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## Corps of Engineers Early Response

Along with the other Department of Defense agencies, the Corps of Engineers responded quickly to the earthquake. In the first 24 hours, the Corps struggled to establish command, control and communications; reestablish a base of operations; account for its personnel; respond to early missions; and assess damage. For division and district officials, balancing the need to reconstruct their own organizations (such as finding new offices, accounting for personnel) with the need to conduct earthquake response operations was no easy task.

This was not the first time that the Army engineers had responded to a major earthquake in San Francisco. Immediately after the devastating San Francisco earthquake in 1906, Army engineers patrolled the city streets to provide security and aided in fire fighting. They also inspected buildings for structural damage and dynamited buildings to create fire blocks. In the aftermath of the earthquake, engineers at Fort Mason fed and housed 20,000 refugees who poured into the post. Working with local authorities and other agencies, they restored utility and transportation services, demolished weakened and structurally unsafe buildings, and designed and constructed camps to house the homeless.<sup>21</sup>

When the Loma Prieta earthquake hit, San Francisco District Engineer Colonel Galen Yanagihara and a small cadre of his staff were still at work. His deputy, Lieutenant Colonel William T. Coffey, was standing underneath the Embarcadero Freeway waiting for his car pool. After Coffey and another car pool member, Lieutenant Colonel Frederick Ferrin, the South Pacific Division chief of staff, reached the Marina district and began to sense the extent of the damage, they made plans to return to the city later in the evening.<sup>22</sup>

A few blocks away at the South Pacific Division headquarters, Rich Young, an experienced Corps emergency management specialist, felt the building shake. He immediately tried to establish communications with the Sacramento District and Corps headquarters in Washington. Within

minutes he established contact with Sacramento using a telephone patch off a VHF radio. Young also contacted Helga Grahl, an emergency management specialist at the San Francisco District, and then walked to the district headquarters at 211 Main. As Young approached the darkened district building, he found Yanagihara and Grahl in front operating out of Yanagihara's car. Young and Grahl carefully climbed up and down the steps of the building to retrieve portable radios and other supplies.<sup>23</sup>

Meanwhile, the chief of the South Pacific Division's Emergency Management Branch, Edward Hecker, tried to communicate with his office from his home in Concord north of the city. Although he could not get through, he contacted the emergency management representatives at Corps headquarters in Washington and monitored conversations in San Francisco on his VHF radio.<sup>24</sup>

From miles away at the Sacramento District, Pat Kuzmiak, an emergency management specialist, attempted to reach the South Pacific Division but was unsuccessful. The Sacramento District activated its crisis management team and tried to establish contact with headquarters, other Corps districts, and state and federal agencies.

Some confusion existed initially about who was in charge of the Corps' activities because the South Pacific Division commander, Brigadier General (later Major General) John Sobke, was out of the bay area and could not be reached by phone. Corps plans traditionally focus on catastrophic rather than near-catastrophic scenarios. In a catastrophic event, planners assumed the San Francisco District and the South Pacific Division would be out of operation for some time. Under the current catastrophic earthquake plan, command and control automatically shifted to the Sacramento District so the San Francisco District and the division could focus on reconstructing themselves. With both the division and the San Francisco District emergency operations centers out of operation in the first few hours, the Sacramento District officials decided to assume their support role as outlined in the federal response plan. This included sending the initial situation reports to HQUSACE. The district continued this function until the South Pacific Division officials reestablished a command center at the Presidio.<sup>25</sup>

Because of poor communications between the division, HQUSACE, and the San Francisco District, the Sacramento District assumed some command and control functions. The district quickly activated its emergency operations center. Within 15 minutes it had made contact with HQUSACE and within the San Francisco area. In the next hour, the Sacramento District operations center had verified contact with FEMA, the Bureau of Reclamation, Sixth Army, HQUSACE, other Corps districts, and California's Office of Emergency Services and Department of Water Resources. The Sacramento District's first situation report went to HQUSACE at 5:00 A.M. PDT the next morning.<sup>26</sup>

General Sobke was hosting an installations conference in Las Vegas, Nevada, along with most of the senior staff from his districts and the division, including the South Pacific Division Deputy Commander Colonel Dennis K. Culp, Sacramento District Commander Colonel Jack A. LeCuyer, and the division's Chief of Construction-Operations, Dave Fulton. When Sobke received word of the earthquake, he prepared to return to the bay area with his staff as quickly as possible, chartering a Lear jet for the return trip. The airplane ticket was a piece of paper signed "Contracting Officer" on which LeCuyer had written words to this effect: "I promise to pay you for this airplane. Send a bill." By 7:00 P.M. they were on their way.<sup>27</sup>

