



Chevron Richmond Refinery Fire of August 6, 2012

**After Action Report Based on Medical/Health Debriefing
Conducted September 10, 2012**

Publishing Date: 12/06/2012

Executive Summary

Major events requiring mobilization of emergency resources in the medical health community provide unique opportunities to test, evaluate and improve local response and emergency capability. While most emergency events are within the capabilities of the operational area to manage, others significantly stress the Emergency Medical Services (EMS) and Medical Health Community requiring implementation of disaster protocols and plans.

Such was the case with the August 6, 2012 Chevron Fire. This event required the Contra Costa EMS System and Medical Health Community to rapidly respond, implementing the full spectrum of emergency/disaster tools including:

- Activation of the Contra Costa Multi-Casualty Incident Plan**
- Coordination between field, dispatch, hospital and other emergency operating centers**
- Assessment of chemical threat with subsequent public warning system activation**
- Shelter-in-Place protocols**
- Emergency notification of hospitals using the Rapid Emergency Data and Digital Network (ReddiNet®)**
- Operational Area HavBED and regional burn bed capacity assessments**
- Activation of Ambulance Mutual Aid**
- Activation of Hospital Command Centers**
- Situation Status Reporting to local, regional and state emergency agencies**
- Activation of Medical Surge Tents to provide alternative care sites**
- Rapid Emergency Department Triage Protocols**
- Requests for medical provider mutual aid to staff exhausted personnel**
- Implementation of Joint Information Communication Protocols**
- Emergency Credentialing of Medical and Hospital providers**
- Activation of Medical Reserve Corps and Disaster Medical Health Volunteers**

What follows is an after action report representing the collective efforts of over twenty four agencies involved in the Chevron Fire Medical Health Response. Findings from this report will be integrated into future emergency preparedness plans, protocols and training activities. Contra Costa Health Services and EMS Division would like to thank all agencies and are committed to working to improve the EMS and Medical Health Community's collective emergency and disaster capabilities.

1. Introduction and Background

On the evening of Monday, August 6, 2012, at 18:37 hours, a major fire erupted in the Number 4 Crude Unit at the Chevron Richmond Refinery where workers had been attempting to repair a small hydrocarbon leak. Fortunately, workers had been evacuated a few minutes before the fire erupted, and there were no serious casualties on the scene. A Level 3 Community Warning System (CWS) notification was activated, sounding sirens warning persons in nearby areas to go indoors and shelter-in-place (SIP). A SIP order was then issued by the County Health Officer covering the cities of Richmond and San Pablo and the community of North Richmond. That SIP remained in effect until 23:12, about four and a half hours. Weather conditions were such that most of the smoke rose quite high and drifted northeastward toward Martinez, where some odors were detected by County Hazardous Materials' crews.

While no injuries requiring ambulance transport were reported at the scene, the nearby hospitals Kaiser Medical Center in Richmond (Kaiser) and Doctors Medical Center in San Pablo (Doctors) soon began receiving numerous patients with respiratory and chest pain complaints. Both Kaiser and Doctors activated their hospital command centers and both hospitals were placed on ambulance diversion due to their emergency departments being overwhelmed. Most patients arrived at hospital emergency departments by private transport, but the 9-1-1 system also soon became overwhelmed with ambulance responses to nearby communities. American Medical Response (AMR) moved in ambulance resources from other areas within the County, held ambulance crews past their scheduled shift end time, and requested mutual aid resources. The mutual aid request was received through the Contra Costa County Sheriff Communication Center and relayed to the EMS Duty Officer. Ambulance mutual aid was supplied by San Ramon Valley Fire Protection District and Paramedics Plus in Alameda County. While emergency medical services were overwhelmed, most patient complaints were relatively minor and did not require hospital admission.

The County Multi-Casualty Incident (MCI) Plan was automatically initiated at "Tier 0" denoting a major incident with no reported casualties and initiating alerts to hospitals, ambulance services, and EMS and other key Health Services' personnel. At 20:31, due to the large numbers of patients seeking hospital emergency treatment and the number of 9-1-1 calls for ambulance response, the MCI was upgraded to Tier 3, signifying an incident with mass casualties or potential for mass casualties. Although the SIP "all clear" had been issued at 23:12, the MCI remained in place until approximately 08:30 the following morning after 9-1-1 calls had returned to normal levels and the numbers of patients at hospital emergency departments appeared to be winding down. However, the number of patients seeking hospital emergency treatment continued to surge throughout the following days and weeks. By August 21st, Kaiser and Doctors had seen some 15,000 patients in their emergency departments, with a daily peak of 3,000 patients three days following the incident.

This After-Action Report is limited to an examination of the emergency medical response to the Acute Phase the evening of incident and during the Medical Surge Phase over the days and weeks that followed. The findings and recommendations presented in this report are based primarily on the Contra Costa EMS Agency debriefing conducted September 10, 2012 and on documents submitted by participating organizations.

A chronological summary including the times of proclamations and declarations, a map of the area, a chart showing the daily number of patients seeking hospital emergency department evaluation, a list of participants in the debriefing, and a glossary of abbreviations used in this document are attached.

It is anticipated that each organization, as appropriate, will use the findings and recommendations in this After Action Report to develop its own corrective action plan.

