

**FOREST LAKES
DOMESTIC WATER
IMPROVEMENT
DISTRICT**

**EMERGENCY OPERATIONS PLAN
MANUAL**

January, 1995

Revised: January 2019

1. INTRODUCTION

The primary purpose for preparing the Forest Lakes Domestic Water Improvement District (FLDWID) Emergency Operations Plan Manual (hereinafter referred to as "Manual" is to assist FLDWID representatives and employees in responding (1) safely, (2) quickly, and (3) effectively to a range of potential operational emergencies in the field. Re: ARS R18-4-116.

As with most manuals, various sections or sub-sections within this Manual will require updating, expansion, or revision from time to time. The date of any required changes or revisions is noted in the footer.

It is important that **all** FLDWID representatives and employees have access to this Manual at all times. Furthermore, it is important that all FLDWID Board Members and employees familiarize themselves with the content of the Manual and point out any errors or omissions for correction or addition.

It is the Water District's policy to orient all new employees and Board Members, prior to assigning duties and/or responsibilities. This orientation consists of an overview of system operation, safety items and concerns, sanitation matters, ADEQ Rules and Regulations, special operation procedures and precautions, personnel matters, and other job related responsibilities. The District also recommends and encourages all employees to complete training and classroom educational programs by payment of fees coupled with allowing time off work to attend and complete courses or training sessions offered by Regulatory Agencies, industry groups, universities and community colleges or other organizations.

1.1 Description of the FLDWID Emergency Operations Manual

The Manual contains GENERAL "**QUICK**" REFERENCE AND **RESPONSE** INFORMATION, and additional operations and technical information specific to water **SUPPLY** emergencies and water **QUALITY** emergencies found in the Appendix sections in the back of the manual.

Please Note! A copy of the base map showing FLDWID's Existing Water System Facilities is provided in a pocket attached inside the back cover of the Manual. The Manual is to be used in conjunction with this map.

FLDWID field employees are to have a set of FLDWID water supply System Maps and a copy of this Manual available at all times.

Funds have been set aside in FLDWID's budget for emergency repairs and abatement of operations breakdowns so as to restore minimum water service to FLDWID customers as quickly as possible. Expenses in excess of \$2,500.00 per occurrence should be approved by the Board Chairman or his designated representative.

1.2 Description of the FLDWID Water System

The Forest Lakes Domestic Water Improvement District's potable water system consists of four domestic underground wells, two storage reservoir sites and a distribution network. The District serves approximately 877 residential and 14 commercial domestic water service connections. Currently, about 891 service connections are active in the summer months. In the winter months, the number drops to about half of the summer figure.

The domestic wells (the Snow Well, Post Office Well, the St. Joe Well, and the Y2K Well) are shown on the enclosed map M 1 which is located in the back of the manual in the Map appendix. The two reservoir storage sites (located at the Post Office site and the Snow Well site) are also shown on the M 1 map. The map includes location of water mains (all are located in the roadway of each street in Forest Lakes Estates) and the location of blow-offs in the distribution system. The majority of mains are 4-inch to 6-inch in size with some 2-inch mains located mainly in cul-de-sac areas.

FLDWID has completed development of an approved backflow prevention program pursuant to Arizona Revised Statute R18-4-232. The entire administrative function of the program was delegated to Backflow Prevention Device Inspections, Inc. of Phoenix, Arizona. A complete system-wide survey was completed of all commercial and high hazard residential service connections in the Forest Lakes community. An informational questionnaire is sent out periodically to each FLDWID water customer to verify that the use of the property does not represent a hazard to the FLDWID water system.

1.3 Water Production and Well Storage Statistics

The production of each well site is as follows:

Y2K Well	350 gallons per minute	504,000 gallons per day
Snow Well:	300 gallons per minute	432,000 gallons per day
St. Joe Well	350 gallons per minute	504,000 gallons per day
Post Office Well:	70 gallons per minute	<u>86,400 gallons per day</u>
		1,526,400 gallons per day

The domestic water storage available at each well storage site is as follows:

Post Office Storage	534,000 gallons
Snow Well Storage:	126,900 gallons

The peak system demand is approximately 335,600 per day and calculated* as follows:

Active water services in mid-summer:	890 (approximate estimate)
Average daily use per customer (estimate):	400 gallons (per 24 hour period)
Estimated peak demand in a 24 hour day:	335,600 gallons (per 24 hour period)

* Usage estimates based on average water use in the area, and production estimates from wells. In all situations, reservoirs should be kept as full as possible at all times including the use of hauled water for the standby water supplier to augment domestic water storage reserves.