General Sobke and the others planned to have a helicopter meet them at the Monterey airport to take them to the Presidio's Crissey Field. There was no helicopter when they arrived, but people from Fort Ord picked them up and transported them to the 7th Infantry Division headquarters where they arranged for a Blackhawk helicopter to take them to Crissey Field. General Sobke called the Chief of Engineers, Lieutenant General Henry J. Hatch, about 9:00 P.M. from the Monterey airport to report that he was on his way back to the bay area.

During the flight, General Sobke and his staff planned an immediate response. They decided to have Corps personnel check all the dams and levees, coordinate with Sixth Army to see if engineers were needed to support the urban search and rescue mission, establish operations centers to

respond to FEMA requests, and seek increased authority for emergency contracts.<sup>28</sup>

While General Sobke and his staff were en route, Colonels Ferrin and Coffey decided to join Colonel Yanagihara in establishing a base of operations at the Sixth Army emergency operations center, arriving there between 7:00 and 7:30 P.M. By 10:00 P.M. the division's emergency operations center was reestablished within the Sixth Army EOC at the Presidio. Ferrin, Coffey, and others were hard at work when General Sobke, Colonel Culp, and Dave Fulton arrived at the Presidio around 11:00 P.M. Upon his arrival, General Sobke took charge of the response activities. He and his senior staff received a briefing on the current situation and then discussed plans and strategies. Sobke directed Edward Hecker to visit FEMA Region IX headquarters to determine the kinds of missions the Corps could expect.<sup>29</sup>

Having the Corps collocated at the Presidio improved communications and allowed for rapid coordination. Sixth Army officials were generally pleased with the set up. Yet the facilities quickly became cramped, and the shortage of phones and space restricted operations. Division personnel needed their own space, as well as their data processing systems, map displays, and communications. They continued to operate out of the Presidio until about noon on 19 October, when power was restored to the division headquarters building.<sup>30</sup>

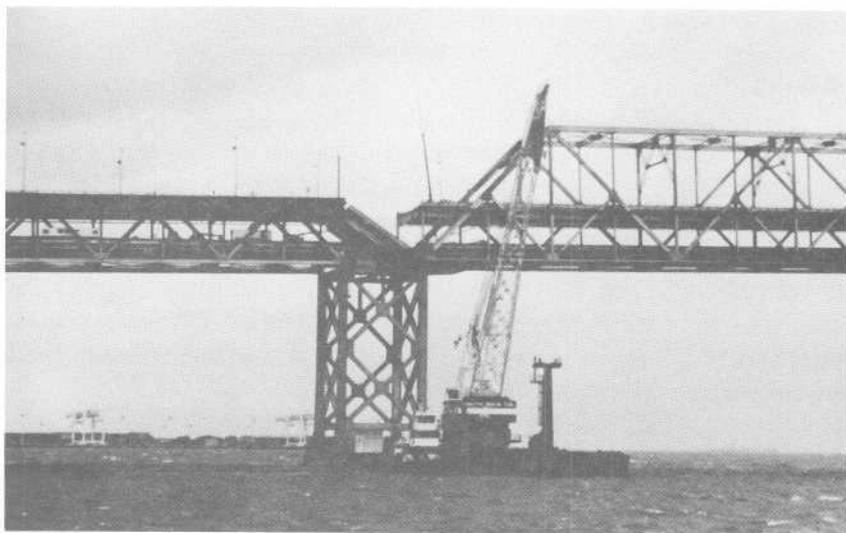
San Francisco District personnel also operated out of the emergency operations center at the Presidio for two days after the earthquake. Damage to their headquarters building was minimal, but file drawers were overturned, pictures were down, and books were strewn on the floor. In addition, the air quality was poor. Coffey, Yanagihara, and others realized, however, that the district and division could not function well out of the same location because their perspectives and concerns differed. District officials had difficulty exercising independent command and control in the cramped Sixth Army operations center. It was a challenge, Colonel Coffey observed, to meet the needs of the division commander and still function as a unit commander with concern for the status of his staff and building. Moving the district headquarters to a new location would allow it to reestablish itself

over the next four or five days and to do the things that only it, not the division, could do, such as emergency surveys and dredging contracts.<sup>31</sup>

