Seminar on Emergency Preparation and Response

Lessons learned from Port Emergencies

By James J. O’Brien

Consultant on Seaports

Examples of Port Related Emergencies

- **Texas City, TX** – 1947 – chain reaction explosion caused by ammonium nitrate fire involving three vessels and a chemical plant – 600 deaths including virtually all Fire Dept. responders.
- **Charleston, SC** – August -1989 – Hurricane Hugo – category 4 storm. 27 deaths, 9,000 homes destroyed, $7 billion in area damage, 20’ storm surge.

Port Related Emergencies

- **San Francisco/Oakland** – October, 1989 –Lomo Prieta earthquake – magnitude 7.1 – 43 deaths, $5.9 billion in property damage – upper deck of I-880 Freeway in Oakland collapsed – required dismantling of I-880, Embarcadero Fwy. in S.F. and eastern 1/2 of the Oakland – Bay Bridge – significant seaport and airport damage in Port of Oakland.


PORT OF OAKLAND
Napa
Fairfield
Vallejo
Richmond
Concord
San Francisco
OAKLAND
Alameda
S.F. Intl. Airport
Oakland Intl. Airport
Fremont
PaloAlto
San Jose Intl. Airport
Santa Clara
Stockton
Pacific Ocean
San Francisco Bay
Sacramento River
San Joaquin River
Union Pacific RR
Burlington Norher Santa Fe RR
101
37
80
24
580
680
280
880
99
5