1.4 Maintenance of System Demand with Largest production Well Out of Service

The peak demand in the summer months is approximately 335,600 gallons in a twenty-four hour period. If the largest producer well is subtracted (the St. Joe Well) in a twenty-four hour period, the three remaining wells (the Post Office Well, Y2K well and the Snow Well) will need to be augmented with the existing storage or hauled water to meet average daily demand. Allowing for normal losses of 10,000 gallons per day and with both wells running full time, the existing storage would last approximately 5 days. Water conservation measures should be implemented with FLDWID customers to avoid hoarding of water. Such hoarding or excessive use of water could result in FLDWID customers exceeding the system's normal peak demand requirements if the St. Joe Well is out of production in the mid-summer months. Since system demand is about half in the winter months (approximately 140,000 gallons per 24 hour period) the system could be easily capable of doing without the St. Joe Well entirely during this period. Both calculations assume that the storage tanks will be sustained at their existing level when the St. Joe Well is removed from service and no main breaks have occurred that affect system demand.

In all instances, resuming maximum water production capability as quickly as possible combined with conservation measures and avoidance or abatement of main breaks can insure continued water service to FLDWID customers in most situations. Hauled water should be implemented to build up reserves in the storage tanks as insurance should other water production problems arise during a loss of the St. Joe Well.

2. GENERAL "QUICK REFERENCE" INFORMATION

This Section of the Manual contains general "Quick Reference" information for employees to use, in the event an emergency arises in the field. The general "Quick Reference" information includes the names, addresses, and phone numbers of people or organizations that may become involved or should be contacted in an emergency situation. This section includes a FLDWID Organization Chart; the names, addresses and phone numbers of FLDWID Board Members and Staff; FLDWID office, field and mobile phone numbers; local, state and federal emergency phone numbers; BLUE STAKE and local utility phone numbers; important local business phone numbers; and regulatory agency phone numbers.

Also included in this Section is a schematic diagram of FLDWID's water supply system. Street maps of the Forest Lakes area, showing important boundary locations and the location of certain facilities that may be needed in an emergency situation (i.e. Payson Medical Center, Forest Lakes Fire Department, etc.), may be found at the back of the Manual.

2.1 FLDWID Organization Chart

Board Chairman

Board Members

Water Utilities Operations Manager

2.2 FLDWID Board and Staff Telephone Numbers

Lou St.Germain	FLDWID Board Chairman	(623) 258-3868
Mary Hume	FLDWID Vice Chairman	(928) 535-6666
Sally Rottier	FLDWID Board Secretary	(480)296-1568
Paul Studer	FLDWID Board Treasurer	(602) 284-7475
Ray Grimmett	FLDWID Board Member at Large	(928)517-1351
Grant L Cooper III	Water Utilities Operations Manager	(928) 240-2294
Amy Belch	Administrative Assistant	(928) 240-0869
Bill Morehead	Water Specialist	(928) 240-2359

2.3 FLDWID Office

Telephone: (928) 535-5438
(928) 535-6828

2.4 Local, State and Federal Emergency Telephone Numbers

Fire Emergency

Forest Lakes Fire Department (FLFD Station No. 1)
P.O. Box 1808, Forest Lakes 85931
911 Emergency
928-535-4644 Business

Medical Emergency

Payson Regional Medical Center
807 S. Ponderosa Street
911 Emergency – including ambulance request
928-474-3222 Non-Emergency ambulance request

Law Enforcement

Coconino County Sheriff's Department
911 E Sawmill Rd
911 Emergency
(928) 774-4523 Business

Arizona Highway Patrol
(800) 525-5555 Emergency, including highway emergencies and
reporting drunk drivers

Arizona Department of Public Safety (DPS)
2102 W. Encanto Boulevard, Phoenix
911 Emergency
(602) 223-2000 Business

Poison Control

1-800-222-1222 Emergency

2.4 Local, State and Federal Emergency Telephone Numbers (Continued)

Disaster Assistance

State of Arizona
Department of Emergency and Military Affairs
Division of Emergency Management
5636 E. McDowell Road, Phoenix 85008
(800) 411-2336 General Information

Federal Emergency Management Agency (FEMA)
Two Gateway Center, Suite 100
432 N. 44th Street, Phoenix 85008
(800) 621-3362 General Information

2.5 BLUE STAKE and Local Utility Phone Numbers

Blue Stake

1-800-STAKE IT (1-800-782-5348)

Note: Number only good during normal working hours (i.e. 8AM – 5PM, Monday through Friday).

Local Utilities

APS (Arizona Public Service)
400 W. Longhorn Road, Payson
(928) 474-2204 if no answer – 1-800-253-9405

Frontier (formerly Citizens Communications)
180 N. 9th Street, Show Low
1-800-483-5400 Emergencies during normal working hours
1-800-852-3786 Emergencies after normal working hours

2.6 Important Business Phone Numbers

Painted Sky Engineering
Contact – Doug Brimhall
1801 W. Deuce of Clubs, Suite 230
Show Low, AZ 85901
(928) 537-7218

LEGEND LABORATORIES
17631 N. 25th Avenue
Phoenix, AZ 85023
(602) 324-6100 Fax: (602) 324-6101

Mohave Environmental Laboratory
LABORATORY SERVICES
200 Second St.
Holbrook, AZ 86025
(928) 524-4635

CARLSON & SONS Electrician
Contact – Dwayne Carlson
1330 Flat Hollow Rd.
Lakeside, AZ 85929
(928) 368-5290