2. Discussion of Response

2.1. Acute Phase (August 6, 2012 18:30 until “All Clear” at 23:23)

2.1.1. Initial Responders to Scene

At approximately 15:48 on August 6, 2012, Chevron personnel observed a small leak on atmospheric piping on the refinery’s No. 4 Crude Unit and initiated an attempt to isolate the leak. Following standard procedures, the Chevron Fire Department (CFD) responded to the leak site arriving at 16:08 to begin monitoring and air sampling. At 16:22, a small flash fire occurred and was quickly extinguished. A few moments later, the size of the release abruptly increased and a white cloud was observed. Although a considerable amount of steam was being generated from water being applied by CFD crews, at this time the exact composition of that white cloud was undetermined. Chevron personnel were evacuated from the area, and, at 18:32, the fire that is the subject of this incident ignited.

A CWS Level 3 alert was initiated by Chevron and a CWS alarm activated by Contra Costa Health Services. At about this time, both the Petro-Chem Mutual Aid and Municipal Aid systems were initiated generating response from Richmond Fire, El Cerrito Fire, Berkeley Fire, Contra Costa County Fire Protection District, Moraga-Orinda Fire, Rodeo-Hercules Fire, Phillips 66, Valero, Shell, Tesoro, and Dow Fire. AMR was requested to respond one ambulance to standby. The AMR Field Supervisor initiated a second paramedic ambulance unit to standby. Contra Costa Health Services Hazardous Materials dispatched crews to the refinery and the community to begin air sampling. A Unified Command structure was established with CFD and Richmond Fire. The two AMR units responding to the refinery were staged inside the refinery gates. Six Chevron employees were reported to have received minor injuries. These were treated on scene by CFD and/or Chevron’s onsite clinic and returned to work on the same shift.

2.1.2. Community Responders (Healthcare Facilities, Ambulance)

Within an hour or so of the SIP, both Kaiser and Doctors began seeing significant numbers of patients in their emergency departments. Also, there was a significant increase in the number of 9-1-1 requests for medical assistance in the communities covered by the SIP. Some 35 EMS responses were made in West County between the incident onset and the “all clear” that were identified as possibly or probably incident related. AMR moved ambulance units from other areas of the county to help handle the volume, and there were no reported delays in fire or ambulance response to 9-1-1 calls. Nevertheless, because of the uncertainty over the increasing number of ambulance requests, AMR requested paramedic ambulance mutual aid and established an ambulance staging area at the San Pablo Town Hall. One San Ramon Valley Fire ambulance and two Paramedics Plus units from Alameda County arrived at the staging area and were available for use in responding to 9-1-1 calls. These units were released at 22:33 without having to be used.

Both Kaiser and Doctors implemented shelter-in-place procedures and, as the numbers of patients seeking treatment increased, activated their hospital command centers. Kaiser reported being sheltered-in-place and beginning to see walk-in patients within a few minutes of the initial alert. By 20:20, Kaiser reported having at least 50 patients in the emergency department and went on “internal disaster” ambulance diversion status. This was to swell to some 150 patients three hours into the incident. Kaiser reported no incident-related admissions. At about 23:50, about 45 minutes after the “all clear” had been issued, Kaiser went off diversion status and deactivated its command center. At that time, Kaiser reported about 40 patients waiting to be seen.

At 21:08, less than two hours into the incident, Doctors reported over 200 patients in the emergency department, but no incident-related admissions. At 21:44, Doctors was placed on “internal disaster” ambulance diversion. Doctors went off diversion shortly before midnight with about 100 patients in the emergency department being treated or waiting to be seen.

2.1.3. Local and Operational Area Support

The City of Richmond Emergency Operations Center (EOC) was activated and monitored the situation but was not involved in the medical/health response. Operational Area support for the medical/health response included Health Services Operations Centers established at Hazardous Materials (HazMat), Emergency Medical Services (EMS), and Community Education and Information (CEI) and the Office of the Sheriff Communication Center (Sheriff’s Dispatch) and Community Warning System (CWS). The County Health Officer responded and was available throughout the Acute Phase at either the EMS or HazMat Operation Centers. The Operational Area EOC was placed on stand-by but did not activate. Sheriff’s Office of Emergency Services (OES) had one representative respond to Health Services EMS and remained in communication with Health Services throughout the incident.

Public messaging, including SIP orders for Richmond, San Pablo, and North Richmond, health advisories for other communities, and public information was managed under the direction of the HazMat Operations Center and the County Health Officer working in close coordination with the CCHS Community Education and Information (CEI) Unit (Health Services Public Information). Both HazMat and CEI handled media calls. CEI maintained coordination with the County Public Information Officer, provided updated information in English and Spanish on the Health Services website, and disseminated information and responded to questions via CCHS social media tools (see CCHS social media at http://cchealth.org/topics/social_media/). HazMat and the County Health Officer coordinated with the Community Warning System to resound warning sirens every half hour through 22:30. In consultation with the Unified Command at the Chevron Fire, a decision was made not to resound the sirens at 23:00, and, at 23:12, the Health Officer instructed that an “all clear” be issued.

Health Services EMS staff were notified via the CWS, opened the EMS Operations Center, and began monitoring the incident, including impacts on emergency ambulance services and hospitals. ReddiNet was used to monitor hospital status and the Health Services’ Incident Response Information System (IRIS) was used to post and update incident information for access by Health Services personnel at the various operations centers. At 20:23 as a precautionary move, EMS requested an inventory of available hospital burn beds through the Region II Regional Disaster Medical/Health Coordinator (RDMHC) in Alameda County.