District officials recommended to General Sobke that the San Francisco District reestablish itself at the Corps' resident office in the base yard at Sausalito. They chose the base yard because it was undamaged and offered special capabilities such as an emergency operations van. Moreover, it was the closest Corps-owned property and contained an easily recognizable landmark, the Bay Model. Officials reconstituted the San Francisco District at the district base yard in Sausalito at noon on 19 October.<sup>32</sup>

During the first 24 hours after the earthquake, besides establishing command and control and a base of operations, Corps personnel began assessing damage. The California Office of Emergency Services called the Sacramento District emergency operations center at 6:45 P.M. on 17 October to ask the Corps to provide engineers to inspect dams within the bay area. In response, the district sent two Corps representatives who met with their state counterparts early the next morning. The team completed its survey of 40 dams near the epicenter that same day. It concluded that all federal dams inspected within 50 miles of the epicenter were structurally sound. Three nonfederal dams near the epicenter (Newell Creek, Lexington, and Lake Elsmann) had major cracks; but because of the low water level of the three reservoirs, they posed no significant threat to public safety. The Corps also coordinated a joint Corps/state inspection of the flood control systems in the Sacramento and San Joaquin river deltas.<sup>33</sup>

On the morning of 18 October, as the Sacramento District team began its survey, General Sobke; Brigadier General George Baxter, Commander, Sixth Army; and Tommie Hamner surveyed damage to the bay area by helicopter. With no power and with phone lines jammed, getting accurate information about the nature and extent of the damage proved difficult. From the air, Sobke and Baxter were too far away to get a clear sense of the earthquake's effects, but they could see damage to the Bay Bridge, the Marina, and the Cypress Street section of I-880. When Sobke returned from his survey that morning, he reported to Brigadier General (later Major General) Patrick Kelly, Director of Civil Works, HQUSACE, by phone.<sup>34</sup>



*A collapsed section of the San Francisco-Oakland Bay Bridge.*

Meanwhile, Corps officials in Washington followed the events in California closely. General Hatch had tried to contact the South Pacific Division within minutes of the earthquake but only succeeded in reaching a frightened telephone operator at the Presidio. HQUSACE activated its emergency operations center around 9:30 P.M. Eastern Standard Time (EST). Predesignated crisis management team members reported to the operations center to support the response operations. Through the crisis management team, headquarters would arrange for personnel, supplies, and laboratory support for the South Pacific Division. Lieutenant Colonel James Jeffrey Robertson represented the Corps on the DOMS team in the Pentagon.

After division and San Francisco District personnel were established at the Presidio, headquarters officials directed them to call in every half hour with a situation report to the HQUSACE emergency operations center to determine the USACE technical expertise they needed quickly, to find out what types of assistance would be requested of the Corps, to videotape the earthquake damage by helicopter if possible, and to check with the Sacramento District on any requests for inspections of non-Corps dams and levees in the bay area.<sup>35</sup>

At 12:25 A.M. on 18 October, Corps headquarters tasked the Engineering and Housing Support Center (EHSC) at Fort Belvoir, Virginia, to report on the status of prime power assets available for deployment to California. EHSC had three 14-person prime power teams at Fort Belvoir and a forward team of 5 people. It had seven 750 kilowatt heavy-weight generators and one light-weight generator at Toole, Utah, that could be used. The center also had a 4.5 megawatt power plant at Travis Air Force Base that would require heavy lift and transportation but could be in operation 48 hours after it was on the ground. Although EHSC prepared itself for a major mission in California, that mission never materialized.<sup>36</sup>

Finally, in those early hours, Corps headquarters worked to get the South Pacific Division the delegation of contracting authority that it required. General Sobke requested a redelegation of authority from HQUSACE. On 18 October, the Commander, USACE, authorized General Sobke to delegate to his district engineers authority to execute indefinite contract agreements (letter contracts) that did not exceed \$10 million for San Francisco earthquake response only. Authority was granted to increase the maximum value of each architect-engineer indefinite delivery type (IDT) contract to \$1 million and each delivery order up to \$250,000. The authority was valid as long as earthquake disaster procedures remained in effect, unless the division commander rescinded it. Later that day, at Sobke's request, headquarters granted authority to the division and its districts to execute indefinite contract agreements of up to \$20 million.<sup>37</sup>