HD SUPPLY
1410 WW Harvard St
Gilbert, AZ 85233
(480) 926-7003

DANA KEPNER COMPANY, INC.
9723 Corsair Ave
Prescott, AZ 85301
(928) 445-1433

KP Ventures
PO Box 2411
4715 Old Hwy 279
Cottonwood AZ 86326
(928) 639-1709

2.6 Important Business Phone Numbers

CITY OF PAYSON
General Information
303 N. Beeline Highway
Payson, AZ 85541
(928) 474-5242

BACKFLOW PREVENTION DEVISE
Metering Services
515 South 48th Street
Tempe, AZ 85281
(480) 894-0200
(800) 279-3122

HEBER DOMESTIC WATER IMPROVEMENT DISTRICT
3401 Kimball Street
Heber, AZ 85928
(928) 535-9116

HANCOCK LEAVITT INSURANCE
Monti Hancock Agent
3380 Hwy 260
Overgaard, AZ 85933
(928) 535-6864

JIM'S WATER TRUCK SERVICE
Potable Water
2415 Pioneer Rd
Mesa, AZ 85203
(480) 969-1882

2.6 Important Business Phone Numbers (Continued)

For Community Services Announcements:

KMOG Radio
Payson, AZ
(928) 474-5214

KAFF Radio
Flagstaff, AZ
News Department
(928) 774-5231

KRVZ-KQAZ
Show Low, AZ
(928) 532-1010

KTHQ Radio
Show Low, AZ
News Department
(928) 532-1010

KZUA Radio
Lakeside, AZ
(928) 368-8100

KSAZ Fox 10
Phoenix, AZ
(602) 262-5109

2.7 Regulatory Agency Phone Numbers

**Arizona Corporation Commission (ACC)
1300 W. Washington St.
Phoenix, AZ
1-800-345-5819

Fax: **1-602-542-2129**

Use for notifying ACC of emergencies at all hours, including water outages.

NOTE: FLDWID IS NOT UNDER THE AUTHORITY OF THE ACC. HOWEVER, ACC SHOULD BE CONTACTED IF HAULED WATER IS BEING DELIVERED FROM A WATER SUPPLIER THAT IS UNDER THE ARIZONA CORPORATION COMMISSION.

**Arizona Department of Environmental Quality (ADEQ)
Office of Water Quality
Contact – Steve Camp
1110 W Washington St.
Phoenix, AZ 85007
(602) 771-4641

ADEQ
Office of Water Quality
Drinking Water Compliance Unit
Contact -
1100 W Washington
Phoenix, AZ 85007
1-800-234-4829

ADEQ
Office of Water Quality
Technical Review Unit
Contact -
1100 W Washington
Phoenix, AZ 85007
1-800-234-4829

ADEQ "HOTLINE"
1-800-234-4829

2.7 Regulatory Agency Phone Numbers (Continued)

Arizona Department of Water Resources (ADWR)

15 S. 15th Avenue

Phoenix

(602) 771-8426

-8535

-8586

-8527

Director's Office

Hydrology

Planning, Conservation & Data Management

Well Permits

Arizona Department of Transportation (ADOT)

1109 E Commerce Dr. or 200 N. Colcord (Maintenance Office) or Prescott Valley

Prescott, AZ 86305

(928) 777-5861

Payson, AZ 85541

(928) 468-5060

6989 E 2nd St

Prescott, AZ 86314

Coconino County Attorney's Office

110 E Cherry Ave

Flagstaff, AZ 86001

(928) 679-8200

(800) 559-9289

****Coconino County Board of Supervisors**

Contact – Jim Parks, District 4

219 E. Cherry Avenue

Flagstaff, AZ

(928) 679-7194

Coconino County Department of Planning & Zoning

Contacts: Director John Farnol

2500 N Fort Valley Rd, Building 1

Flagstaff, AZ

(928) 679-8850

Coconino County Department of Public Health

Contact – Environmental Quality

2500 N. Fort Valley Rd, Building 1

Flagstaff, AZ

(928) 679-8750

2.7 Regulatory Agency Phone Numbers (Continued)

Coconino County Highway Department
Contact:
5600 E. Commerce
Flagstaff, AZ
(928) 679-8300

Apache-Sitgreaves National Forest
Black Mesa Ranger District
2748 Highway 260
Overgaard, AZ 85933
(928) 535-7300

U. S. Environmental Protection Agency (EPA)
Region 9
San Francisco, CA
(415) 947-8000

The FLDWID Chairman of the Board or On-Site Operations Manager is responsible for reporting all LEVEL 3 emergencies to the ADEQ, and the Coconino County Board of Supervisors. A LEVEL 3 emergency is described as a **SERIOUS condition or **DISASTER**.

