement	.....	\$	_____
Other	.....	\$	_____
Total Expenditures	.....	\$	_____
Ending Balance	_____\$	_____

Estill County Water District No. 1

76 Cedar Grove Rd.
Irvine, Kentucky 40336-9347
Phone: (606) 723-3795

Roy L. Embs
Chairman

Ralph Howe
~~██████████████████~~
Secretary

Jeffery Q. Brinegar
Treasurer

Dear Customer:

Kentucky Public Service Commission Regulation 807 KAR 5:006, Section 20 states that a customer's request to test a meter must be made in writing. Such request may be made once in a twelve (12) month period/ You have the opportunity to be present at such test if you desire. If the required test results is an average error of greater than 2%, the account will be adjusted for the period the meter's error is known to have existed or for one-half the period of time between the present date and the last meter test date or twelve months, whichever is less. If the average error is greater than 2% slow, the customer will receive an additional bill under the same conditions as above.

After have a test made on your meter by Estill County Water District No. 1, if you are not satisfied with the results, you may make written application to the Public Service Commission to have your meter tested by the Commission. Application may be made by writing:

Commonwealth of Kentucky
Public Service Commission
730 Schenkel Lane
Post Office Box 615
Frankfort, Kentucky 40602

Such request of the Commission may not be made more frequently than once each twelve (12) months.

If you desire a meter test by Estill County Water District No. 1 please sign below and return this form to our office:

Estill County Water District No. 1
76 Cedar Grove Rd
Irvine, Kentucky 40336

Signature

Phone Number

Date

I would like to witness the test yes no

(See Reverse for Test Results)

OFFICE USE ONLY

Customer Name: _____ Account Number: _____
 Service Address: _____ Service Number: _____
 Meter: Size _____ Make _____ Number _____ Test Schedule: Date _____ Time _____

	GPM	Readings		Percent of Accuracy	
		Beginning	Ending		
Low Flow:	_____	_____	_____	_____	1
Intermediate Flow:	_____	_____	_____	_____	2
Maximum Flow:	_____	_____	_____	_____	3
Average of Test Flow 2 and 3					

If average exceeds 102% or is less than 98%
 then further testing is required below.

Flow Rate	GPM	Readings		Percent of Accuracy
% of Capacity		Beginning	Ending	
25%	_____	_____	_____	_____
50%	_____	_____	_____	_____
75%	_____	_____	_____	_____

Average of all 3 test: _____
 Less Standard: 100%
 Equals % of Error: _____

Length of time error is known to exist: _____

Basis for refund: _____

Amount of refund: _____

Basis for additional bill: _____

Amount of additional bill: _____

Copy to: Customer Service Supt.--Inside
 Customer Service Supt.--Outside

Meter Envelope
 Service File

Meter Dept. File
 Billing Dept. File

If complaint or request test:

PSC Complaint File

NAME: _____

ADDRESS: _____

ACCOUNT NO.: _____

How Reported: In Person Letter

Brief Description of Complaint:

Telephone # _____

Other _____

To be filled in by the meter reader:

Reading _____

Leak Yes No / Stopped Yes No

Comment _____

Checked by: _____ Date: _____

Action Taken: yes no

Received by: _____
Date: _____

Received by: _____ Date: _____

COMPLAINT REPORT EL _____ WA _____

NAME: _____

ADDRESS: _____

ACCOUNT NO.: _____

How Reported: In Person Letter

Brief Description of Complaint:

Telephone # _____

Other _____

To be filled in by the meter reader:

Reading _____

Leak Yes No / Stopped Yes No

Comment _____

Checked by: _____ Date: _____

Action Taken: yes no

Received by: _____
Date: _____

Received by: _____ Date: _____

ESTILL COUNTY WATER DISTRICT NO. 1
ACCIDENT REPORT FORM

DATE OF ACCIDENT/INJURY: _____

EMPLOYEE: _____ S/S NUMBER: _____

ADDRESS: _____ DATE OF BIRTH: _____

DEPENDENTS:	DATE OF BIRTH:	RELATIONSHIP:
_____	_____	_____
_____	_____	_____
_____	_____	_____

DESCRIBE THE ACCIDENT (be specific): _____

DID YOU RECEIVE INJURIES? YES _____ NO _____

IF YES, DESCRIBE (be specific): _____

WAS ANOTHER VEHICLE INVOLVED? YES _____ NO _____

IF YES, SUPPLY THE FOLLOWING INFORMATION:

1. DRIVER OF OTHER VEHICLE: _____
2. OWNER OF OTHER VEHICLE: _____
3. LICENSE NO. OF OTHER VEHICLE: _____
4. INSURANCE COMPANY: _____
5. TELEPHONE NO. OF OTHER DRIVER/OWNER: () _____
() _____

DID PROPERTY DAMAGE RESULT? YES _____ NO _____

IF YES, GIVE THE FOLLOWING:

OWNER OF PROPERTY:	DESCRIPTION OF PROPERTY:	DAMAGE INCURRED
_____	_____	_____
_____	_____	_____

ANY WITNESSES TO ACCIDENT? YES _____ NO _____

IF YES, GIVE THE FOLLOWING:

NAME:	ADDRESS:	TELEPHONE NO:
_____	_____	_____
_____	_____	_____

CUSTOMER SERVICE LINE INSPECTION APPLICATION

It is expressly understood that the applicant for the permit states that this service line has been installed in strict compliance with the State Plumbing Code.

CUSTOMER

ADDRESS

OWNER/BUILDER

PERMIT NO.

DATE REQUEST RECEIVED

INSPECTION DATE

Requirements on service lines

- _____ 24 inches in depth
- _____ 3/4 inches in size
- _____ Type of pipe 200 PSI
- _____ Cut-off valve installed on cusotmer side
- _____ Check valve installed on customer side
- _____ No cross connections
- _____ Galvanized pipe or fittings are not recommended

Inspected By: _____

. Estill County Water District No. 1

(Washington, D .C.: Naval Medical Command) 1985.

United States Navy, Student Guide for Workplace Monitor Training,
(Washington, D C: The Command), 1985.

US Occupational Safety and Health Administration, Principles and
Practices of Oc cupational Safety and Health: A Programmed
Instruction Course: Student Manual, Booklet Two, (Washington: US
Dept. of Labor, Occupational Safety and Health Adm. :for sale by

US Occupational Safety and Health Adm., Job Safety & Health,
(Washington, Dept o f Labor, Occup. Safety and Health Adm.).

US Occupational Safety and Health Adm., The Benefits of Health
and Safety Regula tion, (Cambridge, MA, Ballinger), 1981.

US Occupational Safety and Health Administration, Inspecting for
Job Safety and Health Hazards, (Washington, Occupational Safety
and Health Adm.), 1992.

US Occupational and Health Adm., OSHA Handbook for Small
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Safety and Health Adm.), 1992.

US. Occupational Safety and Health Adm., Industrial Hygiene
Technical Manual, (Washington, US Dept. of Labor, Occupational
Safety and Health Adm), 1984.

OSHA Industrial Hygiene Technical Manual US DOL ISBN:
0-86587-745-9 This may be obtained through the US Superintendent
of Documents or Gover nment Institutes, Inc., 966 Hugerford
Drive, #24, Rockville MD 20850. May also be found on OSHA's
Regulations, Documents and Technical Information CD-ROM (also
available from Sup

USOSHA, Construction Industry: OSHA Safety and Health Standards,
(Washington, D C: US Dept. of Labor, OSHA), 1987.

USOSHA, General Industry Digest, (Washington, DC: US Dept of
Labor, Occupational Safety and Health Adm), 1991.

United States. Occupational Safety and Health Adm., Hearing
Conservation, (Washi ngton, DC? US Dept of Labor, Occupational
Safety and Health Adm.) 1992

US Occupational Safety and Health Adm, Analytical Methods Manual.

US Public Health Service, The Industrial Environment its
Evaluation and Control, (Washington: National Institute for
Occupational Safety and Health), 1984.

Weiner, Edith, Office Biology: Or Why Tuesday is Your Most
Productive Day and Ot her Relevant Facts for Survival in the
Workplace, (New York: MasterMedia Limited), 1993.

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Lawrence Erlbaum Assoc iates), 1990.

Work, Health, and Productivity., (New York: Oxford University
Press), 1991.

World Health Organization, Evaluation of Exposure to Airborne
Particles in the W ork Environment, (Geneva: World Health
Organization), 1984.

PERIODICALS

American Industrial Hygiene Association Journal published by AIHA.

Applied Occupational and Environmental Hygiene published by ACGIH.

Business and Health published by American Health Consultants.

Mayo Clinic Health Letter, Subscription Services, P.O. Box 53889, Boulder CO 803 22-3889 \$24.00/year

Occupational Health and Safety published by Medical Publications Inc., 225 N. New Road, Waco, TX 76710.

Occupational Safety and Health Reporter published by the Bureau of National Affairs, Washington DC.

(Note: Highlighted references often cited as basic resources in industrial hygiene)

APPENDIX D
EMERGENCY RESPONSE PLAN

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Emergency Response Plan Based on Our Vulnerability Assessment

Includes

- Emergency Contact Information
- Inventory of Critical Equipment and Customers
- Chain of Command
- Response Procedures, Plans & Actions
- Coordination Activities
- Notification List
- Local Emergency Planning Committee

Estill Co. Water District #1

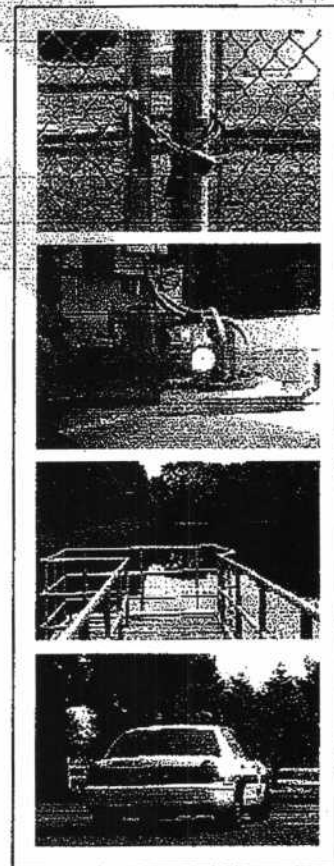
Completed By:

Everett Murphy

(606)723-3795

ecwd1@irvineonline.net

January 12, 2005



technical assistance software made possible by

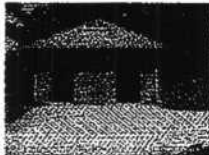


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Securing America's Drinking Water

A Report Outlining our Security & Emergency
Management Systems

Contact Information



System Information

PWS ID: 0330123
Water Station Name: Estill Co. Water District #1
Town Served: Irvine
Population: 15,000
Number of Service Connections: 3500
System Owner: Estill County Water District

Person Responsible for Maintaining Contact List

Name: Pamela C. Cox
Title: Office Manager
Phone: 606-723-3795

Telephone and Contact

Contact Name: Everett Murphy
Daytime Phone: (606) 723-3795
Emergency Phone: (606) 723-1532
Cell Phone: (606) 723-1532
Fax Number: (606) 726-9083
Emergency Email: ecwd1@irvineonline.net

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Notification List

For Estill Co. Water District #1



Notification / Contact Information

Title	Name	Day Phone	Night Phone	Email
Fire Department	Derrick Muncie/Chief	606-723-2661	606-723-4288	ecfd@irvineonline.net
Police Department	Gary Freeman/Sheriff	606-723-2323	606-723-2201	No Email Provided
Emergency Medical Service	Ron Jackson/Director	606-723-2124	606-723-2124	ecems@irvineonline.net
Local Health Department	Tim Gould/Director	606-723-5181 ext233	606-723-6017	haroldt.gould@ky.gov
Water System Operators	Everett Murhpy	606-723-3795	606-843-5072	ecwd1@irvineonline.net
Water System Operators	Bee Williams	606-723-2197	606-723-2344	estillwater@irvineonline.net

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Notification List

For Estill Co. Water District #1



Local Notification

Title	Name	Day Phone	Night Phone	Email
Government Officials	Wallace Taylor/County Judge	606-723-7524	606-723-3764	judgetaylor@irvineonline.net
Emergency Planning Committee	Tony Murphy	606-723-2222	606-723-2201	No Email Provided
Hospitals	Susan Starling/CEO	606-723-2115 ext152	859-893-1342	sstarlin@health-partners.org
Pharmacy	Rite Aid	606-723-2146	None	No Email Provided

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Notification List

For Estill Co. Water District #1



State Notification

Title	Name	Day Phone	Night Phone	Email
Emergency Mgmt. Agency	Fred Rogers	606-723-6533	606-634-5763	rogersfh@bngc.dma.state.ky.us

Securing America's Drinking Water

A Report Outlining our Security & Emergency
Management Systems

Notification List

For Estill Co. Water District #1



Media Notification

Title	Name	Day Phone	Night Phone	Email
Newspaper - Local	Citizens Voice & Times	606-723-5161	606-723-5161	cvt@irvineonline.net
Newspaper - Local	Estill County Tribune	606-723-5012	606-723-5012	No Email Provided
Newspaper - Regional / State	Lexington Herald Leader	None	None	No Email Provided
Radio	Wallingford Broadcasting	606-723-5138	None	No Email Provided

