

**ATTACHMENT C**

Update to the 30 DAY FOLLOW-UP NOTIFICATION REPORT FORM  
CONTRA COSTA HEALTH SERVICES  
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|                                   |
|-----------------------------------|
| For CCHS Use Only:                |
| Received By: _____                |
| Date Received: _____              |
| Incident Number: _____            |
| Copied To: _____                  |
| Event Classification Level: _____ |

**ATTENTION:** Randall L. Sawyer  
Hazardous Materials Program Director  
Contra Costa Health Services Department  
4333 Pacheco Boulevard  
Martinez, CA 94553

**INCIDENT DATE:** August 6, 2012  
**INCIDENT TIME:** 6:30 PM  
**FACILITY:** Chevron U.S.A. Inc. Richmond Refinery

**PERSON TO CONTACT FOR ADDITIONAL INFORMATION:** Karen Draper  
**Phone Number:** (510) 242-1547

**PROVIDE ANY ADDITIONAL INFORMATION THAT WAS NOT INCLUDED IN THE 30-DAY REPORT WHEN THE 30-DAY REPORT WAS SUBMITTED, INCLUDING MATERIAL RELEASED AND ESTIMATED OR KNOWN QUANTITIES, COMMUNITY IMPACT, INJURIES, ETC.:**

**I. SUMMARY OF EVENT**

On August 6, 2012, a piping failure occurred in the #4 Crude Unit at the Chevron U.S.A. Inc. refinery in Richmond, CA. The failure involved an 8" carbon-steel atmospheric gas-oil pipe line from the atmospheric distillation tower.

The primary location of the fire was near P-1149 (C-1100 Atmospheric Column No. 4 Sidecut pump). At the time of the fire, Operations personnel were in the process of evaluating a reported leak with the assistance of Chevron Fire Department personnel.

The #4 Crude Unit distills crude oil into various fractions of different boiling ranges, each of which is then processed further in the other refinery processing units. The #4 Crude Unit at Richmond Refinery has both an Atmospheric Distillation column and a Vacuum Distillation column. This incident involved equipment associated with the Atmospheric Distillation column.

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The company's investigation into this incident is on-going. Some of the information in this report is preliminary.

**II. AGENCIES NOTIFIED, INCLUDING TIME OF NOTIFICATION****Primary:** Community Warning System (CWS):

- Level 3 CWS (shelter in place) activated at approximately 6:35 PM (which served as the initial notification to most of the agencies below)
- The shelter in place was lifted by Contra Costa County Hazardous Materials Programs (CCHMP) at 11:30 PM

**Secondary:** Subsequent notifications via telephone to the agencies below:

|  |                  |                                 |          |
|--|------------------|---------------------------------|----------|
| State of Emergency Services                                      | Bob McRae        | 800-852-7550 or<br>916-845-8911 | 6:53 PM  |
| National Response Center (NRC)                                   | Garther          | 800-424-8802                    | 6:59 PM  |
| Contra Costa Hazardous Materials Program (CCHMP)                 | Melissa Hagen    | 925-335-3200                    | 7:28 PM  |
| Bay Area Air Quality Management District (BAAQMD)                | Mr. Scott        | 415-749-4979                    | 7:33 PM  |
| Richmond Fire/ Police Central Dispatch                           | Dispatch         | 510-620-6933                    | 7:40 PM  |
| California Division of Occupational Safety and Health (Cal/OSHA) | Clyde Trombettas | 925-602-6517                    | 10:09 PM |

**III. AGENCIES RESPONDING, INCLUDING CONTACT NAMES AND PHONE NUMBERS:**

The list below does not include all representatives from the respective agencies

|  |                     |              |
|--|---------------------|--------------|
| Cal/OSHA   | Clyde Trombettas    | 925-602-2665 |
| CCHMP  | Trisha Asuncion     | 925-335-3200 |
| BAAQMD   | Jackie Huynh        | 415-749-4979 |
| OSPR- Dept. Fish & Game                                    | Bob Chedsey         | 707-864-4975 |
| U.S. EPA   | Scott Adair         | 415-947-4549 |
| Richmond Police Department                                 | Responding Officers | 510-233-1214 |
| U. S. Chemical Safety and Hazard Investigation Board (CSB) | Dan Tillema         | 303-236-8703 |

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### IV. EMERGENCY RESPONSE ACTION:

At or around 3:48 PM on August 6, 2012, an operator noticed a small leak from insulated piping on the C-1100 Atmospheric Distillation Column of the 4 Crude Unit. The operator immediately notified the Head Operator and Supervisor for the unit and initiated a dialogue regarding next steps and how to isolate the leak.

The standard practice of the Chevron Fire Department (CFD) is to respond to leaks, spills, and releases. In this instance, the CFD was notified at 4:02 PM that a leak had been discovered at the 4 Crude Unit. The CFD was asked to deploy a crew to the location as a precaution. The CFD arrived at the location between 4:07 PM and 4:09 PM and initiated air monitoring and assessment.