At about 20:27, EMS received an ambulance mutual aid request from the AMR Supervisor to help handle the high volume of 9-1-1 medical calls in West County and passed this through to the Region II RDMHC. At this point, based on the large number of patients seeking hospital emergency care and the high volume of incident-related 9-1-1 medical calls, EMS increased the MCI level from Tier 0 (major incident without report of casualties) to Tier 3 (incident with mass casualties). EMS staff filed an initial Situation Status Report with the State Department of Public Health and State Emergency Medical Services at 20:40 and provided updates throughout the incident. EMS maintained coordination with Sheriff’s Communications, the County Health Officer, and the Health Services HazMat and Community Education and Information Operations Centers.

2.1.4. Regional Support

Regional coordination of health and medical disaster support is handled through the Regional Disaster Medical/Health Coordinator (RDMHC) in each of the State’s OES regions. For Region II (Northern California coastal counties), the RDMHC function is handled by Alameda County EMS. The Region II RDMHC provided support by compiling a list of hospital burn beds available through the area and arranged paramedic ambulance mutual aid. Due to a miscommunication, an initial request was made by Contra Costa EMS for 30 mutual aid paramedic ambulance units. This was shortly corrected to three units. One was filled within the county by San Ramon Valley Fire Protection District, and the remaining two were filled through Alameda County with Paramedics Plus.

2.2. Medical Surge Phase (Continuing through approximately August 24, 2012)

2.2.1. Healthcare Facilities

Both Kaiser and Doctors continued to see large numbers of patients during the ensuing days and weeks following the incident. Children's Hospital in Oakland also reported a small surge in pediatric patients with complaints related to the Chevron fire. Altogether, some 15,000 incident-related emergency department visits were reported following the incident through August 24th – eighteen days following the incident. The attached chart (6.4) shows the daily patient surge volume.

As the patient surge continued the following day, both Kaiser and Doctors set up tents outside their emergency departments and established separate areas for incident-related patients to be seen. By approximately 17:00 the day following the incident, a total of 626 incident-related patients were reported, mostly at the two West County hospitals, but a handful at Children's Hospital and Research Center - Oakland, Kaiser Antioch, Sutter Delta Medical Center, John Muir Health, and Contra Costa Regional Medical Center in Martinez. No incident-related hospital admissions were reported at this time.

The next day Chevron informed the community that a reimbursement process for medical claims would be created. Shortly after this announcement a large, sustained medical surge of patients occurred between August 7th and August 9th. Due to the enormous number of patients converging on Kaiser and Doctors efforts were made between the Hospital Public Information Officers, CCHS CEI and Richmond PIO to coordinate messaging to the community on the need for medical evaluation. On Friday, August 10th – five days after the incident – Chevron posted on their website an update about the process for making medical claims including a deadline of August 17th. This may have led to the significant surge in patients over the weekend. On Friday, August 17th – some two weeks after the incident – Chevron extended the claims deadline and Doctors and Kaiser again reported a surge in the number of patients. The afternoon of August 17th Doctors requested assistance from EMS in obtaining volunteer physicians, mid-level practitioners, nurses, and clerical workers. By the afternoon of August 23rd, Doctors reported returning to normal operations. Kaiser reported closing its command center operations on August 24th at the end of the day.

2.2.2. Contra Costa Health Services / Emergency Medical Services

Contra Costa EMS, in coordination with the County Health Officer, played the lead Health Services role during the Medical Surge Phase of the incident. During this period, EMS continued monitoring hospitals, preparing Situation Status Reports for the State and Region II, and coordinating with the Health Officer and CEI staff. The number of patients seeking evaluation or treatment at Kaiser and Doctors continued to surge peaking at 2,876 on Thursday, August 9th. The numbers dropped by more than half the following day, but then surged again over the weekend and the following Monday.

Hospitals continued seeing more patients over the next several days (August 15th - 17th) than either the day of the incident or the day following the incident. On August 10th, a conference call was conducted with Health Services, Kaiser, and Doctors. On August 17th, Doctors requested assistance from the County for medical volunteers, and requests were sent out through the Medical Reserve Corps and Disaster Health Volunteers email lists for persons interested in volunteering to contact Doctors at a specified phone number. On August 18th, Doctors requested that EMS refine the message for volunteers due to the arrival of spontaneous volunteers on campus and response from unlicensed volunteers. On August 24th, both hospitals and EMS shut down command centers and returned to normal operations.

Health Services CEI staff also remained active during the Medical Surge Phase continuing to communicate updates to the County PIO and to the Sheriff's PIO, working with the media, posting updates on the CCHS website and answering questions via social media tools. CEI staff prepared a special webpage that was updated daily on the Health Services website for the Chevron fire, including contact information for Chevron. CEI staff attended a community meeting in Richmond on August 7th. CEI compiled health FAQs at the first Community meeting and widely disseminated the FAQs via the media, online and with partners. CEI staff continued to field media inquiries and, on August 8th, posted Bay Area Air Quality Management District (BAAQMD) air sample results on the Health Services website. The Contra Costa Health Services Communications Officer/PIO participated in a conference call with the hospital PIOs on August 10th to discuss the public communication strategies to help hospitals cope with the influx of patients. CCHS Communications Officer worked with Chevron public affairs to clarify information on reimbursement related to fire and CEI disseminated online and with hospitals to share with patients as appropriate.