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Notification List

For Estill Co. Water District #1



Other Notification

Title	Name	Day Phone	Night Phone	Email
Estill County 911 Dispatch	On Duty Dispatcher	911	606-723-2201	No Email Provided

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Notification List

For Estill Co. Water District #1



Employees Notification

Title	Name	Day Phone	Night Phone	Email
Operations Manager	Everett Murphy	606-723-3795	606-723-1532	ecwd1@irvineonline.net
Office Manager	Pamela C. Cox	606-723-3795	606-723-4065	ecwd1@irvineonline.net
Operator	Carl Jordan	606-723-3795	859-736-0811	ecwd1@irvineonline.net
Operator	Joey McKinney	606-723-3795	859-736-8830	ecwd1@irvineonline.net
Heavy Equipment/Maintenance	Russell Walling	606-723-3795	859-741-6054	ecwd1@irvineonline.net
Operator	Vernon Tipton	606-723-3795	859-736-8798	ecwd1d@irvineonline.net
Billing Clerk/Secretary	Debbie Rison	606-723-3795	606-723-8578	ecwd1@irvineonline.net
Billing Clerk	Cathy McKinney	606-723-3795	606-723-3795	ecwd1@irvineonline.net

Securing America's Drinking Water









A Report Outlining our Security & Emergency Management Systems

Chain of Command

For Estill Co. Water District #1



Internal Chain of Command

Order	Name	Day Phone	Night Phone	Email
 1	Everett Murphy	606-723-3795	606-723-1532	ecwd1@irvineonline.net
 2	Carl Jordan	606-723-3795	859-736-0811	ecwd1@irvineonline.net
 3	Joey McKinney	606-723-3795	859-736-8830	ecwd1@irvineonline.net
 4	Russel Walling			
 5	Vernon Tipton	606-723-3795	859-736-8798	ecwd1d@irvineonline.net
 6	Pamela Cox			
 7	Debbie Rison	606-723-3795	606-723-6578	ecwd1@irvineonline.net
 8	Roy Embs			

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A Report Outlining our Security & Emergency
Management Systems

Coordination Activities



Has all water system staff been trained on their roles and responsibilities in the event of an emergency?

No

Has the system contacted the local police department?

No

Has the system contacted the local health department?

No

Has the system contacted the local fire department?

Yes

Has the system contacted the local emergency medical responders (e.g. Ambulances)?

No

Has the system contacted the State Rural Water Association?

No

Has the system contacted the State Primacy Agency?

No

Has the system contacted the FBI Field Office in your area?

No

Has the system contacted the top locally elected official (e.g. Mayor)?

No

Has the system communicated and ensured that all of the above entities know their responsibilities in the event of an emergency?

No

Does the system have a plan to notify its customers of any "Boil Water" or "Do Not Use" situations?

No

Notification Plan:

Securing America's Drinking Water

A Report Outlining our Security & Emergency
Management Systems

Local Emergency Planning Committee



As required under the 2002 BioTerrorism Act, has your water system, to the extent possible, coordinated with the Local Emergency Planning Committee when preparing or revising an Emergency Response Plan?

Yes

Date of Contact: 10/26/2004

Name: Tony Murphy

Phone Number: 606-723-2222

24 Hour Contact Number: 606-723-2201

Cell Phone Number:

Location: Irvine Fire Department

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Plans / Actions / Procedures

For Estill Co. Water District #1



If a Vandal disabled your 100 cut off valves, the system could continue supplying water for and would initiate the following response, recovery and communication procedures:

Procedures

Person In Charge in the Event of an Emergency:

Public Notification Plan:

Designated Media Person:

Day Phone:
Night Phone:
Email:

Alternative Source of Water: The system has an another alternative water source in case of emergency: Estill County is a participant Kentucky's statewide Mutual Aid Agreement. If resources from other localities are available, they may be requested in the event of a declared emergency in Estill County.

The system has an another alternative water source in case of emergency: Estill County is a participant Kentucky's statewide Mutual Aid Agreement. If resources from other localities are available, they may be requested in the event of a declared emergency in Estill County.

The system has an another alternative water source in case of emergency: Estill County is a participant Kentucky's statewide Mutual Aid Agreement. If resources from other localities are available, they may be requested in the event of a declared emergency in Estill County.

Plans and Actions

STEP 1: Notify - In the case of a terrorist event or a possible crime scene, the Estill County Water District # 1 will initially contact the Kentucky Division of Water and Estill County 911 Dispatch.

STEP 2: Determine if this is a crime scene - If circumstances appear that are much different from normal events such as natural disasters, aging of equipment, or other normal problems that occur in the due process of providing services, vandalism or terrorism could be suspected. In the event that tampering with equipment, destruction of equipment, release of a foreign substance with the intent to harm users, or other potentially illegal activities directed toward the Estill County Water District #1, law enforcement would immediately be contacted. Any situation that could possibly be an illegal act toward the Estill County Water District #1 should be treated as a criminal act in order to preserve evidence. Methods of determining whether an event could have been caused by a vandal or a terrorist could be widely varied.

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Inventory

For Estill Co. Water District #1

The inventory listed below itemizes all critical equipment and customers.



Component	Name / Identification	Description / Location	Priority
Cell Phones	1 cell phone	system manager	Low
Radio	in trucks/ office	5 truck1 office	Low
Computer Control Systems (SCADA)	office and water towers, pumps	system wide to office	Medium
Schools	2 schools	West Irvine Elementary School South Irvine Elementary School	Low
Waste Water Treatment Plants	Estill County Wastewater Treatment Plant	Sand Filter 157,000 gal per day / Wisemantown	Low

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Inventory

For Estill Co. Water District #1

The inventory listed below itemizes all critical equipment and customers.



Component	Name / Identification	Description / Location	Priority
Purchased Water	IMU	Irvine, Kentucky	Low
Storage Tanks	9 storage tanks system wide	1) 155,000 standpipe Wisemantown2) 200,000 standpipe Winston3) 200,000 standpipe Iron Mound4) 113,000 standpipe Palmer5) 112,000 standpipe Sandhill6) 116,000 standpipe Barnes Mt.7) 108,000 standpipe Ky 8518) 109,000 standpipe Knob Lick9) 129,000 standpipe Watson Ridge	High
Pumps	9 booster pumps system wide	1) South Irvine 25Hp2) Ky 851 10Hp3) New River 15Hp4) Cobb Hill 25Hp5) Dry Branch 15Hp6) Ivory Hill 2Hp7) River Booster 10 Hp8) Sand Hill 25Hp9) Pea Ridge 20Hp	High
Pipes	300 miles	200 miles PVC (12"-2")50 Ductile Iron (6")50 miles Cast Iron (8"-6")	Low
Valves	100 cut off valves	system wide	High
Appurtenances (e.g. Flush Hydrants)	30 flush hydrants50 fire hydrants	end of system linesonly in West Irvine, South Irvine, Wisemantown	Medium
Buildings	Main Office	Metal building/ 76 Cedar Grove Road Irvine, Kentucky	Medium
Computers	three computer	1) office-word processing2) billing3) telemetry	Medium
Files	main office	inside building	Low
Transportation Work Vehicles	6 trucks	5 pickups/ 1 utility truck	Low
Telephones	main office phone	main office	Low

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Securing America's Drinking Water

A Report Outlining our Security & Emergency
Management Systems

Plans / Actions / Procedures



For Estill Co. Water District #1

Available Equipment:

STEP 11: Report the findings to the State:

Person(s) Responsible:

Available Equipment:

If water service is needed by your critical customers for longer than , then the system will continue to providing both safe and affordable potable water and sufficient water pressure for fire protection by implementing the following procedure:

If Vandal destroys or disables your redundant items, the system will respond with the following procedure:

Securing America's Drinking Water

A Report Outlining our Security & Emergency Management Systems

Plans / Actions / Procedures



For Estill Co. Water District #1

Obvious destruction of equipment would point toward vandalism or terrorism. Sickness related to the consumption or contact with water could also be a sign of vandalism or terrorism. However, if there is a reasonable chance that an illegal act has been committed, the Estill County Water District #1 will notify law enforcement.

STEP 3: If this is determined to be a crime scene, contact in the event of an emergency the Estill County Water District #1 will initially contact the Kentucky Division of Water and the Estill County 911 Dispatch

STEP 4: Notify the person who will control the water system and make decisions in the event of an emergency -

STEP 5: Initiate the Internal and External Chain of Command (See Attached Sheet)

STEP 6: Access damage to 100 cut off valves:

Person(s) Responsible:

Available Equipment:

STEP 7: Isolate and fix the damage to 100 cut off valves:

Person(s) Responsible:

Available Equipment:

STEP 8: Monitor damaged 100 cut off valves:

Person(s) Responsible:

Available Equipment:

STEP 9: Restore damaged 100 cut off valves to normal:

Person(s) Responsible:

Available Equipment:

STEP 10: Return system to safety:

Person(s) Responsible:



How to Fill Out the Log

The *Log of Work-Related Injuries and Illnesses* is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened.

If your company has more than one establishment or site, you must keep separate records for each physical location that is expected to remain in operation for one year or longer.

We have given you several copies of the *Log* in this package. If you need more than we provided, you may photocopy and use as many as you need.

The *Summary* — a separate form — shows the work-related injury and illness totals for the year in each category. At the end of the year, count the number of incidents in each category and transfer the totals from the *Log* to the *Summary*. Then post the *Summary* in a visible location so that your employees are aware of injuries and illnesses occurring in their workplace.

You don't post the Log. You post only the Summary at the end of the year.

OSHA's Form 300 (Rev. 01/2004) Log of Work-Related Injuries and Illnesses

You must record information about every work-related injury and illness that results in lost work time or restriction from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are investigated by a physician or registered health care professional. You must also record work-related injuries and illnesses that are investigated by a physician or registered health care professional if they result in a lost workday or restriction from work. You must also record work-related injuries and illnesses that are investigated by a physician or registered health care professional if they result in a lost workday or restriction from work. You must also record work-related injuries and illnesses that are investigated by a physician or registered health care professional if they result in a lost workday or restriction from work.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20
U.S. Department of Labor
Occupational Safety and Health Administration
Revised OSHA Form 300-01-01-01

Identify the person		Describe the case		Classify the case		Date of injury or illness		Date of recovery	
(A) Case No.	(B) Employee's name	(C) Job title (U.S. Postal Service)	(D) Date of injury or illness	(E) Where the work occurred (U.S. Postal Service)	(F) Describe injury or illness, part of body affected, and major body part affected (U.S. Postal Service)	(G) Injury or illness	(H) Days away from work	(I) Job transfer or restriction	(J) Date of recovery
1	Mark Egan	Welder	5/1/25	Manufacturing	Fracture, left arm and left leg, full foot locker	(3)	12	12	12/15/25
2	Steve Alexander	Assembly line	7/1/25	Manufacturing	Acute low back pain	(4)	15	15	12/15/25
3	Sam Sander	Electrician	8/1/25	Manufacturing	Back strain, right shoulder	(4)	15	15	12/15/25
4	John-Bowling	Laborer	9/1/25	Manufacturing	Back strain, right shoulder	(4)	15	15	12/15/25
5	Janet Davis	Medical office	10/1/25	Manufacturing	Back strain, right shoulder	(4)	15	15	12/15/25

Be as specific as possible. You can use two lines if you need more room.

Revise the log if the injury or illness progresses and the outcome is more serious than you originally recorded for the case. Cross out, erase, or white-out the original entry.

Choose ONLY ONE of these categories. Classify the case by recording the most serious outcome of the case, with column G (Days) being the most serious and column J (Other recordable cases) being the least serious.

Note whether the case involves an injury or an illness.

Log of Work-Related Injuries and Illnesses

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20 ____
 U.S. Department of Labor
 Occupational Safety and Health Administration
 Form approved OSHA no. 1216-0-1276

Establishment name _____
 City _____ State _____

Identify the person		Describe the case			Classify the case			Enter the number of days the injured or ill employee was away from work or on job transfer or restriction		Check the "injury" column or choose one type of illness							
(A) Case no.	(B) Employee's name	(C) Job title (e.g., Welder)	(D) Date of injury or onset of illness	(E) Where the event occurred (e.g., Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Several days burns on right forearm from acetylene torch)	(G) Death	(H) Days away from work	(I) Job transfer or restriction	(J) Other recordable cases	(K) Days away from work	(L) On job transfer or restriction	(M) Injury	(1) Skin disorder	(2) Respiratory condition	(3) Poisoning	(4) Hearing loss	(5) All other illnesses
_____	_____	_____	_____	_____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0".

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
------------------------	--	--	--

(g) _____ (H) _____ (I) _____ (J) _____

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
-------------------------------------	---

(K) _____ (L) _____

Injury and Illness Types

Total number of . . .