From 4:09 PM to 4:19 PM the rate of feed to the unit was reduced. Then, from 4:20 PM to 6:24 PM, Operations personnel, in conjunction with the CFD, investigated and assessed options. While the leak was being assessed, the CFD set up an engine and had two hose teams in place, one directed at the potential source of the leak and one directed at the personnel assessing the leak. At approximately 6:22PM, a small flash fire occurred on the insulated piping going to P-1149/A. The CFD and Plant Operators activated water spray and extinguished the small flash fire. At some point shortly before 6:25 PM, the size of the release abruptly increased. Between 6:25 PM and 6:28 PM, the order was given to shut down the unit. Around this time a white cloud was visible. At or around 6:32 PM, the fire that is the subject of this report and ongoing investigation ignited.

At 6:38 PM, a Community Warning System Level 3 alert was initiated by Chevron U.S.A. Inc. and the CWS alarm sounded. At or around this timeframe, both Petro-Chem Mutual Aid and Municipal Mutual Aid were called in for support. This included: Richmond Fire, El Cerrito Fire, Berkeley Fire, Contra Costa County Fire, Moraga/Orinda Fire, Hercules/Rodeo Fire, Phillips 66, Valero, Shell, Tesoro and Dow Fire. Also at or around this timeframe, a shelter-in-place order was issued for Richmond, San Pablo, and North Richmond. The shelter-in-place order advised residents to remain indoors until the fire was controlled. At 11:12 PM, the shelter-in-place order was lifted by CCHMP.

### V. IDENTITY OF MATERIAL RELEASED AND ESTIMATED OR KNOWN QUANTITIES:

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-To-Know Act (EPCRA) require reporting when a facility releases more than a "reportable quantity" of a hazardous substance. The reportable release thresholds are based upon EPCRA & CERCLA reporting requirements. There was a reportable quantity of sulfur dioxide released from the fire and the flaring associated with the fire.

As a result of our continuing investigation, emission calculations from flaring associated with the event have been refined and summarized below.

| Flare emissions (8/6 – 8/10)*       |                   |
|-------------------------------------|-------------------|
| Material Release                    | Quantity Released |
| Vent Gas Volume                     | 8,021,389 SCF     |
| Sulfur Dioxide (SO <sub>2</sub> )   | 8,772 pounds      |
| Methane                             | 1,713 pounds      |
| Non-Methane Hydrocarbon             | 3,794 pounds      |
| Hydrogen Sulfide (H <sub>2</sub> S) | 46 pounds         |
| Nitric Oxides (NO <sub>x</sub> )    | 937 pounds        |

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\* Flare emission data includes emissions from the initial release and from depressuring the unit through August 10, 2012

As a result of our continuing investigation, emissions calculations from the fire that were in excess of a reportable quantity have been refined and summarized below:

| Material Released                 | Quantity Released | Reportable Release Thresholds |
|-----------------------------------|-------------------|-------------------------------|
| Sulfur Dioxide (SO <sub>2</sub> ) | 2,017 pounds      | 500 pounds                    |

Emission estimates herein are based on currently available data and are subject to change based on further investigation and analysis.

**VI. METEOROLOGICAL CONDITIONS AT TIME OF EVENT:**

|                 |           |
|-----------------|-----------|
| Wind Speed      | 11.5 MPH  |
| Wind Direction  | 134° (SE) |
| Precipitation   | None      |
| Temperature (F) | 75°       |

**VII. DESCRIPTION OF INJURIES:**

The following employee injuries were associated with this incident (all were part of the emergency response):

- 1) Employee received minor burn to small area of the left ear
- 2) Employee received minor burn to left wrist
- 3) Employee suffered abdominal discomfort
- 4) Employee suffered respiratory irritation
- 5) Employee suffered blister to lower leg from boot wear
- 6) Employee suffered bruise to a finger

All employees received first aid onsite by the Chevron Fire Department and/or the onsite clinic. All employees returned to work on the same shift. There were no injuries to contractor personnel associated with this incident.

**VIII. COMMUNITY IMPACT:**

A shelter-in-place order was issued for Richmond, San Pablo, and North Richmond, which advised residents to remain indoors until the fire was controlled. According to the Contra Costa Health Services website, a large number of people sought medical attention at local emergency rooms (three individuals were admitted to the hospital). Most cases have been minor complaints of nose, throat or eye irritation or respiratory issues.

- a) Chevron U.S.A. Inc. has established a claims process to compensate community members for medical and property expenses incurred as a result of the incident. As of October 15, 2012, approximately 23,700 claims have been initiated, and Chevron U.S.A. Inc. intends to compensate the affected community members with valid claims.

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b) On August 6, 2012, seventeen (17) direct-reading samples were taken using an Industrial Scientific MX6 iBrid multi-gas monitor. The data from these samples confirms that concentrations for Hydrogen Sulfide (H<sub>2</sub>S), Sulfur Dioxide (SO<sub>2</sub>) and Carbon Monoxide (CO) were below detectable limits (<0.1ppm, <0.1ppm, and <1ppm respectively). Additionally, nineteen (19) grab samples were collected in Tedlar bags in various downwind locations in Richmond, California, El Sobrante, California, and El Cerrito, California. These samples were sent for analysis of sulfur compounds and hydrocarbons to Air Toxics Ltd., a laboratory specializing in the analysis of air using a wide variety of methods. All results from these samples were well below both the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) Reference Exposure Levels and California Occupational Safety and Health Administration (Cal/OSHA) Permissible Exposure Limits.

