

RECOVERING FROM DISASTERS, LESSONS FOR IRRIGATION DISTRICTS

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ABSTRACT

Irrigation districts and other water supply agencies frequently experience damage from natural disasters, including floods, fires, earthquakes, and hurricanes. The Federal Emergency Management Agency (FEMA) provides grants to make repairs to damaged facilities and to cover other disaster-related expenses through its Public Assistance Program. Federal grants can cover 75% or more of the costs of repairs and other expenses, and many states provide additional grants so that the local agency only has to pay a small portion of the recovery costs.

While performing repairs and other emergency work, it is important that the local agency keep accurate and detailed records of costs, and follow reasonable practices in hiring contractors. FEMA can also provide grant funding for system improvements to prevent or minimize future disaster damage; however it is important that improvements are not made prior to FEMA approval and environmental compliance.

During the past 15 years, the author has had several assignments as a FEMA Disaster Assistance Employee (DAE) and a Technical Assistance Contractor (TAC) employee. The paper will cover several of the author's experiences documenting damage and writing reports to justify FEMA grants for water districts and other local agencies. The paper will also discuss how FEMA obtains staffing for disaster recovery, and the resulting opportunities for engineers and other water experts for part-time work.

INTRODUCTION

Irrigation districts and other water supply agencies frequently experience damage from natural disasters, including floods, fires, earthquakes, and hurricanes. The Federal Emergency Management Agency (FEMA) provides grants to make repairs to damaged facilities and to cover other disaster-related expenses through its Public Assistance Program. Federal grants can cover 75% or more of the costs of repairs and other expenses, and many states provide additional grants so that the local agency only has to pay a small portion of the recovery costs.

This paper will give examples of several recent disasters that have affected irrigation districts, define Federal Emergency Declarations and Major Disaster Declarations, list the various categories of damages and expenses that are eligible for Federal relief, describe hazard mitigation measures that can be funded, and list actions that should be taken by irrigation and other water districts when disaster strikes. The paper will also discuss how FEMA obtains staffing for disaster recovery, and the resulting opportunities for engineers and other water experts for part-time work.

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DISASTERS AFFECTING IRRIGATION AND WATER DISTRICTS

Over the past several years there have been numerous instances where irrigation and other water districts have been impacted by disasters that have been declared Federal Disasters by the President. Some that come to mind are:

1. 1995 floods in California. The Placer County Water Agency suffered damage to its water conveyance system. The South Tahoe Public Utilities District suffered damage to its pumping plant which transport treated waste water out of the Lake Tahoe basin and to its irrigation distribution system where the waste water is reused.
2. 1996-1997 floods in California. The El Dorado Irrigation District's main canal was destroyed by mud slides in a remote area, and access for repairs had to be made by helicopter. A main conveyance canal of the Georgetown Divide Public Utility District was washed out and a portion was replaced by a pipeline. The Don Pedro Reservoir of the Turlock and Modesto Irrigation District filled for the first time and flood flows over an emergency spillway damaged a road and other facilities.
3. 1998 Typhoon Paka in Guam. Typhoon force winds and flying debris severely damaged telemetry stations of the Guam Water Authority.
4. 1999 Hurricanes in Florida. The South Florida Water Management Agency suffered damage to many of its flood control and water conveyance facilities.
5. 2004 Hurricane Ivan in Alabama. The City of Pine Hill's waste water reuse irrigation system was damaged by trees which were uprooted by hurricane force winds. The City was without power for a week, and had to rent a generator to power its water treatment plant.
6. 2004 Hurricane Charlie in Florida. The City of Fort Myers experienced severe damage to its domestic water and waste water treatment plants, pumping plants, and conveyance systems.
7. 2005-2006 Floods in California. The Nevada Irrigation District experienced damage to its water conveyance system. Flows to The City of Nevada City's waste water treatment plant more than tripled due to runoff and infiltration to its collection system, requiring the City to staff the plant around the clock, resulting in many hours of paid overtime.
8. 2008 Flood in Nevada. A major canal of the Truckee-Carson Irrigation District breached, causing not only damage to District facilities, but much more extensive damage in the area of Fernley, Nevada.

FEDERAL DISASTER DESIGNATION

The Federal government can declare two types of disaster relief: Emergency Declarations and Major Disaster Declarations. An Emergency Declaration can be declared when the President determines that Federal assistance is needed to supplement State and local efforts to provide emergency services, including protection of lives, property, public health, and safety, or to avoid a catastrophe. In 2008 there were 68 Emergency Declarations, of which 51 were fire emergencies.

A Major Disaster Declaration can be made by the President for any natural event; including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or regardless of cause, fire, flood, or explosion. In these cases, the President must determine that damage is of such severity that it is beyond the combined capabilities of State and local governments to respond. The declaration of a major disaster provides a wide range of Federal assistance for individuals (Individual Assistance or IA) and public infrastructure (Public Assistance PA). Funds are available for both emergency and permanent work. This paper will include a discussion of only Public Assistance. In 2008 there were 75 Major Disaster Declarations.