- | | |
|----------------------------|-------------------------|
| (1) Injuries | (4) Poisonings |
| (2) Skin disorders | (5) Hearing loss |
| (3) Respiratory conditions | (6) All other illnesses |

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information, review and approve the collection of information, transfer the data to the designated data processor, review and approve the data for publication, and finally, review and approve the data for publication. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing the burden, to Washington, DC 20201. Do not send the completed form to this office.

Establishment information

Your establishment name _____

Street _____

City _____ State _____ ZIP _____

Industry description (e.g., *Manufacture of metal tank trailers*) _____

Standard Industrial Classification (SIC), if known (e.g., 3715) _____

OR

North American Industrial Classification (NAICS), if known (e.g., 336212) _____

Employment information (If you don't have these figures, see the Worksheet on the back of this page to estimate.)

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive _____ Title _____
 Name _____ Title _____



Optional

Worksheet to Help You Fill Out the Summary

At the end of the year, OSHA requires you to enter the average number of employees and the total hours worked by your employees on the summary. If you don't have these figures, you can use the information on this page to estimate the numbers you will need to enter on the Summary page at the end of the year.

How to figure the average number of employees who worked for your establishment during the year:

- 1 Add the total number of employees your establishment paid in all pay periods during the year. Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly.
- 2 Count the number of pay periods your establishment had during the year. Be sure to include any pay periods when you had no employees.
- 3 Divide the number of employees by the number of pay periods.
- 4 Round the answer to the next highest whole number. Write the rounded number in the blank marked *Annual average number of employees*.

For example, Acme Construction figured its average employment this way:

For pay period...	Acme paid this number of employees...		
1	10	Number of employees paid = 830	1
2	0		
3	15	Number of pay periods = 26	2
4	30	$830 \div 26 = 31.92$	3
5	40	26	
6	▼	31.92 rounds to 32	4
24	20		
25	15	32 is the annual average number of employees	
26	+10		
	830		

Include hours worked by salaried, hourly, part-time and seasonal workers, as well as hours worked by other workers subject to day to day supervision by your establishment (e.g., temporary help services workers).
Do not include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your establishment keeps records of only the hours paid or if you have employees who are not paid by the hour, please estimate the hours that the employees actually worked.
If this number isn't available, you can use this optional worksheet to estimate it.

Optional Worksheet

Find the number of full-time employees in your establishment for the year.

Multiply by the number of work hours for a full-time employee in a year.

This is the number of full-time hours worked.

Add the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal).

Round the answer to the next highest whole number. Write the rounded number in the blank marked *Total hours worked by all employees last year*.

OSHA's Form 301 Injury and Illness Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

U.S. Department of Labor
Occupational Safety and Health Administration
Form approved OMB no. 1218-0175

Information about the employee

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
Title _____
Phone (____) _____-____ Date ____/____/____

- 1) Full name _____
2) Street _____
City _____ State _____ ZIP _____
3) Date of birth ____/____/____
4) Date hired ____/____/____
5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional _____
7) If treatment was given away from the workplace, where was it given?
Facility _____
Street _____
City _____ State _____ ZIP _____
8) Was employee treated in an emergency room?
 Yes
 No
9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you read the case.)
11) Date of injury or illness ____/____/____
12) Time employee began work _____ AM / PM
13) Time of event _____ AM / PM Check if time cannot be determined
14) What was the employee doing just before the incident occurred? Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. Example: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
15) What happened? Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
16) What was the injury or illness? Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or "sore." Examples: "strained back"; "chemical burn, hand"; "crystal tunnel syndrome."
17) What object or substance directly harmed the employee? Examples: "concrete floor"; "Chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
18) If the employee died, when did death occur? Date of death ____/____/____

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA (Office of Statistical Analysis), Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed form to this office.



If You Need Help...

If you need help deciding whether a case is recordable, or if you have questions about the information in this package, feel free to contact us. We'll gladly answer any questions you have.

▼ Visit us online at www.osha.gov

▼ Call your OSHA Regional office and ask for the recordkeeping coordinator

or

▼ Call your State Plan office

Federal Jurisdiction

Region 1 - 617 / 565-9860
Connecticut; Massachusetts; Maine; New Hampshire; Rhode Island

Region 2 - 212 / 337-2378
New York; New Jersey

Region 3 - 215 / 861-4900
DC; Delaware; Pennsylvania; West Virginia

Region 4 - 404 / 562-2300
Alabama; Florida; Georgia; Mississippi

Region 5 - 312 / 353-2220
Illinois; Ohio; Wisconsin

Region 6 - 214 / 767-4731
Arkansas; Louisiana; Oklahoma; Texas

Region 7 - 816 / 426-5861
Kansas; Missouri; Nebraska

Region 8 - 303 / 844-1600
Colorado; Montana; North Dakota; South Dakota

Region 9 - 415 / 975-4310

Region 10 - 206 / 553-5930
Idaho

State Plan States

Alaska - 907 / 269-4957

Arizona - 602 / 542-5795

California - 415 / 703-5100

*Connecticut - 860 / 566-4380

Hawaii - 808 / 586-9100

Indiana - 317 / 232-2688

Iowa - 515 / 281-3661

Kentucky - 502 / 564-3070

Maryland - 410 / 767-2571

Michigan - 517 / 322-1848

Minnesota - 651 / 284-5050

Nevada - 702 / 486-9020

*New Jersey - 609 / 984-1389

New Mexico - 505 / 827-4230

*New York - 518 / 457-2574

North Carolina - 919 / 807-2875

Oregon - 503 / 378-3272

Puerto Rico - 787 / 754-2172

South Carolina - 803 / 734-9609

Tennessee - 615 / 741-2793

Utah - 801 / 530-6901

Vermont - 802 / 898-2765

Virginia - 804 / 786-6613

Virgin Islands - 340 / 772-1315

Washington - 360 / 902-5554

Wyoming - 307 / 777-7786

*Public Sector only



U.S. Department of Labor
Occupational Safety and Health Administration

Have questions?

If you need help in filling out the *Log* or *Summary*, or if you have questions about whether a case is recordable, contact us. We'll be happy to help you. You can:

- ▼ Visit us online at: www.osha.gov
- ▼ Call your regional or state plan office. You'll find the phone number listed inside this cover.

INFORMATION SOURCES

OSHA Regulations, Documents, & other Documents on CD-ROM:
 Superintendent of Documents Gov't Printing Offices Washington,
 D.C. 20402 (202) 783-3238 GPO Stock# 729-013-00000-5 Annual
 subscription (including four quarterly updates \$88.- Single copy
 GPO Stock# A93-1 \$28.-

General Industry Newsletter (provides info on proposed regs and
 details on large-scale losses and their causes) American
 Insurance Services Group, Inc. 85 John St. New York, NY 10038
 (212) 669-0535

OSHA UP TO DATE (Newsletter) (Highly Recommended) National Safety
 Council 444 N. Michigan Ave. Chicago, IL 60611 Linda Parker (312)
 527-4800 ext. 7405

Nat'l Utilities Contractors Assoc. (These are affordable Training
 films) NUCA, Video Tool-Box Talks 4301 N. Fairfax Dr. Suite 360
 Arlington, VA 22203-1608 (703) 358-9300 Fax (703) 358-9307

OSHA Blood-borne Pathogens Fact Sheets 1. Reporting Exposure
 Incidents 2. Protect Yourself when Handling Sharps 3. Hepatitis B
 Vaccinations - Protection for You 4. Personal Protective
 Equipment Cuts Contamination 5. Holding the Line on Contamination

OSHA Blood-Borne Pathogens Directive, CPL2.44C Send
 self-addressed mailing label to: OSHA Publications Office Room
 N3101 200 Constitution Ave. NW Washington, D.C. 20210 or call
 regional OSHA office Blood-Borne Pathogens Exposure Control Plan
 (Send a self-addressed envelope) Region III Gateway Building,
 Suite 2100 3535 Market Street Philadelphia, PA 19104 (215)
 563-201

Chem Alert - (Information on chemicals not MSDS's) Send Self
 Addressed Envelope to: OSHA Flyers Room N-3647 200 Constitution
 Ave., NW Washington D.C. 20210

Info on Degree Programs in Safety and Professional Development
 Activities Education and Training American Society of Safety
 Engineers 1800 Oakton St. Des Plaines, IL 60018-2187 (708)
 285-1121

Material Safety Data Sheets and Info on Chemicals Occupational
 Health Services 515 Madison Avenue New York, NY 10022

93,000 MSDS'S Available on CD-ROM, online through Canadian Centre
 for Occupational Health & Safety (CCOHS) and STN, and on Magnetic
 Tape Customer Service CCOHS 250 Main St. E. Hamilton, ON Canada
 L8N 1H6 (800) 668-4284 (toll-free Canada & USA) (905) 570-8094
 (905) 572-2206 (fax) (905) 572-2307 (BBS) Updated quarterly;
 annual subscription \$300.-/yr

Chemical Fact Sheets (I have heard that these have good info and
 are readable-do not need a PHD to understand them) Available for
 over 1000 Chemicals NJ Dept. of Health Eileen Tarlow (609)
 984-2202

Proposed National Strategies for the Prevention of Leading
 Work-Related Diseases and Injuries: Noise-Induced Hearing
 Loss (order number: 89-135, free of charge) Publications
 Department National Institute for Occupational safety and Health
 800-356-4674

Publications of the US. Dept. of Labor. US Dept. of Labor Room S-1032 200 Constitution Ave., N.W. Washington, DC 20210

Ergo-Facts To get on mailing list, write: OSHA Toom N-3647 200 Constitution Ave., N.W. Washington, D.C., 20210.

OSHA (free) booklet on new standard (1993) "Permit-Req'd Confined Spaces (Permit Spaces)" OSHA No. 3138 Send self-addressed label to: OSHA Publications Office Room N-3101 200 Constitution Ave., N.W. Washington, D.C. 20210 or Contact the nearest OSHA regional office.

To obtain a catalogue (NIOSH Bookshelf) containing NIOSH Criteria Documents U.S. Department of Health & Human Services Public Health Service Centers for Disease Control National Institute for Occupational Safety & Health Division of Standards Development and Technology Transfer 4676 Columbia Parkway Cincinnati, Ohio 45226-1998

Dangerous Properties of Industrial Materials (Chemical reference book) N. Irving Sax, Van Nostrand Reinhold Company, Inc.

The Merk Index (Chemical Reference Book) Merk & Co., Inc.

Guidelines for the Selection of Chemical Protective Clothing ACGIH 6500 Glenway Ave., Bldg. D-5 Cincinnati, OH 45211 (513) 661-7881

Industrial Ventilation, A Manual of Recommended Practice ACGIH

Occupational Safety & Health Review Commission (for disputes arising due to OSHA inspections) One Lafayette Center 1120 20th St. NW, Ninety Floor Washington, D.C. 20036-3419 For the general counsel, call (202) 606-5410 For the information specialist, call (202) 606-5298

The 100 Most Frequently Cited OSHA Construction Standards in 1991: A Guide for the Abatement of the top 25 Associated Physical Hazards Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402 (202) 783-3238 order number 029-016-00145-0

For schedules, tuition information and registration materials: Registrar, OSHA Training Institute 15555 Times Drive Des Plaines, IL 60018 (708) 297-4913

Bureau of Labor Statistics (212) 337-2500 or (212) 337-2340

Description & Evaluation of Medical Surveillance Programs in General Industry & Construction OSHA Office of Regulatory Analysis U.S. Dept. of Labor, Room N-3627 Washington, D.C. 20210 (202) 219-7177

EPA Fact Sheet - Proper Course of Action for Safety Personnel Confronting Hazardous and Infectious wastes at Clean-up Sites. Publication 9360.0-31/FS EPA 2890 Woodbridge Ave., Building 18 (MS-101) Edison, NJ 08837-3679 (908) 321-6740

DOWNEAST CHAPTER OF THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

A PRACTICAL INDUSTRIAL HYGIENE PROGRAM SELECTED REFERENCES/RESOURCES

BOOKS AND PUBLICATIONS

http://siri.uvm.edu/library/safety_references

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NIOSH Bookshelf (A catalog of NIOSH publications) May be obtained by contacting NIOSH, Attn: Publication, C- 13, USDHS - C DC, 4676 Columbia Parkway, Cincinnati OH 45226-1998; Telephone 1-800-35-NIOSH. (NIOSH has a large number of publications available sometimes free of charge)

NIOSH, Building Air Quality: A Guide for Building Owners and Facility Managers, (Washington, EPA/NIOSH), 1991.