As a follow up to the EMS debrief on September 10th, the CCHS Communications Officer coordinated a conference call with all the PIOs of agencies that responded to the refinery fire, including Kaiser, Doctors, County OES, CWS, Sheriff's Office, Richmond Fire Department, Bay Area Air Quality Management Board, Contra Costa County Crisis Center and CCHS Communications Unit and CCHS Hazardous Materials. The group agreed that improved coordination of messaging at the incident command post would be helpful in Joint Information System/JIC training.

3. Training Needs

Individual agencies will no doubt identify training needs as a result of this incident. While a number of areas for improvement are identified below, it is not clear that these resulted from a lack of training. Rather, the unusual nature of this incident – no on-scene casualties, largely negative air monitoring results in nearby communities, followed by a surge of patients with relatively minor symptoms – led to reasonably made assumptions by responding agencies proving incorrect.

4. Findings

4.1. What Worked Well

4.1.1. American Medical Response

- Mutual aid ambulance support request
- Holding over resources past their shift end time
- Staging area established outside incident and shelter-in-place areas

4.1.2. CCHS Community Education & Information (Public Information)

- Standard way of activating Crisis and Emergency Risk Communications plan and protocols, use of social media, website
- Coordination with HazMat, EMS, and County Health Officer
- Coordination with County PIO

4.1.3. CCHS Emergency Medical Services

- Emergency Notification of EMS staff
- EMS Operations activation
- Use of ReddiNet, FirstWatch, IRIS
- Bed Assessment using HAvBED
- Situation Status Reporting
- Communication with RDMHC
- Hospital Situation Monitoring
- Coordination of responding ambulance mutual aid resources

4.1.4. CCHS Hazardous Materials

- Operations Center with Health Officer present
- Resounding of sirens
- Working with the media on getting information to the public
- Air monitoring

4.1.5. Chevron Fire

- Mutual aid response
- AMR response
- Chevron on-site clinic for treatment of employees with minor injuries

4.1.6. Children's Hospital Oakland

- Updates from Contra Costa Health Services
- Communications

4.1.7. City of Richmond

- Communications with CCHS HazMat and Sheriff's Communications

4.1.8. Contra Costa County Fire

- Backfill and station coverage for fire departments that responded resources

4.1.9. Contra Costa County Sheriff's Communications

- Communication with CCHS HazMat and AMR
- Use of plain language communication with AMR

4.1.10. Doctors Medical Center San Pablo

- Clerical assistance from Marin General (uses same patient data system)
- Internal hospital communications
- Separation of Chevron patients from the rest of the emergency department during the Medical Surge Phase
- Emergency credentialing process

4.1.11. Kaiser Medical Center Richmond

- Separation of Chevron patients from the rest of the emergency department / use of alternative care sites / tents
- Use of multidisciplinary physician teams to care for families including children and adults
- Physician and staff collaboration
- Having a program of hospital exercises
- Hospital command center
- Lockdown of parking lot during Medical Surge Phase

4.1.12. Region II RDMHC (Alameda County)

- Communication with other counties
- Regional Disaster Medical/Health Specialist from Inland Region with resources close to Contra Costa County
- Availability of resources from other counties (multiple ambulance strike teams were available for deployment within the first hour of the request)
- Conducting inventory of available burn beds

4.1.13. Richmond Fire

- Fire mutual aid
- Backfilling fire stations and maintaining response to other requests for service
- Training with Chevron Fire

4.2. Challenges and Opportunities for Improvement

4.2.1. MCI Plan Implementation

The Chevron fire included a focused incident with no serious casualties and a dispersed incident which placed severe demands on the 9-1-1 system and on West County hospital emergency departments. Neither the MCI Plan nor the Health Services Medical Surge Plan is designed to cover this type of situation. The Medical Surge Plan is designed to deal with a situation in which *most* healthcare facilities in the county are overwhelmed. The MCI plan is designed to deal with a focused incident in which an Incident Command System (ICS) structure has been implemented and the EMS response is under control of the Incident Commander. Escalation of the MCI from Tier 0 to Tier 3 by the EMS Operations Center, while intuitive, required and consistent with the MCI Plan in this unusual and rapidly evolving situation, was delayed.

Per the plan, Tier 0 activation “is required for a CWS Level II or III incident” which was the case as it was an “actual or potential significant hazardous materials incident.”

- Tier 3 was declared as there was “a reasonable expectation of mass casualties.”
- Tier 2 may have been more appropriate as it was “an incident involving less than 10 patients when there is a substantial chance that the number of patients may rise” such as a “petrochemical incident involving a dispersal cloud moving over populated area.”

Another approach would have been to establish a second incident with its own command structure to deal with the expanded incident-related 9-1-1 calls and ambulance staging. It is important to note that personnel involved at AMR, fire, EMS Agency, and dispatch centers managed the situation quite successfully given the lack of plans covering this type of situation. Both the MCI Plan and the Health Services Medical Surge Plan should be reviewed and revised, if appropriate, in consideration of incidents resulting in a similar surge in 9-1-1 responses and/or significant impact on hospital resources in one area of the county.