3. GENERAL "QUICK RESPONSE" INFORMATION

This Section of the Manual contains a general "Quick Response" Guide for employees to follow in the event a **water supply** or a **water quality emergency arises in the field**. Information for determining the potential magnitude of the emergency, and the level of response action that may be necessary, is reviewed thoroughly in Sections 3.1 and Sections 3.2 of this Manual. Operational and technical information specific to water **SUPPLY** emergencies and water **QUALITY** emergencies can be found in the **appendix sections**.

In general, employees that are first to arrive at the scene of the emergency should make an effort to determine the potential magnitude or "level of the emergency" (e.g. minor, moderate, serious) and what steps can be taken immediately to keep the effects of the emergency from spreading (i.e. containment). This Manual recognized three (3) levels of emergencies including:

- LEVEL 1.** Requires the lowest level of emergency response action (i.e. minor emergency);
- LEVEL 2.** Requires an intermediate level of emergency response actions (i.e. moderate emergency);
- LEVEL 3.** Requires the highest level of emergency response action (i.e. serious emergency or "disaster").

Sub-Section 3.1 provides a general "Quick Response" Guide for **Water Supply** emergencies. **ADDITIONAL INFORMATION IS AVAILABLE IN APPENDIX A.**

Sub-Section 3.2 provides a general "Quick Response" Guide for **Water Quality** emergencies. **ADDITIONAL INFORMATION IS AVAILABLE IN APPENDIX B.**

3.1 General "Quick Response" Guide – Water Supply Emergencies must all be supervised by on-site Manager for all levels of emergency response.

Level 1: Lowest Level of Emergency Response Action

Examples of Level 1 "minor" water supply emergencies include:

1. Line leak or break on customer's side of meter or "minor" FLDWID system line leak;
2. Customer complaint of low or high water pressure;
3. Frozen water meter or leaking water meter;
4. Brief but area-wide APS power interruption (e.g. light flicker);
5. Minor and easily adjustable/repairable water supply equipment malfunction (e.g. sticking pressure regulating valve).

<u>Step</u>	<u>Remarks – Response Action</u>
1.	Responding FLDWID employee will be able to make necessary repairs or adjustments, <u>without assistance from other FLDWID employees</u> . A "Blue-Stake" request may or may not be required.
2.	Employee will write up a brief description of emergency (or problem) and corrective action taken on the Work Order and note date, time, location, repair or adjustment action taken, and, if applicable, who is responsible for repair cost (e.g. FLDWID, customer, contractor, etc.). Employee will bring the incident to the attention of the Water Utilities Operations Manager by the next scheduled work day.
3.	FLDWID employees may be asked by a customer or a contractor what work is necessary to conduct a line repair. FLDWID employees should be as helpful as possible; HOWEVER, they are not to conduct any kind of work on customer's side of service unless problem is at the service valves. Employee(s) disregarding this rule are not acting within the scope of their authority as an employee of FLDWID and assume all liability for doing so.
4.	Check all electrical panels, controls, timers, and switchgear at each well site and booster station. For instructions on "checking the system" after a brief APS outage, turn to Appendix "A" for additional information. If problems are found, contact a licensed electrical contractor for assistance in repairs or diagnosis of equipment.

TURN TO APPENDIX 'A' FOR RESPONSE ACTION AND INFORMATION REGARDING LEVEL 1 WATER SUPPLY EMERGENCIES.

Level 2: Intermediate Level of Emergency Response Action

Examples of Level 2 "moderate" water supply emergencies include:

1. Line leak or break, FLDWID's side of service connection, that results in low pressure (less than 20 psi) or water outage affecting more than one customer;
2. Fire fighting activity, requiring extensive FLDWID system adjustment and/or monitoring;
3. Short term but area-wide APS power failure, surge, or interruption (e.g. black-out, brown-out, single phasing); common in summer months during "monsoon" events;
4. Significant adjustable/repairable water supply equipment malfunction (e.g. down-hole well pump assembly or booster pump will not restart automatically, storage tank(s) alarmingly low or dry, destruction of facility by fire).
5. FLDWID property is vandalized.
6. A major component of the water system has become inoperative but can be safely bypassed or removed from service while maintaining minimum water service to FLDWID customers. Major components include: well pumps, booster pumps, automatic controls, pressure switches, sections of water mains that can be bypassed or removed from service without adversely affecting the system's operational capabilities.

Step

Remarks – Response Action

1. Responding FLDWID employee will not be able (or should not attempt) to make necessary adjustments/repairs without asking for assistance from other FLDWID representatives. In addition, the Water Utilities Operations Manager should be notified as soon as possible so that he can help coordinate repair work, if necessary.
2. If a line break occurs, call in for an emergency "Blue Stake", as soon as possible and before initiating any digging activity. If the line break occurs on weekends, holidays, or after-hours on weekdays, the "on-call" employee should contact "Blue Stake" directly and provide the necessary information.
3. If a line break occurs, (with the exception of a single customer service line), notify the Compliance Officer at the Arizona Department of Environmental Quality (ADEQ) as soon as possible, preferably on the day of the occurrence. ADEQ must be notified by telephone.