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- US Naval Medical Command, Workplace Monitoring Procedures Manual,

FIGURE 60-5

MAINTENANCE COST TREND FORM
Total Cost/Operating Hour Dollars

JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC

Maintenance	Opn.	Repai	PM	Total	Material	Labor	Material	Total Cost
JAN								
FEB								
MAR								
APR								
MAY								
JUNE								
JULY								
AUG								
SEPT								
OCT								
NOV								
DEC								

REMARKS _____

TABLE 60-1
RECOMMENDED HOUSEKEEPING SCHEDULE

A. General Yard Areas

1. Cut grass as needed during growing season.
2. Locate any holes in the roads in the spring and report the need for repair work, or spot patch with cold mix.
3. Check perimeter fences for damage, rust or other needs of repair in the spring and in the fall.
4. Inspect all signs during summer and clean and/or repaint as needed.
5. Remove all snow from the roads as required during winter months.
6. Inspect sidewalks, drainage, plants (shrubbery), valves, manholes.

B. General Indoor Areas

1. Clean up any chemical or other spills immediately as required.
2. Check all lights during each shift inspection and replace any burned-out bulbs.
3. Hose down concrete floors in the buildings on a regular basis (or more often if needed) to prevent dirt, grease, etc. buildup.
4. Clean and disinfect all toilet areas on a weekly basis.
5. Touch up protective coatings and paint on units, piping and surfaces in damp or otherwise corrosive atmospheres on a semi-annual basis.
6. Touch up protective coatings and paint on all other units, piping and surface on an annual basis.
7. Check all guard rails for proper security, resetting any loose parts, on an annual basis.

C. Office Areas

1. Sweep floors, remove trash and pick up offices on a daily basis.
2. Wash all tile floors on a weekly basis.
3. Clean all windows every three months.
4. Wash all walls on an annual basis.

D. Buildings and Structures

1. Check all doors and frames for corrosion and clean and paint as needed. Check glass for cracks.
2. Check all floor gratings for damage or corrosion.
3. Check windows for corrosion, caulking and paint, and repair as necessary.
4. Check brick and concrete walls for cracks, spills, leakage, etc. Repair minor problems. Contact management for major problems.
5. Inspect roofs for damage and general appearance.

TABLE 60-2
RECOMMENDED HAND TOOLS AND MAINTENANCE EQUIPMENT

<u>ITEM</u>	<u>ITEM</u>
1. Roller Tool Cabinet	14. Tubing Cutter Set
2. All-purpose Tool Box	15. Bars: Wrecking Bar, 36" Length, Pinch Point Crow Bar, 60" Length
3. Combination Wrench Set, 5/16" Thru 1-1/4"	16. Hammers: Ripping Claw, 16 Oz. Ball Pein, 16 Oz., Hand Drilling, 2 Lb., Double-face Striking, 4 Lb., Double-face Striking, 8 Lb., Soft Face, 8 Oz.
4. 3/8" Square Drive Socket Wrench Set, 3/8" Thru 3/4", 12-pt. Sockets With Ratchet, Extension Bar, Hinge Handle, And Speed Handle	17. Aluminum Level, 24" Length
5. 3/4" Square Drive Socket Wrench Set, 7/8" Thru 2-3/8", 12-pt. Sockets With Ratchet, Extension Bars, Hinge Handle, And Bar Handle	18. Hack Saw, Adjustable Frame
6. Hex Key Set	19. Hack Saw Blades, Pack Of 10 Blades: 18 T Blades, 24 I Blades
7. Light Duty Puller, 3-way	20. Files: 12" Mill B-cut; 12" Mill S-Cut; 8" Slip Taper; 10" Half Round Machinist, B-Cut; 10" Half Round Machinist, S-Cut; 10" Round Machinist, B-Cut; 12" Half Round Wood Rasp, B-Cut
8. Punch And Chisel Set	21. Tape Rule, 1/2" Blade, 10'
9. Adjustable Wrenches: 8" Nom. Length, 15" Nom. Length, 20" Nom. Length	22. Screwdrivers (Rubber Grip): 8" Sq. Blade, Std. Tip; 12" Sq. Blade, Std. Tip; 10" Light Blade, Cabinet Tip; Stubby Sq. Blade; 6" Phillips Head; 8" Phillips Head
10. Straight Pipe Wrenches: 1-10", 2-24", 3-36"	23. All-Purpose Snips, Duckbill Pattern, 12-3/4" Length
11. Pipe Cutters - 1/8" Thru 2"	24. Combination Square
12. Pipe Threaders, Exposed Ratchet, Drop Head, 1/2" Thru 2"	
13. Pipe Vise, Bench Yoke Type, Capacity - 1/8" Thru 4"	

TABLE 60-2 (continued)

ITEM

ITEM

- | | | | |
|-----|---|-----|---|
| 25. | Screw Extractor Set | 39. | Maintenance Brushes for Fine Sweeping, All Horsehair 18"; (2) for Medium Sweeping, Korfil D-24"; For Coarse Sweeping, Fibre-30" Wire Brush, Curbed Handle; Wire Brush, Straight Back, Extra Heavy |
| 26. | Pliers: Needle Nose, Slide Cutting, Thin Nose, Slip Joint, General Utility, Power Track, Lineman's Side Cutting, Vise Grip with Quick Release | 40. | Wheelbarrow, 4-1/2" Cu. Ft. Capacity |
| 27. | Propane Torch Kit in Carry-all Case | 41. | Lawn Rake, 22" Head |
| 28. | Bench Vise with Replaceable Hardened Steel Jaws and Swivel Base; 5" Jaw Width | 42. | Garden Bow Rake, 15" Head |
| 29. | Power Bit Set (Wood), Spade Type 1/4" Shank | 43. | Round Point Dirt Shovel |
| 30. | Masonry Drill Set, Carbide Tipped, 1/4", 5/16" 3/8", 1/2" | 44. | Barn Shovel, 47" Handle |
| 31. | High-Speed Drill Set in Metal Stand | 45. | Coal Shovel, Size 2, 27" D-Handle |
| 32. | Reversible 1/2" H.D. End-Handle Drill | 46. | Grass Hook, 44" Handle |
| 33. | 8" H.D. Ball-Bearing Width Bench Grinder, Single Phase | 47. | Snow Shovel, Aluminum Blade |
| 34. | Vacuum Cleaner with 1-1/2" Wet & Dry H.D. Attachments | 48. | Clay Pick, Point & Chisel, 6 lb. |
| 35. | Squeegee, Rubber Blade, 24" with Aluminum Blade | 49. | Sidewalk Scraper, Heavy-Duty |
| 36. | Mop Pail, 19-Quart Capacity | 50. | Ladders: 8' Heavy-Duty Step Ladder - "Samson"; 24' Aluminum Industrial Extension Ladder |
| 37. | (2) Pails, Galvanized, 10-Qt. Capacity | 51. | (2) Lever Type Grease Guns, Cartridge Load, 20 oz. |
| 38. | Mop | 52. | Vented Gas Can, 2-1/2 gal. |
| | | 53. | Hydraulic Jack, 5 ton Cap. |

TABLE 60-2 (continued)

ITEM

- | | |
|-----|---|
| 54. | Heavy Duty Extension Cords: 25'-14/3 SJO; 100'-23/3 SJO |
|-----|---|

55. Jacketed Trouble Light, 3 Wire with Outlet, 25'-16/3 SJO
56. (2) Industrial "Safety" Flashlights
57. Water Hose with Brass Couplings: (1) 25', 1" diameter; (3) 50', 1" dia. (1) 15', 3/4" dia., (2)', 3/4" dia.
58. (2) 1" Hose Nozzles (all brass with adjustable discharge).
59. (3) 3/4" Hose Nozzles (all brass with adjustable discharge)
60. Double-Branch Chain Sling, 1/4" Chain, 4' Reach Oblong Link and Grab Hooks
61. (2) Heavy-Duty Galvanized Steel Storage Cans, 32-gal. Capacity
62. Hydraulic Lift Pallet Truck 5000 lb., capacity, 42" fork length, Polyurethane Wheels for Low Noise
63. Circular Drum Dollie, 24" dia. With 4-3" Casters
64. Steam Thawer, LP Gas
65. Portable Pump with Engine Drive Variable Capacity, 200; GPM at 130 ft. Head 500; GPM at 100 Ft. Head 4" Size
66. Hose: 25' -4" Suction Hose; 50'-4" Discharge Hose, 2-25' Sections
67. Air Compressor, Tank-Mounted 100 lbs. Pressure, Single Stage, 10 cfm, Capacity with 60 Gallon Tank
68. 1-25 ft. And 1-50 ft. X 1/2" I.D. Air Hose, 200 psi Working Pressure, High-Voltage Pressure Gauge
69. Portable Power, Variable Volume from 500 to 1500 cfm; Free Air; 8" Diameter Suction and Discharge
70. Duct: 10'-8" Non-Collapsible Duct for Blower Suction; 20' 8" Canvas Discharge Duct

TABLE 60-4

PART 2 - LUBRICATION CHART

Designations Based on ASTM & ASLE Recommendations (Saybolt Seconds Universal, S.S.U. 100E F + 10%)	Saybolt Seconds Universal, S.S.U., 210E F (Approx.)	AGMA Grade No. (Approx.)	SAE Viscosity No. (Approx.)	SAE Gear Lubricant No. (Approx.)
33	--	--	--	--
60	--	--	--	--
105	--	--	--	--
150	40	--	10W	75
215	43	1	10	--
315	50	2	20	80
465	60	3	30	--
700	75	4	40	90
1000	95	5	50	--
1500	110	6	60	--
2150	130	7	70	140
3150	140	8	--	--

* From Plant Engineering Magazine, August 22, 1982, Page 63

TABLE 60-5

PART 3 - INTERCHANGEABLE LUBRICANTS LIST

<u>Chevron Oil Company</u> <u>(Standard Oil of California)</u>	Gulf Harmony 47	DTE 25
1. Chevron OC Turbine Oil 9	Gulf Harmony 53	DTE 26
2. Chevron OC Turbine Oil 11	Gulf Harmony 69	-
3. Chevron OC Turbine Oil 15	Gulf Harmony 43AW	-
4. Chevron OC Turbine Oil 24	Gulf Harmony 48AW	Nyvac 20
5. Chevron EP Hyd. Oil 9	Gulf Harmony 54AW	Velocite Oil No. 3
6. Chevron EP Hyd. Oil 11	-	Velocite Oil. No. 6
7. Chevron EP Hyd. Oil 15	Gulf FR Fluid G Series	Velocite Oil No. 10
8. Chevron FR Fluid	Gulf FR Fluid	Vactra Oil No. 1
9. --	-	Vactra Oil No. 2
10. --	Gulfspin 35	Vactra Oil No. 4
11. --	Gulfspin 41	Compound BB
12. Chevron Machine Oil 5	Gulf Harmony 43AW	Compound CC
13. Chevron Machine Oil 7	Gulfway 52	600 W Cylinder Oil
14. --	Gulfway 75	Compound AA
15. Chevron Vistac Oil 15W	Gulf Harmony 76	Compound DD
16. Chevron Vistac Oil 33W	Gulf Harmony 97	Dorcia No. 20
17. Chevron Machine Oil 26	Gulf Harmony 121	Mobilux Grease No. 2
18. Chevron Machine Oil 36	E.P. Lubricant 55	-
19. Chevron Machine Oil 70	E. P. Lubricant S120	
20. Chevron Gear Compound 60	Lubcoat No. 1	
21. Chevron Gear Compound 120	Gulf Crown Grease E.P. No. 2	
22. Chevron Pinion Grease MS	-	
23. Chevron Duralith Grease EP-2		
24. RPM Moly Grease 2		

Mobile Oil Company

ETNA 24

ETNA 25

ETNA 26

DTE Oil Ext. Heavy

DTE 24

Gulf Oil Company

Gulf Harmony 44

TABLE 60-5 (continued)

Shell Oil Company

		-
		-
1.	Tellus 27	Duro FR- HD
2.	Tellus 29	-
3.	Tellus 33	Cadet Oil "D"
4.	Tellus 69	Cadet Oil "B"
5.	Tellus 927	Truslide 150
6.	Tellus 929	Truslide 300
7.	Tellus 933	Truslide 900
8.	--	Rubilene Oil Heavy
9.	--	Opaline Gear Lube BX
10.	IRUS Fluid 902	Opaline Gear Lube CX
11.	--	Pennant E.P. 1
12.	Tellus 15	Pennant E.P. 3
13.	Tellus 23	Jet Lube No. 8
14.	Tonna 27	Litholine Industrial 2 EP
15.	Tonna 33	Litholine EP Moly
16.	Tonna 72	
17.	Vitrea 69	
18.	Vitrea 72	
19.	Vitrea 78	
20.	Macoma 33	
21.	Macoma 73	
22.	Cardium D	
23.	Alvania EP 2	
24.	Lithall MDS	

Texaco, Inc.