4.2.2. Public Messaging

Public messaging was confusing both with respect to the specific areas for which a SIP was needed and with respect to the nature of the potential chemical exposure, described in the debriefing as a “diesel-like” emission. While the entire cities of Richmond and San Pablo and the community of North Richmond were under a SIP, Chevron held a press conference inside their cafeteria without ill effect within the SIP

area, emergency responders continued to respond to 9-1-1 calls and transport patients within the SIP area, and both West County hospitals located within the SIP area continued to operate. Lack of information as to the nature of the emission hampered medical response. Public messaging was further complicated by a lack of coordination with Chevron throughout the medical surge phase of the incident.

4.2.3. Ambulance Mutual Aid

Problems identified with obtaining ambulance mutual aid included failure to confirm the number of units needed, changing reporting location after mutual aid request was in process, and lack of a communications plan for out-of-county non-AMR units. With a single ambulance provider no longer the primary emergency ambulance provider within the Bay Area, communication for mutual aid ambulance response has become a more significant issue.

4.2.4. Coordination Centers

Three division-level operations centers were established within Health Services (EMS, Hazardous Materials, and CEI) and a local Emergency Operations Center (EOC) was established by the City of Richmond, but a Health Services Departmental Operations Center and an Operational Area EOC were not activated. This resulted in some deficiencies in overall coordination and planning, and a lack of personnel resources. While there may not have been a need for an Operational Area EOC, the lack of a Joint Information Center (JIC), including representation from Chevron and the hospitals presented challenges. EMS staff provided required Situation Status Reports to the State and to Region II but did not forward these reports to the Richmond EOC.

4.2.5. Volunteer Utilization

Several days into the incident, Doctors Medical Center requested EMS assistance in obtaining medical volunteers to assist in seeing incident-related emergency patients. An issue was raised with respect to the Contra Costa Medical Reserve Corps and California Disaster Volunteers notification procedures to request volunteers. Also, it was reported that some volunteers self-deployed and showed up at Doctors without prior telephone contact as had been requested. Some of these volunteers did not have the skills that had been requested and were turned away.

4.2.6. Incident Information / Toxic Substance Identification

Information was not provided to the hospitals identifying the specific substance or substances to which the public may have been exposed. This hampered patient diagnosis and treatment.

4.2.7. Hospital Patient Flow

Inability initially to differentiate between incident patients and regular emergency department or clinic patients created a risk for adverse outcomes. Also, hospitals were not initially requested to track incident patients, so that this had to be reconstructed retrospectively two or three days post-incident.

4.2.8. Hospital Patient Records

Computerized patient record systems became overwhelmed at both Kaiser and Doctors. Paper records had to be instituted and further streamlined to support patient care. The paper records then had to be re-articulated into patients' electronic records presenting a significant need for additional resources post-event.

4.2.9. ReddiNet Communication

Technical issues with the ReddiNet system initially resulted in Kaiser's status not being displayed on the ReddiNet MCI screen. ReddiNet technical support was contacted and was able to fix the problem within approximately twenty minutes.

4.2.10. Community Clinics

Community clinics in West County were not included in the incident response management during the Medical Surge Phase, although, reportedly, some clinics were impacted by the surge. On August 7th the Community Clinics were contacted, however, they reported "not being under too much strain at the moment." On August 9th the community clinics were encouraged to actively track the number of patients presenting with symptoms related to the Chevron incident and to transmit that information to EMS. On August 10th and subsequently there were no reports from the clinics regarding the patient impact to their facilities.

4.2.11. Need for More Non-Medical Support in Emergency Departments, Including Interpreter Services

Hospitals identified the need for more non-medical support in the emergency departments to assist with electronic registration and other clerical functions. Also, identified was a need for interpreter services.

5. Summary of Principle Recommendations

5.1. Review and revise, as appropriate, the Health Services Medical Surge Plan and/or MCI Plan to cover situations in which EMS and/or hospital resources in a single area of the county are overwhelmed. Include community clinics in medical surge planning.

5.2. Consider early activation of operational area support and coordination centers such as the Health Services Departmental Operations Center (DOC), a Joint Information Center (JIC), and/or Operational Area Emergency

Operations Center (EOC), if appropriate. JIC should include representatives of responding agencies, responsible private party, Office of the Sheriff, Health Services, hospitals, and the County Public Information Officer, as appropriate to assure coordination, accuracy, and completeness of information provided to responding and supporting organizations and to the public. Public messaging must consider potential impact on health care facilities and be coordinated appropriately.