Oakland
Lake Merritt
ADELINE ST.
MARKET ST.
BROADWAY
OAK ST.
E. 8TH ST.
980
880
80
7TH ST.
EMBARCADERO
Port Boundary
Oakland Army Base
Former Oakland Army Base
MARITIME ST.
Oakland Int l. Gateway
(Burlington Northern Santa Fe Intermodal Yard)
Railport—Oakland
(Union Pacific Intermodal Yard)
SSA Terminals
Schnitzer Steel
Port Offices
Jack London Square
Estuary Park & J.L. Aquatic Center
Inner Harbor
Maersk Sealand
TransBay
Outer Harbor
American President Lines
MIDDLE HARBOR RD.
TraPac
SSA Terminals
Berth 32, 34
Hanjin Total Terminals
Middle Harbor Shoreline Park
Ben Nutter Terminal
Port View Park
Oakland Estuary
Alameda
San Francisco Bay
N
E
S
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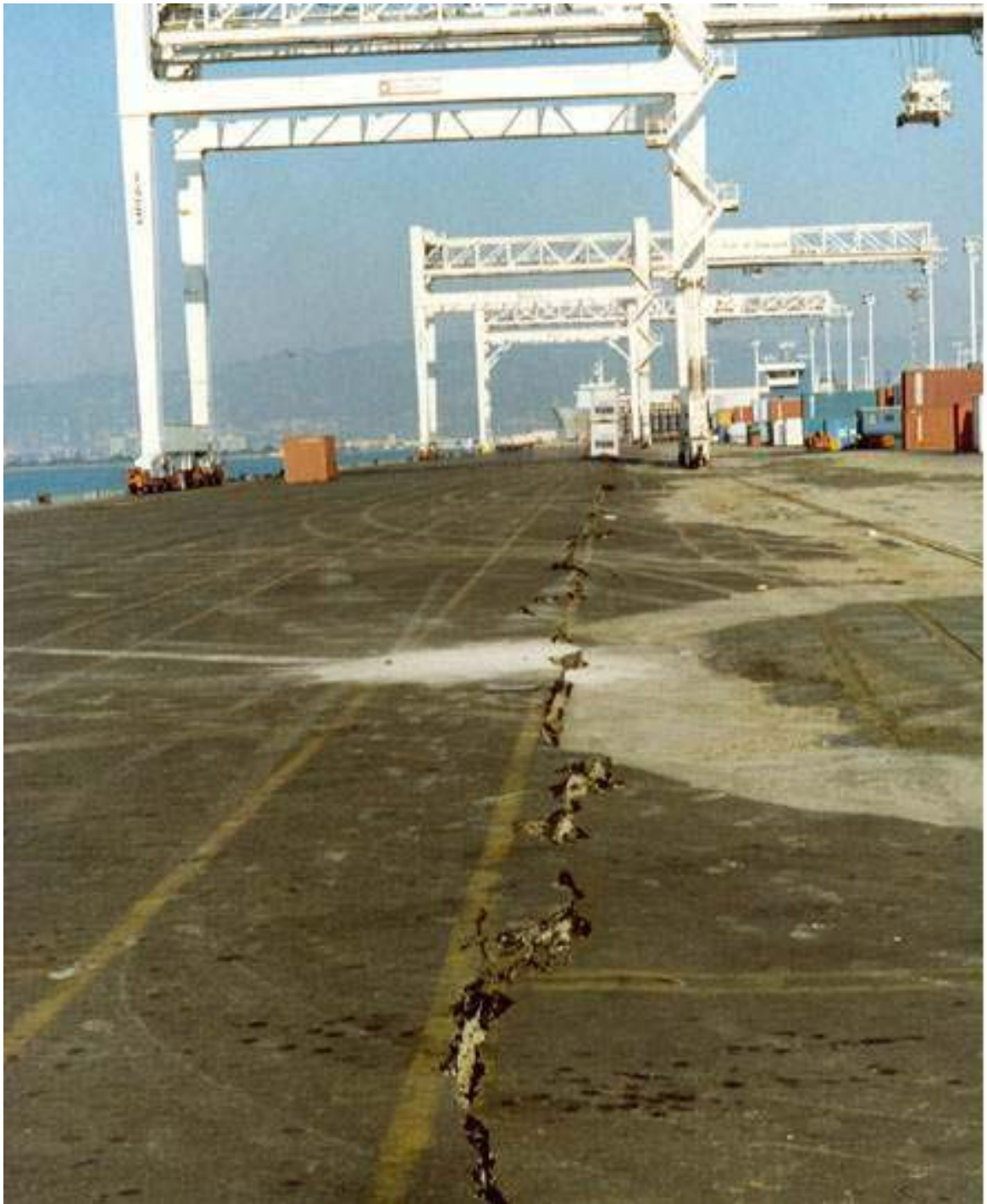
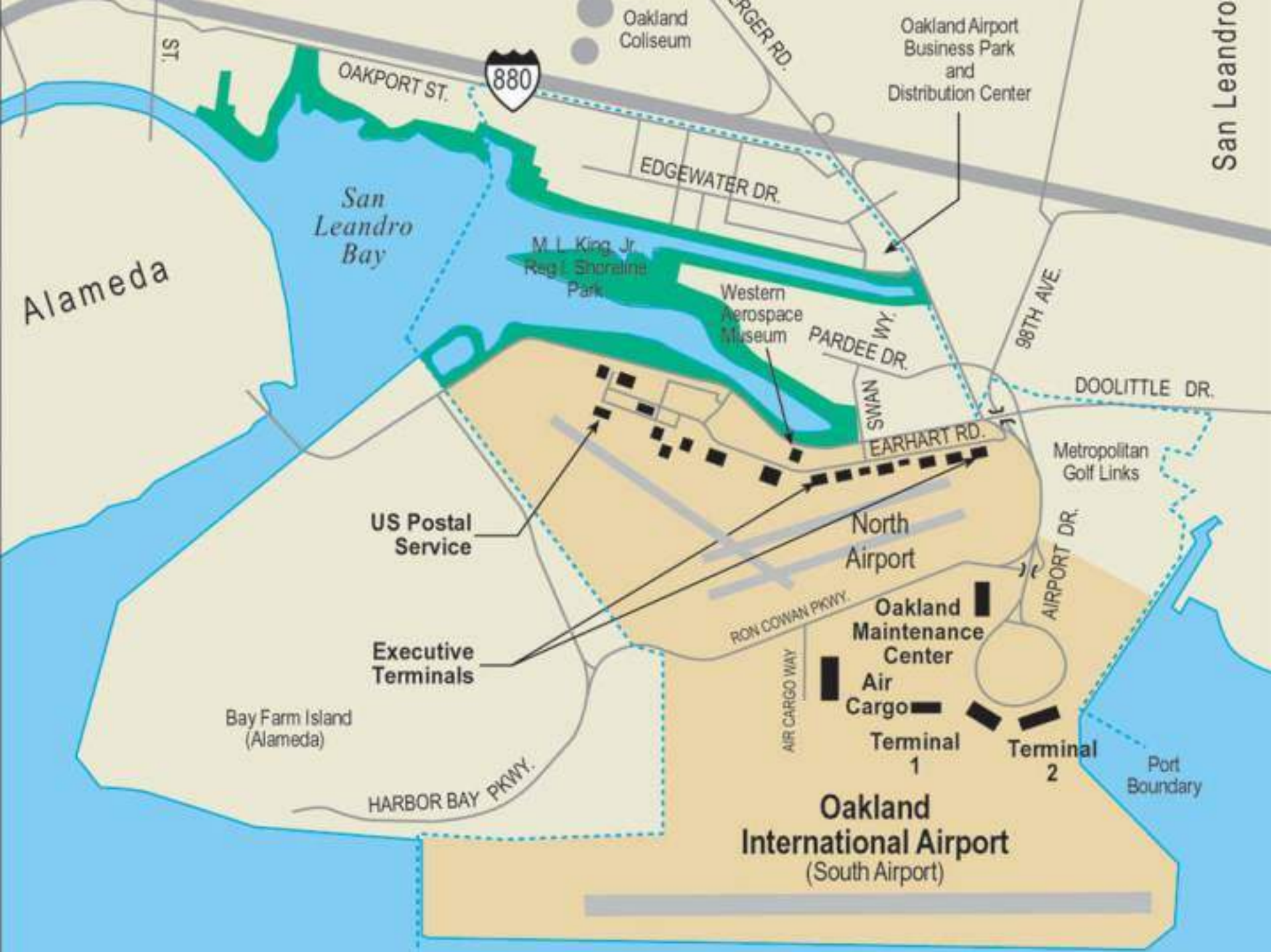