Rando Oil A
Rando Oil B
Rando Oil C
Rando Oil F
Rando Oil HD-A
Rando Oil HD-B
Rando Oil HD-C

Sinclair Refining Company

	-
Duro Oil 150	Hydraulic Safety Fluid 200
Duro Oil 200	Fire-Resistant Hydra Fluid
Duro Oil 300	-
Duro Oil 600	Spintex 60
Duro AW 16	Spintex 100
Duro AW 21	Cleartex 140
Duro AS 31	Way Lubricant D
	Way Lubricant G

Regal Oil F-R&O
Regal Oil G-R&O
Pinnacle Cylinder Oil
Meropa Lubricant 1
Meropa Lubricant 3
Crater 1
Multifak EP 2
Molytex Grease 2

FIGURE 70-1

ACCIDENT REPORT FORM

DATE _____

INSURED PERSON _____

DATE OF INJURY _____ AM
PM

PLACE ACCIDENT OCCURRED _____

WITNESS, IF ANY _____

DESCRIPTION OF ACCIDENT _____

CORRECTIVE ACTION TAKEN _____

INSURANCE COMPANY _____

PERSON MAKING REPORT _____
(Name)

	<u>TIME LOST</u>	
<u>DATE</u>	<u>HOURS</u>	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REMARKS, DIAGRAM, RECOMMENDATIONS, ETC.: _____

OSHA Forms for Recording Work-Related Injuries and Illnesses

Dear Employer:

This booklet includes the forms needed for maintaining occupational injury and illness records for 2004. These new forms have changed in several important ways from the 2003 recordkeeping forms.

In the December 17, 2002 Federal Register (67 FR 77165-77170), OSHA announced its decision to add an occupational hearing loss column to OSHA's Form 300, Log of Work-Related Injuries and Illnesses. This forms package contains modified Forms 300 and 300A which incorporate the additional column M(5) Hearing Loss. Employers required to complete the injury and illness forms must begin to use these forms on January 1, 2004.

In response to public suggestions, OSHA also has made several changes to the forms package to make the recordkeeping materials clearer and easier to use:

- On Form 300, we've switched the positions of the day count columns. The days "away from work" column now comes before the days "on job transfer or restriction."
- We've clarified the formulas for calculating incidence rates.
- We've added new recording criteria for occupational hearing loss to the "Overview" section.
- On Form 300, we've made the column heading "Classify the Case" more prominent to make it clear that employers should mark only one selection among the four columns offered.

The Occupational Safety and Health Administration shares with you the goal of preventing injuries and illnesses in our nation's workplaces. Accurate injury and illness records will help us achieve that goal.

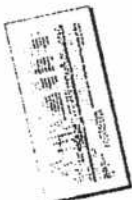
*Occupational Safety and Health Administration
U.S. Department of Labor*

What's Inside...

In this package, you'll find everything you need to complete OSHA's *Log* and the *Summary of Work-Related Injuries and Illnesses* for the next several years. On the following pages, you'll find:

- ▼ **An Overview: Recording Work-Related Injuries and Illnesses** — General instructions for filling out the forms in this package and definitions of terms you should use when you classify your cases as injuries or illnesses.
- ▼ **How to Fill Out the Log** — An example to guide you in filling out the *Log* properly.

- ▼ **Log of Work-Related Injuries and Illnesses** — Several pages of the *Log* (but you may make as many copies of the *Log* as you need.) Notice that the *Log* is separate from the *Summary*.

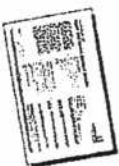


- ▼ **Summary of Work-Related Injuries and Illnesses** — Removable Summary pages for easy posting at the end of the year. Note that you post the *Summary* only, not the *Log*.



- ▼ **Worksheet to Help You Fill Out the Summary** — A worksheet for figuring the average number of employees who worked for your establishment and the total number of hours worked.

- ▼ **OSHA's 301: Injury and Illness Incident Report** — A copy of the OSHA 301 to provide details about the incident. You may make as many copies as you need or use an equivalent form.



Take a few minutes to review this package. If you have any questions, visit us online at www.osha-slc.gov OR call your local OSHA office. We'll be happy to help you.



U.S. Department of Labor
Occupational Safety and Health Administration



An Overview: Recording Work-Related Injuries and Illnesses

The Occupational Safety and Health (OSH) Act of 1970 requires certain employers to create and maintain records of work-related injuries and illnesses. Use these definitions when you classify cases on the Log. OSHA's recordkeeping regulation (see 29 CFR Part 1904) provides more information about the definitions below.

The *Log of Work-Related Injuries and Illnesses* (Form 300) is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened. The *Summary* — a separate form (Form 300A) — shows the totals for the year in each category. At the end of the year, post the *Summary* in a visible location so that your employees are aware of the injuries and illnesses occurring in their workplace.

Employers must keep a *Log* for each establishment or site. If you have more than one establishment, you must keep a separate *Log* and *Summary* for each physical location that is expected to be in operation for one year or longer.

Note that your employees have the right to review your injury and illness records. For more information, see 29 Code of Federal Regulations Part 1904.35, *Employer Inspection, Cases listed on the Log of Work-Related Injuries and Illnesses* are not necessarily eligible for workers' compensation or other insurance benefits. Listing a case on the *Log* does not mean that the employer or worker was at fault or that an OSHA standard was violated.

When is an injury or illness considered work-related?

An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. Work-relatedness is

presumed for injuries and illnesses resulting from events or exposures occurring in the workplace, unless an exception specifically applies. See 29 CFR Part 1904.5(b)(2) for the exceptions. The work environment includes the establishment and other locations where one or more employees are working or are present as a condition of their employment. See 29 CFR Part 1904.5(b)(1).

Which work-related injuries and illnesses should you record?

Record those work-related injuries and illnesses that result in:

- ▼ death,
 - ▼ loss of consciousness,
 - ▼ days away from work,
 - ▼ restricted work activity or job transfer, or
 - ▼ medical treatment beyond first aid.
- You must also record work-related injuries and illnesses that are significant (as defined below) or meet any of the additional criteria listed below.
- You must record any significant work-related injury or illness that is diagnosed by a physician or other licensed health care professional. You must record any work-related case involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum. See 29 CFR 1904.7.

What are the additional criteria?

You must record the following conditions when they are work-related:

- ▼ any needlestick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material;
 - ▼ any case requiring an employee to be medically removed under the requirements of an OSHA health standard;
 - ▼ tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis;
 - ▼ an employee's hearing test (audiogram) reveals 1) that the employee has experienced a Standard Threshold Shift (STS) in hearing in one or both ears (averaged at 2000, 3000, and 4000 Hz) and 2) the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS.
- ## What is medical treatment?
- Medical treatment includes managing and caring for a patient for the purpose of combating disease or disorder. The following are not considered medical treatments and are NOT recordable:
- ▼ visits to a doctor or health care professional solely for observation or counseling;

What do you need to do?

1. Within 7 calendar days after you receive information about a case, decide if the case is recordable under the OSHA recordkeeping requirements.

2. Determine whether the incident is a new case or a recurrence of an existing one.

3. Establish whether the case was work-related.

4. If the case is recordable, decide which form you will fill out as the injury and illness incident report.

You may use *OSHA's 301: Injury and Illness Incident Report* or an equivalent form. Some state workers' compensation, insurance, or other reports may be acceptable substitutes, as long as they provide the same information as the OSHA 301.

How to work with the Log

1. Identify the employee involved unless it is a privacy concern case as described below.
2. Identify when and where the case occurred.
3. Describe the case, as specifically as you can.
4. Classify the seriousness of the case by recording the most serious outcome associated with the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.
5. Identify whether the case is an injury or illness. If the case is an injury, check the injury category. If the case is an illness, check the appropriate illness category.



- ▼ diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes; and
- ▼ any procedure that can be labeled first aid. (See below for more information about first aid.)

What is first aid?

If the incident required only the following types of treatment, consider it first aid. Do NOT record the case if it involves only:

- ▼ using non-prescription medications at non-prescription strength;
- ▼ administering tetanus immunizations;
- ▼ cleaning, flushing, or soaking wounds on the skin surface;
- ▼ using wound coverings, such as bandages, BandAids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages;
- ▼ using hot or cold therapy;
- ▼ using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.;
- ▼ using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards);
- ▼ drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
- ▼ using eye patches;
- ▼ using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye;
- ▼ using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye;

- ▼ using finger guards;
- ▼ using massages;
- ▼ drinking fluids to relieve heat stress

How do you decide if the case involved restricted work?

Restricted work activity occurs when, as the result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.

How do you count the number of days of restricted work activity or the number of days away from work?

Count the number of calendar days the employee was on restricted work activity or was away from work as a result of the recordable injury or illness. Do not count the day on which the injury or illness occurred in this number. Begin counting days from the day after the incident occurs. If a single injury or illness involved both days away from work and days of restricted work activity, enter the total number of days for each. You may stop counting days of restricted work activity or days away from work once the total of either or the combination of both reaches 180 days.

Under what circumstances should you NOT enter the employee's name on the OSHA Form 300?

You must consider the following types of

- injuries or illnesses to be privacy concern cases:
 - ▼ an injury or illness to an intimate body part or to the reproductive system;
 - ▼ an injury or illness resulting from a sexual assault;
 - ▼ a mental illness;
 - ▼ a case of HIV infection, hepatitis, or tuberculosis;
 - ▼ a needlestick injury or cut from a sharp object that is contaminated with blood or other potentially infectious material (see 29 CFR Part 1904.8 for definition); and
 - ▼ other illnesses, if the employee independently and voluntarily requests that his or her name not be entered on the log.
- You must not enter the employee's name on the OSHA 300 Log for these cases. Instead, enter "privacy case" in the space normally used for the employee's name. You must keep a separate, confidential list of the case numbers and employee names for the establishment's privacy concern cases so that you can update the cases and provide information to the government if asked to do so.

If you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of

the injury or illness, but you do not need to include details of an intimate or private nature.

What if the outcome changes after you record the case?

If the outcome or extent of an injury or illness changes after you have recorded the case, simply draw a line through the original entry or, if you wish, delete or white-out the original entry. Then write the new entry where it belongs. Remember, you need to record the most serious outcome for each case.

Classifying injuries

An injury is any wound or damage to the body resulting from an event in the work environment.

Examples: Cut, puncture, laceration,

abrasion, fracture, bruise, concussion, clipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn. Sprain and strain injuries to muscles, joints, and connective tissues are classified as injuries when they result from a slip, trip, fall or other similar accidents.



Classifying illnesses

Skin diseases or disorders

Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances.

Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; friction blisters; chrome ulcers; inflammation of the skin.

Respiratory conditions

Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work.

Examples: Silicosis, asbestosis, pneumonitis, pharyngitis, rhinitis or acute congestion; farmer's lung, beryllium disease, tuberculosis, occupational asthma, reactive airways dysfunction syndrome (RADS), chronic obstructive pulmonary disease (COPD), hypersensitivity pneumonitis; toxic inhalation injury, such as metal fume fever; chronic obstructive bronchitis, and other pneumoconioses.

Poisoning

Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or absorption of toxic substances into the body.

Examples: Poisoning by lead, mercury,

cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzene, hexanol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays, such as parathion or lead arsenate; poisoning by other chemicals, such as formaldehyde.

Hearing Loss

Noise-induced hearing loss is defined for recordkeeping purposes as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more in either ear at 2000, 3000 and 4000 hertz, and the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 hertz) in the same ear(s).

All other illnesses

All other occupational illnesses:

Examples: Heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis; coccidioidomycosis.

When must you post the Summary?

You must post the Summary only — not the Log — by February 1 of the year following the year covered by the form and keep it posted until April 30 of that year.

How long must you keep the Log and Summary on file?

You must keep the Log and Summary for 5 years following the year to which they pertain.

Do you have to send these forms to OSHA at the end of the year?

No. You do not have to send the completed forms to OSHA unless specifically asked to do so.

How can we help you?

If you have a question about how to fill out the Log,

- visit us online at www.osha.gov or
- call your local OSHA office.



Optional

Calculating Injury and Illness Incidence Rates

What is an incidence rate?

An incidence rate is the number of recordable injuries and illnesses occurring among a given number of full-time workers (usually 100 full-time workers) over a given period of time (usually one year). To evaluate your firm's injury and illness experience over time or to compare your firm's experience with that of your industry as a whole, you need to compute your incidence rate. Because a specific number of workers and a specific period of time are involved, these rates can help you identify problems in your workplace and/or identify you may have made in preventing work-related injuries and illnesses.

How do you calculate an incidence rate?

You can compute an occupational injury and illness incidence rate for all recordable cases or for cases that involved days away from work, for your firm quickly and easily. The formula requires that you follow instructions in paragraph (a) below for the total recordable cases or those in paragraph (b) for cases that involved days away from work, and for both rates the instructions in paragraph (c).
(a) To find out the total number of recordable injuries and illnesses that occurred during the year, count the number of line entries on your OSHA Form 300, or refer to the OSHA Form 300A and sum the entries for columns (G), (H), (I), and (J).

(b) To find out the number of injuries and illnesses that involved days away from work, count the number of line entries on your OSHA Form 300 that received a check mark in column (H), or refer to the entry for column

(H) on the OSHA Form 300A.

(c) The number of hours all employees actually worked during the year. Refer to OSHA Form 300A and optional worksheet to calculate this number.