4. Technically, water storage tanks should never go dry but if one or more does become alarmingly low or dry, notify the Water Utilities Operations Manager or designated substitute as soon as possible so that he can take or describe the corrective action necessary. All water storage tanks should be filled to their total capacity prior to weekends, especially during the high demand summer months. This is especially important for the Snow Well storage tank, which can feed the system by gravity. **If the FLDWID system is being used for fire protection, all storage tanks should be checked hourly to ensure over-drafting of the storage tanks does not occur. FLDWID system pressures should not fall below 20psi during a fire protection event.**

All water storage tanks are to be inspected monthly for any signs of structure fatigue and/or roof collapse. Appendix "A" contains response information should there be a failure or collapse of a water storage tank(s).

5. If a water supply equipment malfunction occurs as a result of a suspected APS power supply problem, and the equipment will not restart automatically, DO NOT ATTEMPT TO RESTART EQUIPMENT, until one or more of the following steps have been taken:
 - (a) The Water Utilities Operations Manager has been notified and conducts a satisfactory inspection;
 - (b) APS emergency field personnel have been notified and conduct a satisfactory inspection;
 - (c) A local licensed electrical contractor has been notified and conducts a satisfactory inspection.

Failure to follow one or more of the preceding steps could result in (1) electrocution, or (2) a repair/replacement bill.

6. If FLDWID property is vandalized, contact the Coconino County Sheriff's Department and request an investigation and preparation of a formal report. If possible, DO NOT DISTURB ANY OF THE EVIDENCE OR DAMAGED EQUIPMENT UNTIL A DEPUTY HAS CONDUCTED AN INVESTIGATION.
7. There are currently no major components of the water system that are at risk. With the exception of down hole pump equipment, most major components of the FLDWID system has redundant production equipment installed to avoid water service interruption (i.e. duplicate booster pumps at individual water production facilities, looped water mains that can have sections bypassed, multiple storage tanks and four separate underground domestic wells.)

TURN TO APPENDIX 'A' FOR RESPONSE ACTION AND INFORMATION REGARDING LEVEL 2 WATER SUPPLY EMERGENCIES.

Level 3: Highest Level of Emergency Response Action

Examples of Level 3 “serious/disastrous” water supply emergencies could include:

1. “Down-Hole” Pump Assembly failure;
2. Long-term after 80 hours and area-wide APS power failure;
3. Severe damage to one or more well sites and/or booster station facilities or other components of the system as a result of lightning, fire, collision, terrorism, earthquake, etc. major components of the water system have become inoperative and cannot be safely bypassed or removed from service; minimum water service to FLDWID customers **cannot** be maintained. Major critical components include: well pumps, booster pumps, automatic controls, pressure switches and sections of water mains that cannot be bypassed or removed from service without **adversely** affecting the system’s operations capabilities.
- 4.

Note: There are currently no major components of the water system that are at risk. With the exception of down-hole pump equipment, most major components of the FLDWID system have redundant production equipment installed to avoid water service interruptions (i.e. duplicate booster pumps at individual water production facilities, looped water mains that can have sections bypassed, multiple storage tanks and four separate underground domestic wells).

4. Structural collapse of one or more water storage reservoirs/tanks.

Step

Remarks – Response Action

1. The Water Utilities Operations Manager and the On-Site Manager should be notified as soon as possible so that they can assess the magnitude of the Level 3 emergency. The Water Utilities Operations Manager, the On-Site Manager or the Board Chairman will be responsible for reporting the emergency to the:
 - (a) Arizona Department of Environmental Quality (ADEQ);
 - (b) Coconino County Board of Supervisors;
 - (c) Local news media (e.g. T.V., radio, newspaper) for public announcement.
2. In the event a “down-hole” pump assembly failure occurs, the incident should be initially treated as a Level 3 emergency; however, this condition may not require all the notification procedures as outlined in Step1 above. See Appendix A for additional information on how to determine what “Level of Emergency” response action is necessary.
3. A long-term and area-wide APS power failure generally can be expected to cause severe, long-term, and area-wide water supply shortages. If a long-term and area-wide power failure is suspected of occurring, the Water Utility Operations

Manager should contact APS and obtain their best "realistic" estimate of when service will be reinstated. If an area-wide power outage is expected to last more than 24 hours, then all Step 1 notification procedures should be implemented.

4. If APS estimates that a long-term and area-wide power outage is expected to last more than 24 hours, the FLDWID Board/Staff should promptly consider initiating one or more of the following options.

OPTION 1: Lease a water hauling truck and transport domestic water from another ADEQ approved public water system nearby to fill reservoir sites with domestic water until FLDWID water production well(s) are restored to use. Required contact information is listed in sub-sections 5 and 6 below. It is recommended to keep usable water storage reservoirs as full as possible during an outage.

5. FLDWID has secured a hauled water agreement from a local ADEQ approved Public Water System that has a guaranteed a supply of potable drinking water available for hauling to FLDWID storage tanks on an emergency basis. The PWS that guarantees a source of hauled water for FLDWID is:

Heber Domestic Water Improvement District
Phone Number: (928) 535-9116

TURN TO APPENDIX "A" FOR RESPONSE ACTION AND INFORMATION REGARDING LEVEL 3 WATER SUPPLY EMERGENCIES.