Follow-up community monitoring was conducted by Chevron U.S.A. Inc. at various locations throughout Richmond, California on August 7-8, 2012. Twenty (20) direct-reading air samples were taken during this timeframe using an Industrial Scientific MX6 iBrid multi-gas monitor. The data from these samples also confirms that concentrations of Hydrogen Sulfide (H<sub>2</sub>S), Sulfur Dioxide (SO<sub>2</sub>) and Carbon Monoxide (CO) were below detection limits (<0.1ppm, <0.1ppm, and <1ppm respectively). In addition, six (6) grab samples were collected in Tedlar bags during this timeframe at various locations in Richmond, California and were sent to Air Toxics Ltd Laboratory for analysis of sulfur compounds and hydrocarbons. Consistent with the above-referenced findings, all results from these samples were well below the OEHHA Reference Exposure Levels and Cal/OSHA Permissible Exposure Limits. Please note, however, that the laboratory detection limit for Acrolein is higher than the OEHHA Reference Exposure Limit.

c) Fence-line monitoring: Continuous monitoring data is gathered around the clock from instrumentation located at Chevron's Office Hill, Castro Street and Gertrude Street monitoring stations. A data point, close to or prior to the incident, is employed as a reference. The following maximum readings were recorded between the times the fire ignited and the time all-clear was called by CCHMP (between 6:30 PM and 11:31 PM on August 6, 2012). As reflected in the table below, none of the maximum readings exceeded Cal/OSHA's Permissible Exposure Limits (PELs).

Permissible Exposure Limits (PELs). Maximum Concentration Readings

|  | Cal/OSHA<br>PEL | Castro Street | Office Hill | Gertrude Street |
|--|-----------------|---------------|-------------|-----------------|
| H <sub>2</sub> S (ppb) Background at 3:00 PM | 10,000 ppb      | 3.04 ppb      | 3.99 ppb    | 2.09 ppb        |
| H <sub>2</sub> S (ppb) Max.                  | 10,000 ppb      | 3.27 ppb      | 5.41 ppb    | 2.51 ppb        |
| SO <sub>2</sub> (ppm) Background at 3:00 PM  | 2 ppm           | 0.006 ppm     | 0.003 ppm   | 0.002 ppm       |
| SO <sub>2</sub> (ppm) Max.                   | 2 ppm           | 0.007 ppm     | 0.006 ppm   | 0.002 ppm       |

Note: The Cal/OSHA PEL are concentrations averaged over an 8-hour period.

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**IX. INCIDENT INVESTIGATION RESULTS:**

Chevron U.S.A. Inc. promptly initiated an investigation of the incident using the TapRoot® methodology. The investigation team is composed of Subject Matter Experts (SMEs) as well as operations personnel, management personnel and representatives of the United Steel Workers. The investigation Team Leader and the investigation Facilitator are Chevron U.S.A. Inc. personnel external to the Richmond Refinery. The investigation is on-going.

**X. SUMMARIZE INVESTIGATION RESULTS BELOW OR ATTACH COPY OF REPORT:**

The investigation is not complete. Chevron U.S.A. Inc. is working with multiple governmental agencies, including the CSB and Cal/OSHA with respect to evidence identification and collection. Protocols for the removal and testing of relevant evidence have been agreed upon and subsequently, a five foot section of the affected piping system was sent for metallurgical analysis on September 10, 2012. The results of this testing are among the information necessary for the investigation team to complete its work. Chevron U.S.A. Inc. will provide updates to CCHMP as required until the investigation is concluded.

**XI. SUMMARIZE PREVENTABLE MEASURES TO BE TAKEN TO PREVENT RECURRENCE INCLUDING MILESTONE AND COMPLETION DATES FOR IMPLEMENTATION**

Since the company's investigation is ongoing, the company is currently unable to identify or summarize all measures to prevent a recurrence. The company has taken the following measures, however:

Chevron U.S.A. Inc. shared some potentially significant preliminary information regarding the incident through an industry-wide alert issued on September 26, 2012. The alert noted that an area of interest in Chevron U.S.A. Inc.'s investigation of the incident is whether the pipe failure resulted from general thinning of the five-foot piping component.

Acting on this preliminary information, Chevron U.S.A. Inc. is in the process of inspecting all components in certain carbon-steel piping systems potentially subject to high-temperature sulfidation corrosion.

**XII. ADDITIONAL INFORMATION. DETAILED EVENT TIMELINE, CORRESPONDENCE, RELEVANT HISTORY OF INCIDENTS WITH SIMILAR EQUIPMENT OR PROCEDURES:**

The detailed event timeline is still under development as part of the incident investigation. All required information will be provided upon completion and submittal of the investigation report.