You can compute the incidence rate for all recordable cases of injuries and illnesses using the following formula:

$$\frac{\text{Total number of injuries and illnesses} \times 200,000 \div \text{Number of hours worked by all employees}}{\text{Total recordable case rate}}$$

(The 200,000 figure in the formula represents the number of hours 100 employees working 40 hours per week, 50 weeks per year would work, and provides the standard base for calculating incidence rates.)

You can compute the incidence rate for recordable cases involving days away from work, days of restricted work activity or job transfer (DART) using the following formula:

$$\frac{\text{Number of entries in column H} + \text{Number of entries in column I} \times 200,000 \div \text{Number of hours worked by all employees}}{\text{DART incidence rate}}$$

You can use the same formula to calculate incidence rates for other variables such as cases involving restricted work activity (column (I) on Form 300A), cases involving skin disorders (column (M-2) on Form 300A), etc. Just substitute the appropriate total for these cases, from Form 300A, into the formula in place of the total number of injuries and illnesses.

What can I compare my incidence rate to?

The Bureau of Labor Statistics (BLS) conducts a survey of occupational injuries and illnesses each year and publishes incidence rate data by

various classifications (e.g., by industry, by employer size, etc.). You can obtain these published data at www.bls.gov/iif or by calling a BLS Regional Office.

Worksheet

$$\frac{\text{Total number of injuries and illnesses}}{\text{Number of hours worked by all employees}} \times 200,000 \div \text{Total recordable case rate}$$

$$\frac{\text{Number of entries in Column H} + \text{Column I}}{\text{Number of hours worked by all employees}} \times 200,000 \div \text{DART incidence rate}$$

USoA Acct #		Actual 2000	Budget 2001	Estimate 2002
408.20	Taxes Other Than Income (Other Income and Deductions)			
	<u>Interest Expense</u>			
427.1	Interest on Debt to Associated Companies			
427.2	Interest on Short-Term Debt			
427.3	Interest on Long-Term Debt			
427.4	Interest on Customer Deposits			
427.5	Interest - Other			
428	Amortization of Debt Discount and Expense			
429	Amortization of Premium on Debt			
	Total Interest Expense			
	Income Before Contributions & Extraordinary Items			
	<u>Proceeds from Capital Contributions</u>			
432	Proceeds from Capital Contributions			
	Federal Grants			
	State Grants			
	Other Grants			
	Customer Contributions			
	Subtotal Proceeds from Capital Contributions			
	<u>Net Extraordinary Items</u>			
433	Extraordinary Income			
434	Extraordinary Deductions			
	Net Extraordinary Items			
	Change in Net Assets			

Abbreviated Projected Cash Flow

**Estimate
2002**

Income (Loss) Before Contributions & Extraordinary Items	\$ _____
Items in Operations Not Requiring Cash:	
Depreciation	_____
Amortization	_____
Others (define)	_____
Results Projected from Operations	\$ _____
Cash to be Received from Loans	_____
Proceeds from Capital Contributions	_____
Cash to be Received - Other (define)	_____
Total Cash to be Received Other Than From Operations	\$ _____
Cash to be Expended for Purchase/Construction of Utility Plant	_____
Cash to be Expended for Principal Payments	_____
Cash to be Expended - Other (define)	_____
Total Cash to be Expended Other Than From Operations	\$ _____
Projected Change in Cash	\$ _____
Projected Beginning Cash Balance	\$ _____
Projected Ending Cash Balance	\$ _____

This budget is true and accurate to the best of my knowledge and belief.

Signed _____

District Chief Financial Officer

(Date) _____

Received by _____ County Fiscal Court Clerk

(Signed) _____

(Date) _____

Received by the Department for Local Government (date) _____

District mailing address:

(Street or P O Box) _____

(City & zip code) _____



COMMONWEALTH OF KENTUCKY
 PUBLIC SERVICE COMMISSION
 211 SOWER BOULEVARD
 POST OFFICE BOX 615
 FRANKFORT, KENTUCKY 40602-0615
 www.psc.state.ky.us
 (502) 564-3940
 Fax (502) 564-1582

Inspector: _____

Date: _____

WATER UTILITY INSPECTION CHECKLIST

Utility Name: _____

County(s) Served: 1) _____ 2) _____
 3) _____ 4) _____

TREATMENT FACILITY: () Yes () No () N/A

1. Source of Water: _____ Plant Capacity: _____
 Avg. Amount Produced: _____ Plant Constructed: _____
 Plant Expansion (if any) constructed: _____

DISTRIBUTION FACILITY: Purchased Water () Yes () No

1. Source(s) of Water: _____
 Avg. Amt. Purchased: _____ Yearly Avg. Loss: _____ %
2. Does the utility's unaccounted-for water loss exceed fifteen percent (15%) of total water produced and purchased in accordance with 807 KAR 5:066 Sec.6(3)? () Yes () No
 - a. Does the utility have a water loss prevention program? () Yes () No
3. Is the utility restricted by contract to purchase a minimum amount of water per month?
 () Yes () No
 If Yes, minimum amount required: _____
4. Is the utility limited by contract to a maximum amount of water per month? () Yes () No
 If Yes, what is the maximum amount allowed: _____

5. Does the utility wholesale water to other utility(s)? () Yes () No
If Yes, what utility(s): _____

NUMBER OF CUSTOMERS (last billing period): _____

1. Number of customers last inspection: _____ Percent change: _____

2. Number of customers who have two (2) inch or larger meter: _____

3. Number of potential customers who are not being served within your service boundary?

4. Number of requests for service (meter connections) have been received by the utility. _____

LAST INSPECTION FOLLOW UP

Date Inspected: _____ Number of deficiencies noted: _____

If deficiencies were found, did the utility respond to inspection report?: () Yes () No

Were all deficiencies adequately addressed? () Yes () No

If not, Explain: _____

OFFICE INFORMATION

Manager: _____ Office Phone No.: _____

Office Hours: _____ Office Location: _____

Additional Phone No.(s): _____

1. Is the utility displaying its rates and conditions for service or have a sign stating they are available for review in accordance with KRS 278.160(1)? () Yes () No

2. Does the utility provide in its place of business a suitable area available to the public for inspection of its tariffs, rules and regulations, and statutes in accordance with 807 KAR 5:011Sec.12? () Yes () No

3. Does the utility have any special contracts in accordance with 807 KAR 5:011 Sec.13?
() Yes () No

a. Has the utility filed these contracts with the Commission? () Yes () No

4. Is the utility posting and maintaining regular business hours and providing employees to assist their customers in accordance with 807 KAR 5:006 Sec.13(1)? () Yes () No

5. Is a telephone number published in all areas served (if service area extends to other counties) to permit customers to contact the utility in accordance with 807 KAR 5:006 Sec.13(1)(a)?
 Yes No
6. Does the utility have at least one employee designated to resolve disputes, answer questions, and negotiate partial payment plans in accordance with 807 KAR 5:006 Sec.13 (1)(b)?
 Yes No
7. How many days a week is the office open in accordance with 807 KAR 5:006 Sec.13(1)(b)2?

- a. As a minimum for utilities under \$250,000 gross annual operating revenue, are the customers of the utility provided with a designated representative available during utility's established working hours at least one day a week for (7) hours to answer questions they may have? Yes No
8. If the utility finds a customer's usage unduly high, are they notifying the customer in writing during or immediately after they do an investigation in accordance with 807 KAR 5:006 Sec.10(4)? Yes No
9. Does utility have on file at its principal office a water distribution system map in accordance with 807 KAR 5:006 Sec.22? Yes No
- a. Has utility filed a copy of such map with the Commission? Yes No

CONSTRUCTION

1. What was the last calendar year the utility performed any construction? _____
- a. How was the project financed? _____
- b. What did the construction project consist of:
 Length of water line: _____
 Number of pump stations: _____
 Number of water storage facilities: _____
 Additional construction: _____
- c. Did the utility receive Commission approval for this project in accordance with KRS 278.020 or KRS 278.023? Yes No
- d. If yes, were as-built plans and a certified statement submitted to the Commission within 60 days of substantial project completion? Yes No
- e. If not, was a written opinion by Commission staff regarding ordinary course of business (807 KAR 5:001 Sec.9) received by utility? Yes No

2. Proposed construction projects: _____

a. Will the utility be applying for a Certificate of Public Convenience and Necessity (CPCN)? Yes No

b. If not, explain: _____

c. Will the utility be requesting Commission staff opinion to see if proposed construction is within ordinary course of business per 807 KAR 5:001, Sec.9?
 Yes No

METERING

1. Reports of meters, customers and refunds. Does the utility make quarterly reports on forms prescribed by the Commission, of meter tests, number of customers and amount of refunds in accordance with 807 KAR 5:006 Sec.3(2)?
 Yes No

2. Is the utility testing its own meters? Yes No

a. Are the utility employees certified to do their own meter testing by the Commission in accordance with 807 KAR 5:006 Sec.16(1)? Yes No

b. Is the utility having an outside agency perform its meter testing per KAR 5:006 Sec.16(2)? Yes No

c. If yes, who are they: _____

d. Has the Commission been notified? Yes No

3. Is the utility keeping a written record on meter history information and notifying the Public Service Commission in accordance with KAR 5:006 Sec.17(2)? Yes No

4. Is the utility keeping a written record on meter test information and notifying the Public Service Commission in accordance with KAR 5:006 Sec.17(1)? Yes No

5. Is the utility storing any or all of its meter test and historical data in a computer storage and retrieval system and notifying the Public Service Commission in accordance with KAR 5:006 Sec.17(4)? Yes No

a. Has the utility notified the Commission of this? Yes No N/A

b. Does the utility keep a backup of this information? Yes No

c. How often is this information backed up? Daily . . . Weekly Monthly Never

6. Is the history & test information kept in a fire-proof area or at a remote site? _____

Does the utility have installed at each source of supply a suitable measuring device in accordance with 807 KAR 5:066 Sec.6(1)? () Yes () No

a. Who is responsible for the testing of the master meters? _____

<u>Master Meter Size (location)</u>	<u>Date Last Tested</u>
a. _____	_____
b. _____	_____
c. _____	_____
d. _____	_____
e. _____	_____
f. _____	_____
g. _____	_____
h. _____	_____
i. _____	_____
j. _____	_____

8. Is the utility testing all water meters periodically in accordance with the 807 KAR 5:066 Sec.16(1)? () Yes () No

a. What periodic test period is the utility on for meters one(1) inch and smaller? _____

9. Is the utility upon finding a customer's usage unduly high without explanation conducting any testing on the customer's meter in accordance with 807 KAR 5:006 Sec.10(3)?

() Yes () No

SAFETY PROGRAM

1. Has the utility adopted and executed a safety program in accordance with 807 KAR 5:006 Sec.24? () Yes () No

2. Does the utility have on site a safety manual with written guidelines for safe working practices and procedures to be followed by utility employees in accordance with 807 KAR 5:006 Sec.24(1)? () Yes () No

Are regularly scheduled safety meetings held? () Yes () No

If yes, how often? _____

When was last meeting held? _____

4. Do all employees receive instruction in accepted methods of artificial respiration in accordance with 807 KAR 5:006 Sec.24 (3)? Yes No
5. Are all vehicles equipped with First Aid Kits? Yes No
6. Are all vehicles equipped with Fire Extinguishers? Yes No
7. Are safety lights used on all vehicles? Yes No
8. Who is the utility's safety officer? _____
9. Are all employees given prior training before the operation of any equipment or tools before their use? Yes No
10. Did the utility experience any work related accidents of its employees within the last 12 months? Yes No
11. Was there a record kept of these accidents? Yes No
12. Was the accident(s) reported to the Public Service Commission in accordance with 807 KAR 5:006 Sec.26? Yes No
13. Has the utility filed a true copy of its inspection procedure safety guidelines with the Commission in accordance with 807 KAR 5:006 Sec.25(1)? Yes No
14. Do all employees have identification that will identify them as an employee of the utility in accordance with 807 KAR 5:006 Sec.19? Yes No

INSPECTION PROCEDURE

1. Has the utility adopted a written inspection procedure to assure safe and adequate operation of its facilities in accordance with 807 KAR 5:006 Sec.25(1)? Yes No

- a. Has the utility done a vulnerability study for terrorist and other intentional acts in accordance with the Safe Drinking Water Act Title XIV Sec.1433?
 Yes No N/A

2. Who is the utility employee responsible for inspection of the utility's facilities? _____
-

3 Is a written inspection record kept on the following per 807 KAR 5:006 Sec. 25(3) and 25(6)(b)?

- | | | | | | | | |
|----|------------------------------|-----|-----|-----|----|-----|-----|
| a. | Wells and/or raw water pumps | () | Yes | () | No | () | N/A |
| b. | Treatment Plants | () | Yes | () | No | () | N/A |
| c. | Valve Program | () | Yes | () | No | () | N/A |
| d. | Pump Stations | () | Yes | () | No | () | N/A |
| e. | Blow-off Hydrants/Valves | () | Yes | () | No | () | N/A |
| f. | Water Storage Facilities | () | Yes | () | No | () | N/A |
| g. | Vehicles | () | Yes | () | No | () | N/A |
| h. | Buildings | () | Yes | () | No | () | N/A |