3.2 General "Quick Response" Guide – Water Quality Emergencies

Level 1: Lowest Level of Emergency Response Action

Examples of Level 1 "minor" water quality emergencies include:

1. Cloudy or milky water due to air in the distribution lines.
2. Slight cloudy or dirty water being delivered to the water customer due to particles or dirt in the distribution lines.
3. Chlorine smell in water that would be considered moderate.
4. Moderate musty taste or odor in the water being delivered to the water customer.

Step

Remarks – Response Action

1. Responding FLDWID employee will be able to take necessary corrective action, without assistance from other FLDWID employees. A "Blue Stake" request should not be required.
2. Employee will write up a brief description of emergency (or problem) and corrective action taken on the Work Order and in their log book and note date, time, location, corrective action taken, customer name (if appropriate), and, if applicable, what is responsible for the water quality being affected. Employee will bring incident to the attention of the Water Utility Operations Manager at the next regular work day.
3. A sample of the contaminated water, if possible, should be drawn by the FLDWID's certified operator in a sterile one liter bottle so that the same may be analyzed for harmful contaminants should health concerns be raised in a particular situation. All sample reports and chain of custody forms should be filled out and the sample stored in a refrigerator. **Analysis of this sample may not be required unless and immediate health concern is raised at the time.** A "special" bacteriological sample should always be drawn using an approved bacti-sample container should a customer complain of symptoms such as diarrhea, stomach cramps, or flu type symptoms. Bacteriological sampling should be done according to EPA approved guidelines and methods. Samples drawn by customer **prior** to an FLDWID employee responding to a water quality complaint should be documented in the employee field notes, but should not be considered for analysis unless the sample was drawn using an approved container and sampling protocol has been followed with chain of custody forms filled out.
4. After possible sampling is completed as outlined in item 3 listed above, flushing procedures should commence as follows.
 - a. Flush customer's service line for at least 5 minutes to see if water becomes clear of taste, color or odor problems.
 - b. Survey the customer's property for cross-connection(s) that could contribute to the problem. Document any information given by the customer regarding plumbing problems on-site.
 - c. Survey for any construction activity on the property **OR** in the immediate area affected by the complaint. Should any be found (repairs to customer's service line, new tap in the water mains for new services or a water main break) then document what was found and the possible relationship to the complaint in water quality.
5. Should the water quality complaint not be resolved on the property of the customer, then the response situation should proceed to a Level II complaint and response action.

**TURN TO APPENDIX 'B' FOR RESPONSE ACTION AND INFORMATION
REGARDING LEVEL I WATER QUALITY EMERGENCIES.**

Level 2: Intermediate Level of Emergency Response Action

Examples of Level 2 "moderate" water quality emergencies include:

1. Excessive cloudy or milky water due to air in the distribution lines
2. Moderate cloudy or dirty water being delivered to one or more water customers due to particles or dirt in the distribution lines
3. Chlorine smell in the water that would be considered strong.
4. Considerable musty taste or odor in the water being delivered to the water customer.
5. A **trace** of odor that is suspect of being of a chemical nature, providing a customer has **not** complained of any ill effects from water that is suspect to a chemical contamination.

<u>Step</u>	<u>Remarks – Response Action</u>
1.	Responding FLDWID employee will be able to take necessary corrective action, <u>without assistance from other FLDWID employees</u> . A "Blue-Stake" request should not be required.
2.	Employee will write up a brief description of emergency (or problem) and corrective action taken in their log book and note date, time, location, corrective action taken, customer name(s) (if appropriate), and, if applicable what is responsible for the water quality being affected. Employee will bring incident to the attention of the Operations Manager at the next regular work day.
3.	A sample of the contaminated water, if possible, should be drawn by the <u>FLDWID's certified operator</u> in a sterile one liter bottle so that the sample may be analyzed for harmful contaminants should health concerns be raised in a particular situation. All sample reports and chain of custody forms should be filled out and the sample stored in a refrigerator. Analysis of this sample may not be required unless an immediate health concern is raised at the time. A "special" bacteriological sample should always be drawn using an approved bacti-sample container should a customer complain of symptoms such as diarrhea, stomach cramps, or flu type symptoms. Bacteriological sampling should be done according to EPA guidelines and methods. Samples drawn by the customer prior to an FLDWID employee responding to a water quality complaint should be documented in the employee field notes, but should not be considered for analysis unless the sample was drawn using an approved container and sampling protocol has been followed with chain of custody forms filled out.