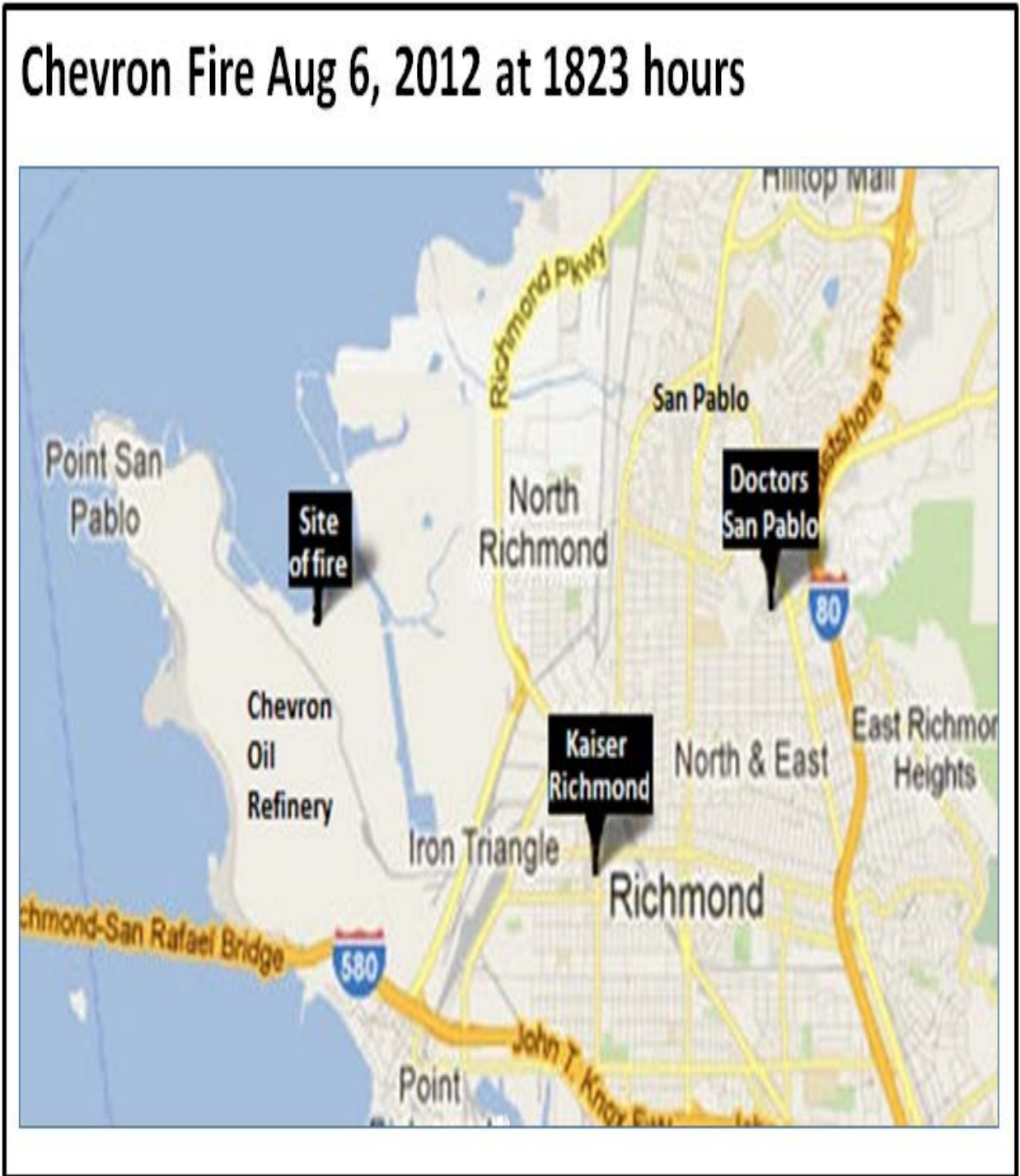
- 5.3. Clarify Shelter-In-Place (SIP) policies as to when and how they are applicable. For example, should medical facilities in the SIP area close to the public? Should emergency responders be required to don appropriate protective equipment when entering the area? Can the public safely drive through the area with windows and outside air vents closed? Is the SIP advisory in the event odors are detected or should SIP areas be completely sealed in response to a highly dangerous and odorless release?**
- 5.4. Review hospital emergency plans to assure that all appropriate elements of the Hospital Incident Command System (HICS) are in place, including appropriate triggers for activating command centers and filling needed positions.**
- 5.5. Prepare to implement hospital emergency department surge plans early in response to high profile incidents involving hazardous materials. Surge plans should include an option to switch to a streamlined paper registration system.**
- 5.6. The East Bay hospital mutual assistance plan should be reviewed to assure hospital personnel are prepared to implement the plan as needed and that hospital protocols are in place to implement the plan.**
- 5.7. Consider the need at all levels (incident, hospitals, DOC, EOC) to activate Planning sections and to develop Incident or Emergency Action Plans.**
- 5.8. Review medical mutual aid plans and procedures to assure appropriate resource requesting for both ambulance and hospital support. Assure that ambulance mutual aid requests are clear with respect to reporting authority and location and include a communications plan.**
- 5.9. Review field communication plans to assure that interoperable communications between ambulance and fire are present and reliable.**

6. References

6.1. Timeline of Key Events

08/06/12	16:15	Refinery begins monitoring vapor leak
08/06/12	18:30	Workers evacuated as leak increases
08/06/12		Fire ignited in No. 4 Crude Unit
08/06/12	18:37	Chevron notification of Level 3 to County Hazmat
	18:37	Chevron request to AMR for one ambulance to standby; AMR responding unit requested additional unit
08/06/12	18:40	Shelter-in-place ordered by County Hazmat for Richmond, San Pablo, and North Richmond
08/06/12	18:46	Tier 0 MCI initiated by Sheriff's Communications
08/06/12	19:27	Kaiser Richmond receiving some walk-in patients
08/06/12	20:20	Kaiser Richmond on Internal Disaster
08/06/12	20:23	Burn bed assessment received from Region II - 10 burn beds available at St. Francis (4) and Santa Clara Valley (6)
08/06/12	20:27	Ambulance mutual aid requested from field
08/06/12	20:31	MCI upgraded to Tier 3 by EMS
08/06/12	20:38	Kaiser Richmond reports 50+ patients
08/06/12	21:08	Kaiser Richmond reports 69 patients in ED; Doctors reports 200+ patients; no admissions
08/06/12	21:44	Doctors San Pablo on Internal Disaster; additional resources not needed at this time
08/06/12	22:33	Mutual aid ambulances released (2 Paramedics Plus & 1 SRVFPD)
08/06/12	22:40	Fire fully contained
08/06/12	23:12	Shelter-in-place lifted for Richmond, N. Richmond, San Pablo
08/06/12	23:51	Kaiser Richmond and Doctors off Internal Disaster diversion
08/07/12	08:30	MCI cancelled
08/08/12	12:22	Doctors San Pablo reports MCI tent up and being used
08/10/12	11:00	Contra Costa Health Services conference call with Doctors and Kaiser - Richmond Hospital Leadership. Coordinated community messaging requested from hospitals.
08/17/12	14:00	Doctors requests assistance with staffing (Physicians, mid-level practitioners, RNs, clerical staff) to support their ongoing operations through weekend.
08/17/12	17:00	Request for hospital mutual-aid within Contra Costa County by EMS
08/17/12	17:30	Request for medical volunteers through the MRC and Disaster Healthcare Volunteers to contact Doctors directly if they are interested in volunteering
08/24/12	-	Both Facilities and EMS shut down Command Centers and move into normal operations