4. Has the utility filed a copy of its inspection procedure with the Commission in accordance with 807 KAR 5:006 Sec.25(1)? () Yes () No

5. Has the utility received any reports of a potentially hazardous condition reported by a qualified employee, public official or customer in accordance with 807 KAR 5:006 Sec.25(2)? () Yes () No

6. Do the inspection records identify the inspections made, deficiencies found and action taken to correct the deficiencies in accordance with 807 KAR 5:006 Sec.25(3)? () Yes () No

7. Is the utility allowed access to all utility's equipment located on a customer's property during reasonable hours for operation and maintenance in accordance with 807 KAR 5:006 Sec.19? () Yes () No

8. If the utility has not made a physical inspection of its tanks and pump stations, see attached inspection forms.

9. Does the utility inspect all service lines between the water meter and the place of consumption in accordance with 807 KAR 5:066 Sec.9(3)? () Yes () No

a. If not, does the utility substitute its inspection for the inspection by an appropriate state health or local plumbing inspector? () Yes () No

b. Is proof of this inspection presented to the utility? () Yes () No

BILLINGS, METER READINGS, RECORDS

1. Does each bill for utility service issued periodically clearly show the following per 807 KAR 5:006, Sec.6(1):
- a. Class of service () Yes () No
 - b. Present and last preceding meter readings () Yes () No
 - c. Date of the present reading () Yes () No
 - d. Number of units consumed () Yes () No
 - e. Meter constant, if any () Yes () No
 - f. All taxes () Yes () No
 - g. Any adjustments () Yes () No
 - h. Gross amount of bill () Yes () No
 - i. The date after which a penalty may apply to the gross amount indicated () Yes () No
 - j. Show distinctly if bill is estimated or calculated () Yes () No
2. Has the utility included the form of bill to be used in its tariffed rules per 807 KAR 5:006 Sec.6(3)? () Yes () No
3. How often are the utility's meters read? () Monthly () Every other month
() Quarterly
- a. Who reads the utility's meters? () Utility () Customer
() Private meter reading company
 - b. Is the utility keeping a record of all meter reading information per 807 KAR 5:006 Sec.6(5)? () Yes () No
 - c. Is the meter registration the same units as used for billing per 807 KAR 5:006 Sec.6(4)? () Yes () No
 - d. Does the utility verify customer-read-meters at least once in a calendar year per 807 KAR 5:006 Sec.6(5)? () Yes () No
4. Does the utility charge any flat rates for unmetered service? () Yes () No

DEPOSITS

1. Is the utility requiring a minimum cash deposit or other guarantee from customers to secure payment of bills per 807 KAR 5:006 Sec.7(1) () Yes () No
- a. Is the deposit determination method uniform for all customers within the same class of service? () Yes () No
 - b. Is the utility determining deposits using the calculated deposits method? () Yes () No
 - c. Is the utility determining deposits using the equal deposits method? () Yes () No
 - d. Is the utility issuing deposit receipts to its customers per 807 KAR 5:006, Sec.7(4)? () Yes () No

4. Is the utility annually paying or crediting to the customer's bill any accrued interest on the deposit anniversary date in accordance with 807 KAR 5:006 Sec.7(6)? () Yes () No
5. Has the utility filed its deposit information in its tariffed rules in accordance with 807 KAR 5:006 Sec.7(7)? () Yes () No
- a. Was this information after 1992 or prior to that date? _____
- b. Date of last deposit information filing: _____

CUSTOMER COMPLAINTS

1. Is the utility keeping a record of all customer complaints in accordance with 807 KAR 5:006 Sec.9? () Yes () No
2. Does this record show the following in accordance with 807 KAR 5:006 Sec.9?
- | | | | | |
|---------------------------------|-----|-----|-----|----|
| a. Name of complainant | () | Yes | () | No |
| b. Address of complainant | () | Yes | () | No |
| c. Date and nature of complaint | () | Yes | () | No |
| d. Adjustment or disposition | () | Yes | () | No |
3. Are complaint records kept for two (2) years from the date of resolution? () Yes () No
4. Does the utility provide the complainant an oral or written notice of their right to file a complaint with the Commission including Commission's address and phone number for all complaints that are not resolved in accordance with 807 KAR 5:006 Sec.9? () Yes () No

CUSTOMER SERVICE INFORMATION

1. Does the utility provide to any customer, upon request, a description in writing of chemical constituents and bacteriological standards of the treated water (such as the Consumer Confidence Reports "CCR" required by Natural Resources Cabinet) in accordance with 807 KAR 5:066 Sec.2(1)? () Yes () No
2. Does the utility provide a schedule of rates for water service applicable to the service being rendered to the customer in accordance with 807 KAR 5:066 Sec.2(2)? () Yes () No
3. Does the utility provide information to customers on the method of reading meters in accordance with 807 KAR 5:066 Sec.2(3)? () Yes () No
4. Does the utility have a statement of the past meter reading of a customer for a period of two years in accordance with 807 KAR 5:066 Sec.2(4)? () Yes () No

WATER QUALITY/RECORDS

1. Who tests the water samples for the utility? _____

2. Has the utility been in compliance with the water quality requirements of the Natural Resources Cabinet within the last twelve months per 807 KAR 5:066 Sec.3(1)? () Yes () No
 - a. If not, how many violations did the utility have and what were they? _____

3. Did the utility have any public notifications required by Natural Resources Cabinet regulations such as boil water advisories, notices, etc. that need to be reported to the Commission in accordance with 807 KAR 5:066 Sec.3(4)(b)? () Yes () No
 - a. Was the PSC notified of these public notifications? () Yes () No
4. Does the utility have a cross-connection prevention program? () Yes () No
5. Has the utility made a physical connection between its distribution system and that of any other water supply in the past year in accordance with 807 KAR 5:066 Sec.3(3)(b)? () Yes () No
 - a. If yes, who _____
 - b. Was the Commission notified prior to any such connections? () Yes () No

ACCOUNTED-FOR WATER LOSS

1. Does the utility keep a record of all water lost through interruptions in accordance with 807 KAR 5:066 Sec.4(5)? () Yes () No
2. Does this record contain the following information:
 - a. Date of interruption () Yes () No
 - b. Cause of interruption () Yes () No
 - c. Time of interruption () Yes () No
 - d. Duration of interruption () Yes () No
 - e. Remedy and steps taken to prevent recurrence () Yes () No
3. Does the utility notify all customers and fire officials, if applicable, affected by a scheduled interruption per 807 KAR 5:066 Sec.4(2)? () Yes () No
 - a. If yes, does this information state time and anticipated duration?() Yes () No
 - b. If applicable, does this information also pertain to fire officials?() Yes () No

4. Does utility notify fire protection officials, if applicable during emergency interruptions in accordance with 807 KAR 5:006 Sec.4(1)? Yes No
5. Does the utility have a dual pump in its pump station in accordance with 807 KAR 5:066 Sec.4(3)? Yes No
- a. Will one pump meet the demand from customers for water service?
 Yes No
- b. If utility does not have dual pumps, does it have a standby pump capable of providing the maximum daily pumping demand? Yes No
- c. Do both pumps need to be operated together to meet demand?
 Yes No
6. Does the utility keep a record of all water flushed from hydrants? Yes No
- a. Are all deadends provided with a flushing device in accordance with 807 KAR 5:066 Sec.8(2)? Yes No
If no, how many need a flushing device?
- b. Are all deadends flushed at least annually in accordance with 807 KAR 5:066 Sec.8(2)?
 Yes No
- c. Are all flush hydrants properly sized in accordance with 807 KAR 5:066 Sec.8(2)
 Yes No
- d. Does the utility keep a maintaining record on flush valves? Yes No
- e. Who is in charge of the flushing program? _____
7. Does the utility keep a record on its valves in its distribution system?(Yes No
- a. Does the utility have a periodic exercise program for its valves?
 Yes No
- b. Does the utility mark the location of its valves?
 Yes No
- c. Who is in charge of the valve program? _____
8. Does the utility provide fire hydrants for fire protection? (Yes No N/A
- a. Do the local fire officials provide the utility with records of water used for fire protection?
 Yes No
- b. Are fire hydrants constructed after 1992 certified as having adequate and reliable fire flows by a professional engineer with a Kentucky registration in accordance with 807 KAR 5:066 Sec.10(2)(b)? Yes No

- c. Who is responsible for maintenance of fire hydrants?
 Utility Fire Department Other _____

- d. Does fire protection adversely affect utility customers during use?
 Yes No N/A

WATER PRESSURE

1. Does the utility own at least one recording pressure gauge in accordance with 807 KAR 5:066 Sec.5(2)? Yes No
- a. Number of pressure recorders owned _____
- b. Number of pressure recorders in working order _____
2. Is the utility maintaining a recording pressure gauge in its distribution system at least one week per month in accordance with 807 KAR 5:066 Sec.5(2)? Yes No
- a. Number of pressure charts over the last twelve months _____
- b. Do pressure charts show the date and time of beginning and ending of the test and the location at which the test was made in accordance with 807 KAR 5:066 Sec.5(3)?
 Yes No
- c. Are pressure survey records maintained at the utility's principal office in accordance with 807 KAR 5:066 Sec.5(3)? Yes No
3. Does the pressure at any customer's service pipe anywhere in system area fall below (30) psig or exceed (150) psig per 807 KAR 5:066 Sec.5(1)? Yes No
- a. If yes, explain: _____

WATER SHORTAGE RESPONSE PLAN

1. Has the utility filed a Water Shortage Response Plan with the Natural Resources Cabinet?
 Yes No
2. Has the utility filed a copy of this plan with the Public Service Commission per 807 KAR 5:066 Sec.17? Yes No

WATER STORAGE FACILITIES

	<u>Storage Capacity</u>	<u>Location</u>	<u>Last Inspection/ Maintenance</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

Total Storage Capacity: _____ Gallons

Average Daily Consumption: _____ GPD

total storage capacity is less than average daily consumption, when will utility be in compliance with 2007 KAR 5:066 Section 4(4)? _____

PUMPING FACILITIES

	<u>No. of Pumps/GPM</u>	<u>Location</u>	<u>Last Inspection/ Maintenance</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

Revised 06/13/03

APPENDIX C
OTHER MISCELLANEOUS FORMS, LISTS, ETC.

FIGURE 60-2

EQUIPMENT MALFUNCTION REPORT

Equipment name and number		Serial No.	Location
Date of trouble	Time	Reported by	Shift
Indication of trouble Broken Part Dirty, Fouled Worn Part Voltage Heat Current Noise Resistance Smell Flow Rate Vibration Pressure Leaking Speed Other _____ _____ _____ _____ _____		When discovered Starting Stopping During Operation Maintenance During Preventive Maintenance During Corrective During Overhaul Other _____ _____ _____ _____	
Cause of trouble Heat/Cold Weather Humidity/Moisture Foreign Object Shock/Vibration Wear Equipment Defect Improper Installation Improper Lubrication Improper Operation Other _____ _____ _____ _____			
Check if equipment was tagged "Out of Service" _____			
Remarks and recommendations _____ _____ _____ _____ _____ _____			

FIGURE 60-3

MAINTENANCE WORK ORDER

Date	Requested by	Required completion date
Equipment name and number	Serial No.	Location
Indication of trouble Broken Part Dirty, Fouled Worn Part Voltage Heat Current Noise Resistance Smell Flow Rate Vibration Pressure Leaking Speed Other _____ _____ _____ _____	Work to be done Inspect Repair Replace Service Overhaul Paint Other _____ _____ _____ _____	Cause of trouble Heat/Cold Weather Humidity/Moisture Foreign Object Shock/Vibration Wear Equipment Defect Improper Installation Other _____ _____ _____ _____
Work Requested _____ _____ _____ _____		Estimated Costs Labor _____ Parts _____ Contractor _____ Total _____ Estimated Down Time _____
APPROVED BY	Date	Job No.

MAINTENANCE WORK RECORD RECAP

Describe what was wrong and how it was fixed		Outside Contractor Used
Recommendations for avoiding repeated failure		Reason
Equipment Status at Completion Fully Operational Non-Operational Reduced Capability Awaiting Spare Parts	Spare Parts Availability In Stock Obtained Locally Delay in Procurement Length	Actual Costs: Labor Parts Contractor
		Total Down Time
Work Completed Date _____ Name _____		Work Approved Date _____ Requester _____

FIGURE 60-4

STOCKROOM INVENTORY CARD					
EQUIPMENT:			UNIT NO:		
ITEM NO.	QUANTITY		COST	WHEN LAST PURCHASED	VENDOR

STOCKROOM WITHDRAWAL SLIP			
UNIT NO.	DATE	ITEM USED	PURPOSE

EXHIBIT 6

THEFT OF WATER SERVICE POLICY

I. General Policy:

Theft of water service is a serious offense that may adversely affect the operations and financial health of a water utility. It can cause substantial loss of pressurized water for a water system, damage public hydrants, and result in the release of hazardous chemicals affecting public health. It can also deprive a water system of revenues necessary to provide adequate and reasonable service. It is the policy of this water utility to actively search for instances of theft of water service, and when discovered, to aggressively pursue those engaging in the theft so as to recoup the lost revenue resulting from the theft and to deter further thefts of service. It is the responsibility of every officer and employee of this water utility to be vigilant and to report any instance of water theft.