TRITON


Oakland Coliseum
Oakland Airport Business Park and Distribution Center
San Leandro
OAKPORT ST.
880
EDGEWATER DR.
San Leandro Bay
Alameda
M. L. King, Jr. Regl. Shoreline Park
Western Aerospace Museum
PARDEE DR.
SWAN WY.
98TH AVE.
DOOLITTLE DR.
EARHART RD.
Metropolitan Golf Links
US Postal Service
North Airport
AIRPORT DR.
RON COWAN PKWY.
Oakland Maintenance Center
Executive Terminals
Air Cargo
AIR CARGO WAY
Terminal 1
Terminal 2
Bay Farm Island (Alameda)
HARBOR BAY PKWY.
Port Boundary
Oakland International Airport
(South Airport)

Port Related Emergencies

- **Port Everglades / Miami, FL** – Sept.,1992 -145 mph. sustained winds – 23 deaths, $26.5 billion in damage – storm surge of 17 feet. Fortunately for both ports, the “eye” veered to the Southeast a few hours before landfall skirting both ports and making landfall south of Miami.

Lessons Learned

- Emergencies are usually Regional in impact requiring planning and exercising at the Regional Level.
- Need for a system to communicate with your clients the factual situation. The media usually puts the worst possible face on any situation.
- Assume port staff will be on their own for a prolonged period of time and plan for it.

Examples of Programs

- HOPS Homeland–defense Operational Planning System
- Sponsored by California National Guard
- Conducted by Lawrence Livermore National Laboratory
- Jacobs Engineering Group as contractor to LLNL

Purpose of HOPS

- Assess potential threats to and vulnerabilities of critical infrastructure including seaports in California
- Develop port specific profiles
- Assess criticality and vulnerability of specific facilities and sea and land access
- Develop a real – time data base for incident responders

Techniques Employed

- Initial briefing for Port staff and impacted agencies seeking voluntary participation
- Public source data gathering (geographic, economic, demographic, commodity)
- Standardized facility identification and mapping
- Access analysis and alternative routes
- On – site visits and interviews

Techniques Employed (continued)

- Computer modeling where appropriate
- Cataloguing of emergency response units and capabilities
- Review in draft with port staff, impacted agencies and LLNL “peers” prior to finalizing
- Development of real – time web-based data bank for incident responders

Examples of Programs (continued)

- Maximize use of security related wide – area perimeter surveillance systems
- GIS Geographic Information System mapping has capability through satellite imagery, advanced video scene analysis and algorithm – based detection/tracking to precisely translate incident location onto a single facility map.

GIS Mapping (continued)

- Current location of key assets and personnel equipped with GIS enabled devices can be placed on the same GIS map for a total view of the type and location of each resource relative to incident location.

- Allows Central Command Operators to respond with a greater level of confidence.