In many cases an Emergency Declaration is first made, and then as it becomes apparent that the damage is severe, a Major Disaster Declaration is made. For example, Hurricane Ike in September 2008 resulted in Emergency Declarations in Texas, Louisiana, and Florida, followed by Major Disaster Declarations in Texas and Louisiana, but not in Florida. In November 2008 three Fire Emergencies were declared in California, followed by one Major Disaster Declaration which covered damage caused by all three fires.

Both Emergency Declarations and Major Disaster Declarations can be made in any part of the United States, including commonwealths and territories, and are made on a state-by-state basis. For example, Hurricane Ivan in 2004 resulted in 9 disaster declarations in as many states.

As of mid-April there had been 19 Major Disaster Declarations and 5 Emergency Declarations made in 2009. Emergency Declaration 3300 was made on January 13, 2009 to assist local agencies in managing the 56th Presidential Inauguration.

CATEGORIES OF DAMAGE AND EXPENSES

Disaster related work has been divided into seven categories by FEMA; two categories of emergency work (A and B) and five categories (C through G) of permanent work. It is possible for irrigation districts and other water agencies to experience disaster related expenses in all categories.

Category A: Debris Removal

Debris removal includes clearance of trees, building wreckage, sand, mud, silt, gravel, vehicles, etc. Debris can be caused by most types of disasters, but is most prevalent following hurricanes or tornados.

Category B: Emergency Protective Measures

These are measures that are taken before, during and after a disaster to save lives, protect public health and safety, and protect improved public and private property. Any public agency can take these measures; those most typically involved include police, fire, sheriff, and state and local emergency management agencies.

Category C: Roads and Bridges

Category C includes the repair of roads, bridges, shoulders, ditches, culverts, lighting, and signs.

Category D: Water Control Facilities

Repair of water control facilities includes irrigation systems, drainage channels, and pumping systems.

Category E: Buildings and Equipment

This category includes the repair of buildings, office equipment and systems, heavy equipment, and vehicles.

Category F: Utilities

The utilities category includes the repair or replacement of water treatment and delivery systems, power generation facilities and distribution lines, and sewage collection and treatment facilities.

Category G: Parks, Recreational Facilities, and Other Items

This category includes repair and restoration of parks, playgrounds, pools, cemeteries, and beaches.

ACTIONS TO TAKE**Application for Disaster Assistance**

Eligible Applicants include state government agencies and local governments including counties, cities, school districts, water districts, and irrigation districts. Private nonprofit organizations or institutions that own or operate facilities that are open to the general public are also eligible. Such nonprofit organizations include emergency, educational, medical, and custodial care facilities. Federally recognized Indian Tribes are also eligible.

When a disaster has occurred in your area, you will probably be aware through personal experience and the local media. The FEMA web site (www.fema.gov/) will also have up-to-date information on Federal Declarations. Once a Major Disaster Declaration has been made, a representative from the state will conduct an Applicants' Briefing for all potential applicants for public assistance grants. These briefings are typically held on a county-by-county basis, on with a few counties. Often the counties' emergency management agency will also be involved. Application procedures, administrative requirements, funding, and eligibility criteria are covered at the meeting. FEMA personnel will cover issues of eligibility of work, floodplain management, insurance

requirements, environmental and historic preservation considerations, Federal procurement standards, and mitigation requirements.

If possible, each applicant should send three representatives to the Applicant's Briefing: an elected or appointed official, a representative from the accounting department, and a representative of the construction, maintenance, or operations department.

Each applicant must then complete an Application for Public Assistance. The Federal Grant will cover at least 75% of the eligible cost or the disaster-related expenses. Many states provide additional grants so that the local agency only has to pay a small portion of the recovery costs. For example, California contributes 12 ½ % of the cost, leaving the local entity with only 12 ½ % of the cost. In some cases, the Federal Government has contributed up to 95% of the cost of disaster recovery.

Federal grant funding is available for all disaster related work and expenses with one exception. For emergency work (Categories A and B), work by your own staff (force account) is funded only for overtime work. The rationale is that work conducted during the regular work schedule is not an added expense for the agency. All other expenses, including overtime labor, equipment use and rental, supplies, material, and contract work is eligible for grant funding.

Records to Keep

It is very important to keep detailed and accurate records of damage and disaster related expenses, especially for work completed or underway before FEMA personnel (usually known as a Project Officer or PO) visit the local agency. Pictures and measurements of the extent of damage are especially helpful. Records of manpower and equipment hours and receipts for purchase of material and supplies are necessary for each damaged facility and for each category of work. This should be easy to do if your agency has a work order system to keep track of individual jobs. If the work has not started or completed by the time of the FEMA visit, the Project Officer will collect or assist with obtaining field data and will recommend on the records to keep.

Contracting Practices

Reasonable construction practices must be followed. Costs must be reasonable, and contracts generally must be competitively bid, and must comply with Federal, State, and local procurement standards. Four methods of procurement are acceptable to FEMA.

Small Purchase Procedures This is an informal method for securing services or supplies by obtaining several price quotes from different sources and do not cost more than \$100,000.

Sealed Bids This is a formal method where bids are publically advertised and solicited, and the contract is awarded to the responsive bidder whose proposal is the lowest in price. In general, this method for procuring construction is preferred by FEMA.