4. After possible sampling is completed as outlined in item 3 listed above, flushing procedures should commence as follows:
 - a. Flush all customer services lines that report a water quality problem for at least 5 minutes to see if water becomes clear of taste, color or odor problems. If more than three or four services are affected, then water main flushing is recommended instead of flushing several customer services.
 - b. Survey the area for any customer properties for cross-connection(s) that could contribute to the problem. Document any information given by any of the customers regarding plumbing problems on-site.
 - c. Survey for any construction activity on the property **AND** in the immediate area affected by the complaint. Should any be found (new tap in the water mains for new services or main break, water main shut down or use of a nearby fire hydrant) then document what was found and the possible relationship to the complaint in water quality.
5. Flush the closest water main(s) to the area affected by use of a blow-off, fire hydrant or other acceptable means of flushing the water mains that is available. Shut down main line valves for mains that are connected to the water main affected so as to limit the flushing of water to the area affected by the water quality complaint. Flushing should be at a rate of 100 to 200 gallons per minute. Distribution system pressures should be maintained at a level of 20 psi at all times. Flushing should take from 15 to 45 minutes, depending on how dirty the water is which is being flushed. Excessive velocity during flushing can aggravate the problem instead of helping it.

**TURN TO APPENDIX 'B' FOR RESPONSE ACTION AND INFORMATION
REGARDING LEVEL 2 WATER QUALITY EMERGENCIES.**

Level 3: Highest Level of Emergency Response Action

Examples of Level 3 “serious/disastrous” water quality emergencies **could** include:

1. Excessive cloudy or excessive dirty water being delivered to more than one customer due to a large amount of particles or dirt in the distribution lines.
2. Chlorine smell in the water that would be considered excessive.
3. Excessive musty taste or odor in the water being delivered to the water customer.
4. A **significant** amount of odor that is suspect of being of a chemical nature, and the customer(s) **has complained of effects** from water that is suspect to a chemical contamination.
5. Water quality violations (MCL, MRDL, treatment technique, monitoring and testing procedures)
6. Failure to meet terms of variance and exemptions.
7. Waterborn disease outbreak.
8. Exceedence of the secondary maximum contaminant level for fluoride.
9. Availability of unregulated contaminant monitoring data.
10. Situations determined to have potential for serious adverse effects on human health.

Steps

Remarks – Response Action

1. The Operations Manager should be notified as soon as possible so that he can assess the magnitude of the Level 3 emergency. Thereafter, the On-Site Manager and Board Chairman should be notified by the Operations Manager. The On-Site Manager shall notify the Board of Directors and, if magnitude of the emergency warrants, the On-Site Manager or the Board Chairman will be responsible for reporting the emergency to the:
 - a. Arizona Corporation Commission (ACC);
 - b. Arizona Department of Environmental Quality (ADEQ);
 - c. Coconino County Board of Supervisors;
 - d. local news media (e.g. TV, radio, newspapers) for public announcement;
 - e. Community bulletin boards.

In the case where twenty-four (24) hour notice is required (see step 2) the Operations Manager, On-Site Manager or Board Chairman must make a reasonable attempt to reach all persons served by the water system (e.g. phone, flier, posted notices at all entrances to the community, stores, and public meeting places).

2. For violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, 24 hour notice must be given to ADEQ and persons served by the water system.
3. For all other violations and situations with potential to have serious adverse effects on human health, 30 day notice must be given to the public.
4. For all other violations not listed in 2 or 3 above, one year notice will be given.
5. A long-term and area-wide contamination incident generally can be expected to cause severe, long-term, and area-wide water supply use abandonment. If a long-term and area-wide contamination incident is suspected of occurring, the Operations Manager shall have all leads in water mains to the affected area shut down and valved off from the remainder of the water distribution system. Bottled drinking water should be ordered and provisions should be made to distribute one gallon per person per day until ADEQ approves redistribution of FLDWID water, after thorough sampling ensures that no contamination exists in the domestic water being distributed.
6. Flushing of the water mains through blow-offs in the area affected is required, **providing** care is given to the flushing process so that the remaining areas of the distribution system are not affected. **It is important not to exceed the water system's production capacity so as to avoid over-drafting the storage tanks or create pressure problems in the remainder of the system that is still operating. Addition information regarding flushing procedures is included in Appendix "B".**

**TURN TO APPENDIX 'B' FOR RESPONSE ACTION AND INFORMATION
REGARDING LEVEL 3 WATER QUALITY EMERGENCIES.**

APPENDIX A

WATER SUPPLY EMERGENCIES – GENERAL INFORMATION

A. Determining “Level of Water Supply Emergency” Response Action Necessary

As a FLDWID representative trying to assess the “level of water supply emergency and the appropriate action necessary” for a given situation, the following information should be considered in the decision making process:

1. What measures are needed to ensure the safety of employees, customers, limit property damage and minimize the impact of the situation on the FLDWID system?

It is extremely important that the FLDWID representatives implement what is needed immediately to ensure that no individuals are exposed to the threat of injury or death, and that damage to property and the FLDWID water system is minimized. Proper agencies should be notified such as APS and Blue Stake to avoid shock or injury by having utilities located and turned off, if necessary. The area should be secured with barricades and boundary warning tape so that the area is clear for responding emergency vehicles and road traffic is re-routed to prevent injury to individuals entering the damaged area.