6.2. Map Depicting Locations of Refinery and Nearby Hospitals



6.3. Hospital Capabilities

Kaiser Richmond Profile



Hospital Capacity

- 50 Inpatient beds
- 15 ED stations
- 8 Critical Care Beds
- > 30,200 ED visits/year

7 minutes away
2.2 miles from event

Doctors San Pablo Profile

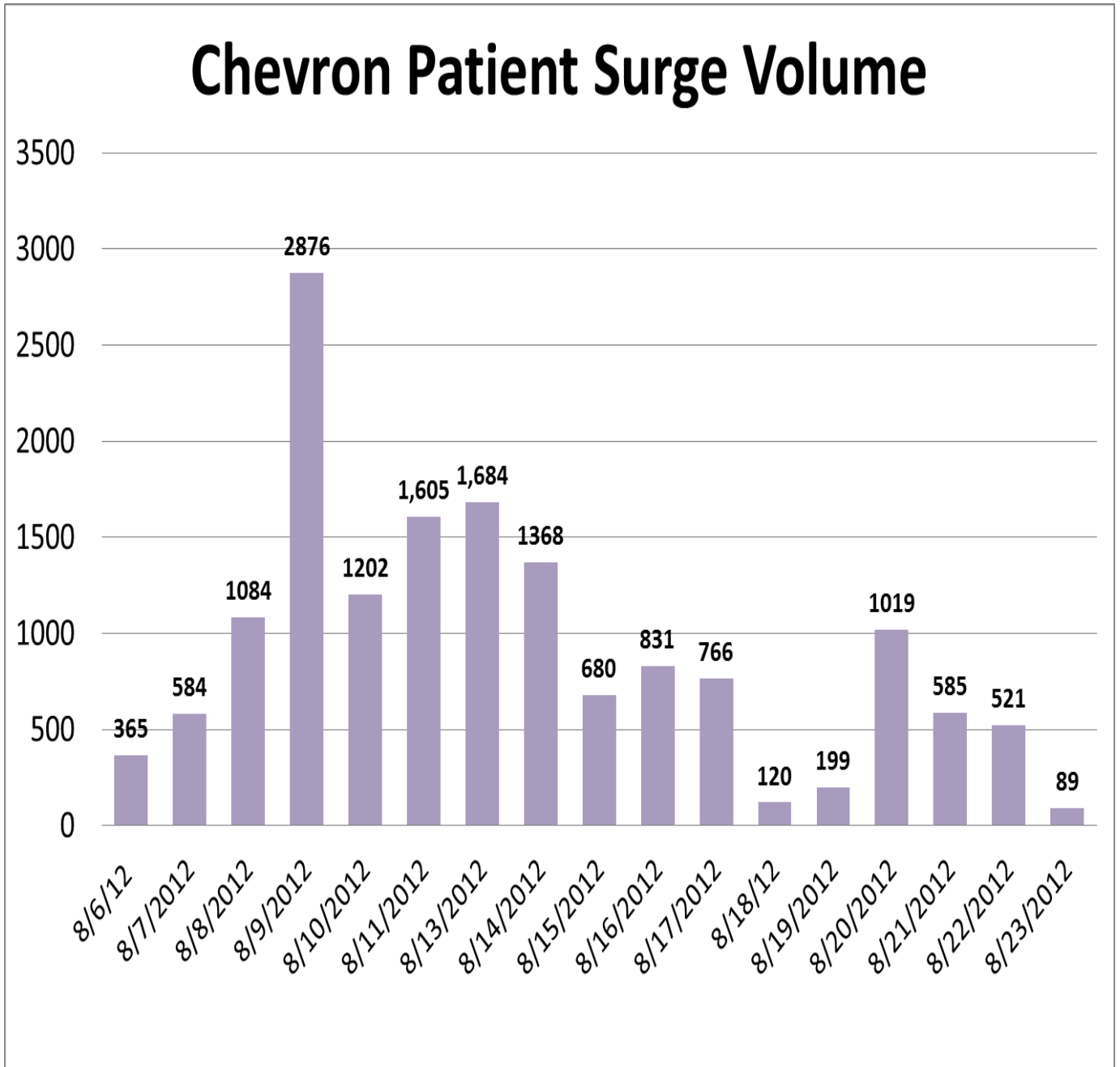


Hospital Capacity

- 189 Beds
- 154 Med-Surg
- 35 ICU beds
- 25 ED Stations
- 40,473 ED visits/year

13 minutes away
8.6 miles from event

6.4. Patient Surge



6.5. List of Attendees at Sept. 10, 2012 Debriefing

Debriefing Med/Health Response to Chevron Refinery Fire Attendance		
First	Last	Agency
Lori	Altabet	John Muir Health - Walnut Creek Campus
William	Appling	Doctors Medical Center - San Pablo
Mark	Ayers	Chevron Fire Department
Vicky	Balladares	CCHS – Community Education & Information
Joe	Barger	CCHS - Emergency Medical Services
Nicole	Barnett	Kaiser Permanente
Dave	Birdsall	California Emergency Physicians
Gale	Bowen	Contra Costa County Sheriff's Office
Betsy	Burkhart	County Administrators Office
Jeff	Burris	East Contra Costa Fire Protection District
Douglas	Butler	American Medical Response
Larry	Carlson	Contra Costa Regional Medical Center
Fred	Claridge	Region II Regional Disaster Medical Health
Mike	Conroy	Kaiser Permanente
Kim	Cox	CCHS - Public Health
Pam	Dodson	CCHS - Emergency Medical Services
Mia	Fairbanks	CCHS - Emergency Medical Services
Christian	Felgenhauer	American Medical Response
Kate	Fowlie	CCHS – Community Education & Information
Pat	Frost	CCHS - Emergency Medical Services
Kathryn	Gerk	Richmond Fire Department - Office of Emergency Services
Remy	Goldsmith	Doctors Medical Center - San Pablo
Julie	Hadnot	Kaiser Permanente
Melissa	Hagen	CCHS - Hazardous Materials
John	Hardy	Doctors Medical Center - San Pablo
Will	Harper	CCHS – Community Education & Information
Michelle	Heckle	Children's Hospital and Research Center - Oakland
Brian	Henricksen	CCHS - Emergency Medical Services
Fred	Hofstetter	CCHS - Public Health
Jill	Honeyman	Contra Costa Regional Medical Center
Eric	Hsia	Kaiser Permanente
Steve	Huck	CCHS - Emergency Medical Services
Marcelle	Indelicato	Contra Costa County Sheriff's Office
Saralinda	Jackson	Kaiser Permanente
Rhonda	James	Contra Costa Crisis Center
Matt	Kaufmann	CCHS - Hazardous Materials
Bruce	Kenagy	CCHS - Emergency Medical Services
Art	Lathrop	CCHS - Emergency Medical Services
Juleine	Latteri	CCHS - Emergency Medical Services

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Peter	Liddell	Red Cross