Competitive Proposals This method is similar to sealed bid procurement in which contracts are awarded on the basis of contractor qualifications instead of on price. This method is used for procuring architectural or engineering professional services.

Non-Competitive Proposals This is a method whereby a proposal is received from only one source. This situation could occur when the item is available only from a single source, there is an emergency requirement that will not permit delay, or the competition is not adequate to seek additional sources.

Reimbursements for three types of contracts are acceptable.

Lump Sum This is a contract for work within a prescribed boundary with a clearly defined scope and a total price.

Unit Price This is a contract for work done on an item-by-item basis with cost determined per unit.

Cost Plus Fixed Fee This is either a lump sum or unit price contract with a fixed contractor fee added to the price. Cost plus a percentage fee contracts are not acceptable.

In summary, the contracting procedures you should follow are the same as you should follow if the agency were bearing the entire cost.

The Project Worksheet

The report that documents the disaster related expenses and damage is called the Project Worksheet (PW). In general, a separate PW is written for each category and for each damaged facility. To be eligible for FEMA grant funding, a minimum of \$1,000 in expenses in a category is required. PWs that have costs less than \$60,400 are called Small Projects; PWs above that amount are called Large Projects.

Who Writes the Project Worksheet Usually the FEMA Project Officer writes the PW; however the local agency has the option of writing its own PWs, and having them reviewed and approved by FEMA. Few local agencies write their own PWs, as it takes quite a bit of review of regulations, procedures, and research to write the PWs. Unless writing your own PWs will significantly speed-up the process of writing, review, approval and funding, there is no advantage to writing your own PWs.

Cost Estimates for the Project Worksheet For work that is already completed, actual costs are used. Contract bid amounts are also used. For work that is not yet started or completed or not yet bid, unit costs are usually used for estimates. FEMA has unit cost estimates for each state, which are used unless local unit costs are available and can be verified.

Grants for completed projects are made based on the actual costs documented in the PW. Grants for Small Projects not yet completed are made based on the PW estimated cost. If

the net actual cost for all Small Projects for an applicant exceeds the net estimated cost for all Small Project PWs, the local agency may request supplemental funding for a net cost overrun. For Large Projects not yet completed, estimated costs are used for the PW, and are revised to the actual costs once the project is completed.

Disaster Related Expenses and Damage Occasionally, a local agency will try to include repairs to facilities for non-disaster related damage. It is important to include only disaster-related damage and expenses in your request for FEMA grant funding.

Hazard Mitigation Proposals

Hazard mitigation funding is available for cost-effective measures that would reduce or eliminate the threat of future damage to facilities damaged during a disaster. For example, replacing an unlined ditch which was washed out by a flood with a lined canal or a pipeline would be considered as a hazard mitigation project if it would provide improved protection from a future flood. Since such a proposal would be different from replacing the unlined ditch in-kind, environmental compliance must be completed before the project can be initiated.

OPPORTUNITIES FOR WORK

When a Major Disaster Declaration is made, FEMA will establish a Disaster Field Office (DFO), usually in the State capital or in a major city in the area of the disaster. FEMA utilizes several resources to staff DFOs, as shown in Table 1. At the onset, most of the

Table 1. Staffing for Disaster Recovery

Staffing for Disaster Recovery
Full Time FEMA Employees
Disaster Assistance Employees (DAE)
Other Federal Agencies
Bureau of Reclamation
Corps of Engineers
Forest Service
Contractor Employees (TAC)

staff is made up of full-time career FEMA employees. As the DFO grows in size several other resources are used. Disaster Assistance Employees (DAEs) are part-time employees that FEMA has on-call. Many DAEs are retirees from Federal and State agencies that are involved in public works projects. Other DAEs are younger people who enjoy the opportunity to work part-time and to travel to far-away work sites. In this case, “part-time” work is defined as part of the year, as work schedules on disasters can be 60 to 80 hours per week.

For major disasters, other Federal Agencies, including the Bureau of Reclamation, Corps of Engineers, and Forest Service, are called on to send a contingent of employees for

periods of up to several months. Finally, FEMA has several indefinite quantities contracts with large firms to provide additional staffing on short notice. These contracts usually last for five years and are called Technical Assistance Contracts (TAC). While these firms first utilize their regular employees, they also hire part-timers to fill FEMA's staffing needs.

Disaster-related work, either as a DAE or as a TAC employee, provides excellent opportunities for part-time work for retired Federal, State, or local agency employees. Backgrounds in civil engineering, construction, maintenance, cost-estimating, accounting, emergency services, and insurance are especially needed.

CONCLUSION

Disasters can occur at any time. By being prepared and by having a general knowledge of the FEMA requirements and procedures for disaster recovery, you can ensure that most of your disaster related expenses can be reimbursed and you can proceed with needed repairs. Part-time job opportunities are also available for interested individuals with irrigation and water resources experience.

REFERENCES

Federal Emergency Management Agency, Public Assistance Policy Digest, October 2001.

Federal Emergency Management Agency, Web Site: www.fema.gov