II. Legal Authorities:

- A. KRS 515.060(1)(a): A person is guilty of theft of services when he or she intentionally obtains services by deception or threat or by false token or other means to avoid payment for the services which he knows are available only for compensation.
- B. KRS 515.060(3): In any prosecution for theft of water service where the utility supplying the service had installed a meter or other device to record the amount of service supplied, proof that: (a) The meter or other device has been altered, tampered with, or bypassed in a manner so as to prevent or reduce the recording thereof; or (b) Service has been, after having been disconnected by the utility supplying service, reconnected without authorization of the utility shall be prima facie evidence of the intent to commit theft of service by the person or persons obligated to pay for service supplied through the meter or other device.
- C. KRS 515.060(4)
 - 1. Theft of service if the value of service is less than \$500 is a Class A misdemeanor punishable term of imprisonment between ninety (90) days and twelve (12) months.
 - 2. Theft of service is a Class D felony punishable term of imprisonment between one year and five years if the value of service is between \$500 and \$10,000.
 - 3. Theft of service if the value of service over \$10,000 is a Class D felony punishable term of imprisonment between one year and five years.
- D. 807 KAR 5:006, Section 15(1)(g): A utility may terminate service to a customer without advance notice if it has evidence that a customer has obtained unauthorized service by illegal use or theft. Within twenty-four (24) hours after termination, the utility shall send written notification to the customer of the reasons for termination

and of the customer's right to challenge the termination by filing a formal complaint with the Public Service Commission.

III. Tampering of Service

- A. The tampering with utility equipment shall be considered as evidence of theft of service. Upon discovery of tampering, water utility employees shall follow the procedures set forth below.
- B. For the purposes of this policy, “tampering” shall include, but not be limited to:
 - 1. Opening the valves or meters that have been turned off by water utility personnel;
 - 2. Breaking, picking, or damaging locks;
 - 3. Bypassing the meter in any way;
 - 4. Unauthorized withdrawal of unmetered water from hydrants by persons other than water utility employees or authorized officials of a recognized fire department for any purpose other than testing, flushing of hydrants or firefighting;
 - 5. Use of sprinkler system for any purpose other than fire protection;
 - 6. Removing, disabling, or adjusting meter registers;
 - 7. Connecting to or intentionally damaging water lines, valves or other appurtenances;
 - 8. Moving the meter or extending service without the water utility’s permission; or
 - 9. Any intentional act of defacement, destruction, or vandalism to District property or an act that affects water utility property.

IV. Procedures Upon Discovery of Tampering

- A. Existing Customer
 - 1. Upon discovering any tampered metering equipment, the water utility field employee will photograph that equipment, note any unusual aspects of the connection, and then notify the General Manager. Field employee also should note the number of persons residing or working in the structure and any uses of water that would be indicative of the customer’s water usage.
 - 2. If sufficient evidence is present to determine that the meter has been tampered, the General Manager will issue a work order to terminate water service to the customer.

3. The General Manager should report the theft to law enforcement at the time of termination of service to ensure a record of the theft. If there is reasonable belief that employees will be physically confronted by the customer when terminating service, the General Manager should request that law enforcement be present when the termination of service occurs.
4. Prior to terminating the service, the field employee making the disconnection will thoroughly photograph the meter vault and meter equipment. As soon as possible following the termination of service, all involved employees will prepare written statements describing the events that led to discovery of the tampered equipment, how the equipment was tampered, and the termination of service. If possible, these statements should be made under oath.
5. While Public Service Commission regulations allow a water utility 24 hours to provide written notice to the customer of the reasons for termination of service and the right to challenge the termination, the General Manager should ensure that written notice is given as soon as possible.
6. Estimated usage. General Manager shall review the customer's billing records and determine if a significant decrease in usage occurred that would be indicative of tampered meter equipment. General Manager will also compare customer's usage to customers with similar characteristics (e.g., number and type of household members) and consider the known uses of water at the location. If possible, water utility employees should interview neighbors to obtain information regarding number of persons residing in the terminated customer's household and any unusual or excessive uses of water. If a change in usage patterns since the last inspection of the metering equipment, the average monthly usage for the period prior to the last inspection will be considered the customer's normal usage and the amount of stolen water may be estimated based upon the difference between the normal usage and usage when the significant decrease in usage occurred. The General Manager shall prepare a written memorandum explaining how the estimated usage was determined.
7. After determining the amount of the unbilled water usage resulting from the tampered meter equipment, the General Manager will ensure a bill is issued to the customer for the unbilled service. The bill will include any service investigation fees, cost to repair or replace any equipment damaged by the tampering, contractor expense, and any penalties that may be assessed any the water utility's tariff. It will require payment within 60 days of the bill's issuance.

B. Non-Customer Tampering

1. Upon discovering any tampered equipment or an unauthorized connection, the water utility field employee will photograph that equipment or

connection, note any unusual aspects of the connection, and then notify the General Manager. Field employee also should note the number of persons residing or working in the structure and any uses of water that would be indicative of water usage. If possible, the field employee or other water utility employee will interview persons residing in the adjoining properties to ascertain the identity and number of the persons residing in the structure, the period of time in which they have resided in the structure, and any other relevant information.

2. The General Manager will issue a work order to disconnect the unauthorized connection.
3. The General Manager should report the theft to law enforcement upon discovering the theft and before disconnecting the unauthorized connection ensure a record of the theft. If there is a reasonable belief that employees will be physically confronted by persons residing in the structure, the General Manager should request that law enforcement be present when the unauthorized connection is disconnected.
4. Prior to the disconnection, the field employee making the disconnection will thoroughly photograph the meter vault and meter equipment. As soon as possible following the disconnection, all involved employees will prepare written statements describing the events that led to discovery of the unauthorized connection, the unauthorized connection, and the disconnection of unauthorized service. If possible, these statements should be made under oath.
5. Estimated usage. If the persons receiving unauthorized water service are prior customers, the General Manager will review their billing records to determine their average monthly usage. If the unauthorized user was not prior customers of the water utility, it will be assumed that the unauthorized user used an amount of water equal to average customer class daily usage. General Manager will also consider the number and type of household members and any known uses of water at the location. The number of days in which the unauthorized usage occurred will be based of evidence obtained from employee observations, interviews of neighboring property owners, and any other relevant sources of information. The General Manager shall prepare a written memorandum explaining how the estimated usage was determined.
6. After determining the amount of the unbilled water usage resulting from the tampered meter equipment, the General Manager will ensure a bill is issued to the customer for the unbilled service. The bill will include any service investigation fees, cost to repair or replace any equipment damaged by the tampering, contractor expense, and any penalties that may be assessed any the water utility's tariff. It will require payment within 60 days of the bill's issuance.

C. Referral for Criminal Prosecution/Civil Action

1. If a bill for theft of service remains unpaid 60 days after issuance, then the General Manager will bring the theft to the attention of the Board of Commissioners and request permission to refer the matter to the County Attorney (if the theft of service is less than \$500) or the Commonwealth Attorney (if the theft of service is \$500 or more)
2. If the Board of Commissioners authorizes a referral to the appropriate prosecutor, the General Manager will make a written request to that prosecutor to prosecute the persons accused of theft of service. This request shall include copies of documents, statements, photographs and any other relevant evidence.
3. If the appropriate prosecutor declines to prosecute the matter or the Board of Commissioners determines that the matter should not be referred for prosecution, the Board of Commissioners may authorize the water utility's legal counsel to bring a civil action to collect the amount billed, including any penalties permitted under the water utility's tariff.

V. **Unauthorized Use of Fire Hydrants**

- A. KRS 278.170(3): Upon obtaining commission approval of a tariff setting forth terms and conditions of service the commission deems necessary, a utility may grant free or reduced rate service **for the purpose of fighting fires or training firefighters** to any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district. The tariff shall require the water user to maintain estimates of the amount of water used for fire protection and training, and to report this water usage to the utility on a regular basis
- B. Except for fire departments when permitted by the water utility's tariff, only utility personnel are authorized to withdraw water from the water utility's hydrants.
- C. A fire department may withdraw water from the water utility's hydrants if permitted by the water utility's tariff and the withdrawal is solely for firefighting or training firefighters.
- D. Procedure When Unauthorized Withdrawals Are Suspected
 1. The General Manager will issue a work order or otherwise instruct field employees to investigate the allegations and to obtain all relevant information, to include hydrant location, license plate number of any vehicles involved in the withdrawals, offender's name, physical description, estimated usage. If possible, interviews with
 2. After completing investigation, field employee will prepare and submit a written report of investigation to General Manager.

3. General Manager will review the report and, after consultation with water utility's legal counsel, will determine if sufficient evidence to bill the alleged offender's for water service. Prior to the issuance of any bill, the Board of Commissioners will be advised of the investigation and the General Manager's determination as to whether sufficient evidence exists to bill the alleged offender. Any bill for water service will state the estimated water usage and request reimbursement for the cost of water withdrawn without authorization and for the cost to repair or replace any water utility property damaged as a result of the unauthorized withdrawal. The bill will allow the alleged offender no more than 60 days to make full payment.
4. If a bill for unauthorized water withdrawal remains unpaid 60 days after issuance, then the General Manager will bring the matter to the attention of the Board of Commissioners and request permission to refer the matter legal counsel for collection of all unpaid amounts and any penalties that may be assessed under the water utility's tariff.

EXHIBIT 7



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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?	Click to access definition
+	Click to add a comment

Water Audit Report for: **Estill County Water District #1 (KY0330123)**
 Reporting Year: **2020** 1/2020 - 12/2020

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+	?	n/a	0.000	MG/Yr
Water imported:	+	?	5	253.000	MG/Yr
Water exported:	+	?	n/a	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:			
+	?	<input type="radio"/>	<input type="radio"/>	MG/Yr
+	?	<input type="radio"/>	<input type="radio"/>	MG/Yr
+	?	<input type="radio"/>	<input type="radio"/>	MG/Yr

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: **253.000** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+	?	5	154.000	MG/Yr
Billed unmetered:	+	?	n/a	0.000	MG/Yr
Unbilled metered:	+	?	3	0.144	MG/Yr
Unbilled unmetered:	+	?	6	3.163	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **157.307** MG/Yr

Click here: ?
for help using option buttons below

Pcnt:	Value:		
1.25%	<input type="radio"/>	<input type="radio"/>	MG/Yr

Use buttons to select percentage of water supplied
OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

95.694 MG/Yr

Apparent Losses

Unauthorized consumption:	+	?		0.633	MG/Yr
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Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	6	0.000	MG/Yr
Systematic data handling errors:	+	?	7	0.385	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **1.018** MG/Yr

Pcnt:	Value:		
0.25%	<input type="radio"/>	<input type="radio"/>	MG/Yr
0.25%	<input type="radio"/>	<input type="radio"/>	MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **94.676** MG/Yr

WATER LOSSES: **95.694** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **99.000** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	3	278.4	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	+	?	5	4,337	
Service connection density:	?			16	conn./mile main

Are customer meters typically located at the curbstop or property line? No
Average length of customer service line: + ? 5 30.0 ft (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average operating pressure:	+	?	2	150.0	psi
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COST DATA

Total annual cost of operating water system:	+	?	9	\$21,000,000	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	9	\$10.50	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+	?	10	\$3,254.00	\$/Million gallons

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 59 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Unbilled metered

3: Billed metered



Water Audit Report for: **Estill County Water District #1 (KY0330123)**
 Reporting Year: **2020** **1/2020 - 12/2020**
 Data Validity Score: **59**

Water Loss Control Planning Guide

		Water Audit Data Validity Level / Score				
Functional Focus Area	Level I (0-25)	Level II (26-50)	Level III (51-70)	Level IV (71-90)	Level V (91-100)	
Audit Data Collection	Launch auditing and loss control team; address production metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations. Identify data gaps.	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of Year-to-Year water efficiency standing	
Short-term loss control	Research information on leak detection programs. Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc.	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation	
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or Automatic Meter Reading (AMR) system.	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions	
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis	
Benchmarking			Preliminary Comparisons - can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses (see below table)	Performance Benchmarking - ILI is meaningful in comparing real loss standing	Identify Best Practices/ Best in class - The ILI is very reliable as a real loss performance indicator for best in class service	

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

Once data have been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities in gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.

Note: this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

**General Guidelines for Setting a Target ILI
(without doing a full economic analysis of leakage control options)**

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
1.0 - 3.0	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
>3.0 -5.0	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term
>5.0 - 8.0	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
Greater than 8.0	Although operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 - other than as an incremental goal to a smaller long-term target - is discouraged.		
Less than 1.0	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist: a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		