2. Who has the responsibility to resolve the situation at hand?

If the emergency is located on the customer’s property, such as a broken service line, it is the responsibility of the property owner to repair and restore water services to his building or residence. FLDWID representatives are **not** allowed to conduct repairs on plumbing systems not owned by FLDWID except where a customer’s service line connects to the FLDWID service connection. If other utilities are damaged those agencies should be contacted to do their own repairs. Documentation of the situation should be included in a damage report (Work Order) so that liability and financial issues can be resolved after the response and repairs are made.

3. What agencies and/or individuals need to coordinate activities together in order to resolve the emergency situation?

After an affected area or situation is secured to prevent injury to individuals, contact should be made to the individual agencies that need to be involved in the repairs and provide assistance as much as possible.

4. To what degree is the emergency situation:

a. affecting the water SUPPLY service to individual(s)?

If the situation involves more than water service, more than one FLDWID customer (except for a report of sickness or contamination) the situation is probably a moderate water supply situation. If more than a few water services are affected, then the situation probably can be considered serious. A "disaster or catastrophic situation" should involve a notification process where many of the regulatory agencies are contacted.

b. affecting the water SUPPLY of the remainder of the FLDWID water system?

If the situation has a serious or dramatic effect on storage tank reserves, the operation of the remainder of the FLDWID system, or puts critical components of the water system at risk, then the event probably requires a Level 2 or Level 3 response situation.

c. causing property damage to FLDWID property or private property?

If property is being damaged by an uncontrolled main or service line break, control valves should be located immediately and turned off. **This should happen only when safety considerations for FLDWID representatives and other individuals located in the area have been evaluated. The level of emergency response should be Level 2 or Level 3 should significant property damage be present or possible.**

d. going to involve in time or resources to resolve a SUPPLY situation?

Time constraints and resources such as equipment rental, parts on hand and parts availability, weather and portable light equipment must be considered. **It is important to limit the response to the immediate situation at hand. Work which can be done during regular work hours will save on the expenses and limit potential injury to individuals involved with repairs. If a critical component can be bypassed safely, then access to the area should be restricted and the proper person(s) notified of the situation.**

Consideration of the overall items mentioned above should help determine the "Level of Response" required in any emergency situation that arises.

WATER SUPPLY EMERGENCIES – GENERAL INFORMATION, CONTINUED

A.1 LEVEL 1 WATER SUPPLY EMERGENCY SITUATIONS:

1. **Situation:** Service line leak or break on customer's side of meter;
Response:
 - a. Shut curb Stop off at the service connection to stop water flow.
 - b. Notify the customer of their responsibility to make repairs.
 - c. When service is turned back on, check that leak(s) are stopped.

2. **Situation:** Service line leak or break on FLDWID side of meter:
Response:
 - a. Locate leak and call Blue Stake if digging is required.
 - b. Shut down main when ready to repair leak and notify customers.
 - c. Perform repairs per ADEQ standards with proper parts/tools.
 - d. Flush lines when completed and check for leaks.
 - e. Backfill affected area and secure till solid ground.
 - f. Document event with responsible party, parts, labor time, etc.

3. **Situation:** Customer complaint of low or high water pressure:
Response:
 - a. Check pressure with no water flowing through meter.
 - b. Check pressure with one faucet open in the yard/house.
 - c. Pressure should be between 30 to 60 psi with no water flow.
 - d. Pressure should not drop more than 10 to 15 psi with water use.
 - e. High pressure readings should be compared to system pressure.
 - f. Low pressure with use = obstruction, break in service line.
 - g. High pressure readings usually mean system pressure high – check.

4. **Situation:** Minor leak or break in the FLDWID water mains:
Response:
 - a. Locate main leak and call for Blue Stake if digging is required.
 - b. Shut down main when ready to repair leak and notify customers.
 - c. Perform repairs per ADEQ standards with proper parts/tools.
 - d. Flush main lines when completed and check for leaks.
 - e. Backfill affected area and secure till solid ground.
 - f. Document event with responsible party, parts, labor time, etc.

5. **Situation:** Frozen water meter or leaking water meter:
- Response:**
- a. Notify customer of problem and change out meter.
 - b. Thawing with a torch **slowly** may be possible.
 - c. Check meter for leaks after heated and ensure it is working.

A.3 LEVEL 3 WATER SUPPLY EMERGENCY SITUATIONS:

1. **Situation:** "Down-Hole" Pump Assembly Failure
- Response:** At present there are four (4) groundwater production wells supplying all of the water used by FLDWID customers. A "well failure" incident may require FLDWID personnel to take the highest level of emergency response depending on which well is down and what system demand is at a given time. (See beginning of manual under well production rates and system demand figures.)
2. **Situation:** Long-term and area-wide APS power failure
- Response:** With a standby generator available

Water District Board Members

Lou St. Germain, Chairman

Signature and Date
Mary Hume, Vice Chairman

Signature and Date
Ray Grimmett, Member at Large

Signature and Date
Paul Studer, Treasurer

Signature and Date
Sally Rottier, Secretary

Signature and Date