Daryl	Louder	Contra Costa County Fire Protection District
Nayla	McCarty	Contra Costa Crisis Center
Jim	Morrissey	Alameda County Emergency Medical Services
Leslie	Mueller	American Medical Response
Linda	Mulgrew	American Medical Response
David	NG	Kaiser Permanente
Willow	Padilla	American Medical Response
Julianne	Reed	CCHS - Public Health
Dawn	Reis	Kaiser Permanente
Susan	Roseberry	Contra Costa County Sheriff's Office
Randy	Sawyer	CCHS - Hazardous Materials
Tony	Semenza	Community Awareness & Emergency Response
Kristina	Spurgeon	Kaiser Permanente
Oliver	Symonds	CCHS – Community Education & Information
Seth	Thomas	Doctors Medical Center - San Pablo
Heather	Tiernan	Contra Costa County Warning System
Merlin	Turner	Richmond Fire Department
Rafael	Vargas	CCHS - Emergency Medical Services
Kathi	Volpe	Doctors Medical Center - San Pablo
William	Walker	Contra Costa Health Services
Steve	Warne	Contra Costa County Sheriff's Office
Debi	Yeager	Contra Costa County Sheriff's Office
Dan	Zoellner	John Muir Health

6.6 Glossary of Abbreviations

AMR – American Medical Response ambulance service

BAAQMD – Bay Area Air Quality Management District

CAER – Community Awareness & Emergency Response

CCHS – Contra Costa Health Services

CFD – Chevron Fire

CEI – Community Education and Information Division of CCHS

CWS – Community Warning System

DOC – Departmental Operations Center

EMS – Emergency Medical Services Division of CCHS; also used generically to refer to emergency medical service responders including fire, ambulance, hospital emergency services.

EOC – Emergency Operations Center.

HAvBed – Hospital Available Bed reporting system

HazMat – Hazardous Materials Programs Division of CCHS

HICS – Hospital Incident Command System

ICS – Incident Command System

IRIS – Incident Reporting and Information System used by CCHS for internal incident tracking

JIC – Joint Information Center

MCI – Mutli-Casualty Incident as defined by the County Multi-Casualty Incident Plan maintained by EMS

MRC – Medical Reserve Corps

OES – Office of Emergency Services

PIO – Public Information Officer

RDMHC – Regional Disaster Medical/Health Coordinator designated by the State for each State OES region

ReddiNet – Computerized communication used by EMS, hospitals, and dispatch center for maintaining hospital status information and emergency communications

Region II – The northern California coastal counties comprising State OES Region II

SRVFPD – San Ramon Valley Fire Protection District

SIP – Shelter In Place