ATTACHMENT C
30 DAY FOLLOW-UP NOTIFICATION REPORT
CONTRA COSTA HEALTH SERVICES

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: January 15, 2007
INCIDENT TIME: 05:18 hrs
FACILITY: Chevron Richmond Refinery

PERSON TO CONTACT FOR ADDITIONAL INFORMATION: Matt Brennan
Phone Number: (510) 242-1862

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 January 15, 2007, at 5:18AM, a fire occurred at the #4 Crude Unit when a thinned carbon steel section of the 4 inch diameter wash oil swing-out spool connected to the discharge of vacuum column bottoms pump (P-1165A) failed releasing a mixture of wash oil*, vacuum gas oil (VGO), and vacuum resid. Metallurgical testing and analysis indicate a small section of the swing-out pipe spool was thinned by sulfidation corrosion, which requires certain process conditions (temperature, sulfur, and time) to occur. The thinned section was just beyond the 5 Chrome piping off the discharge of the pump. The fire resulted in additional equipment damage, including the overhead fin fan exchangers (E-1100's). For safety reasons (to not accumulate quantities of unburned fuel) several small fires continued in a controlled manner until 14:14 PM.

*Wash oil is basically diesel fuel that is used to remove heavier crude oil residue from the internals of equipment in preparation for equipment clean-up and maintenance.

II. AGENCIES NOTIFIED, INCLUDING TIME OF NOTIFICATION

Primary: Community Warning System (CWS):

a. Level 2 issued by the Richmond Refinery at 05:22 hrs
b. Level 3, sirens activated by the Richmond Refinery at 05:30 hrs
c. All-clear issued by CCHS at 08:40 hrs

Secondary: Additional notifications via telephone to the agencies below and others

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

The list below includes the primary contacts from the respective agencies:

Cal/OSHA Inspector	Mr. Tom Johnston	(925) 348-3163
RPD Chief	Mr. Chris Magnus	(510) 323-3306
RFD Chief	Mr. Michael Banks	(510) 307-0831
CCHS HazMat Pgm. Asst. Director	Mr. Steve Morioka	(925) 646-2286
ECFD Chief	Mr. Maples	(510) 215-5540
BAAQMD Engr.	Mr. Bill Hammell	(510) 749-4605

IV. EMERGENCY RESPONSE ACTION:

- Chevron Fire Department notified at approx. 05:20
- Plant Operators activated water spray on fire prior to 05:22
- Chevron Fire Department personnel on-scene at approx. 05:22
- Responding organizations included Chevron Fire Department, Chevron Fire Brigade members and Richmond and El Cerrito Fire Departments. Petro-Chemical mutual aid was provided by Valero, Shell, Tesoro and Dow.
- A total of five (5) alarms were dispatched in response to this event and the Community Warning System was activated at Levels 2 and 3.

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. No materials released exceeded these reporting thresholds.

Final calculations of the total materials released are noted below, which are a result of the materials combusted during the fire:

Material Released	**Quantity Released**	**Reportable Release Thresholds**	**CAS Number**	**MSDS Number**
Sulfur Dioxide (SO_2)	377 pounds	500 pounds	7446-09-5	CVX - 584
Nitric Oxides (NOx)	34 pounds	1,000 pounds	10102-43-9	CVX -11185
Sulfuric Acid (H_2SO_4)	6 pounds	1,000 pounds	7664-93-9	GC-V01011
Hydrogen Sulfide (H_2S)	2 pounds	500 pounds	7783-06-4	CVX - 301

VI. METEROLOGICAL CONDITIONS AT TIME OF EVENT:

Wind Speed	8 MPH
Wind Direction	75° (E to W)
Precipitation	None
Temperature (F)	43°
Stability Class	E

VII. DESCRIPTION OF INJURIES:

One employee was treated for minor burns by the Chevron Fire Department and an outside hospital. That employee was released to return to work on the same day. Another employee received on-site treatment for a minor skin irritation and returned to work on the same day as well.

VIII. COMMUNITY IMPACT:

a) On the day of the incident, Chevron received eleven (11) calls from the public.

b) Sampling data and community monitoring results:
All air samples taken during the incident indicate there was no evidence of adverse air quality, and hence, we would not expect adverse health impacts to have resulted from the incident. All sulfur and VOC compound analytical results were below: (1) Reportable release thresholds, (2) Cal/OSHA's Permissible Exposure Limits (PELs)[1], and (3) California OEHHA/ARB chronic inhalation Reference Exposure Levels (RELs)[2]. Therefore, emissions from the incident were well under both worker and community health exposure limits.

Four (4) Chevron employees were immediately deployed outside of the refinery to manually take air monitoring samples at various locations downwind of the fire using direct-reading instrumentation. The manual monitoring continued throughout the incident. All 31 direct-reading samples showed non-detectable concentrations of Hydrogen Sulfide (H2S), < 0.1 ppm. Sulfur Dioxide (SO2), < 0.1 ppm, and benzene < 0.1 ppm.

In addition to the direct reading instrument monitoring, Chevron personnel used Tedlar bags to gather a total of 11 air samples downwind of the refinery on the day of the fire. These samples were analyzed for sulfur and VOC compounds, the results are summarized below:

Testing for sulfur was performed using ASTMD-5504 method testing for 20 sulfur compounds. Only one compound, Carbonyl Sulfide was found above the detection limit. The lab indicated interference from the Tedlar bags may contribute, in whole or in part, to the positive results of Carbonyl Sulfide.

Testing for Volatile Organic Compounds (VOCs) was performed using EPA method TO-14A GC/MS Full Scan for 62 VOC compounds. Only five (5) compounds were detected above the detectable limits.

NOTES:
[1] OSHA sets enforceable permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air.

[2] The California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Limits (RELs) set airborne levels that would pose no significant health risk to individuals exposed continuously to that level. These limits are set to protect people living in communities surrounding such releases.

c) Fence line monitoring:

The Refinery utilized the BAAQMD required continuous monitoring data from instrumentation located at the Refinery's High Hill, Office Hill and Gertrude Street monitoring stations. Data points are given close to or prior to the incident as a reference. The following maximum readings were recorded between the times the fire started and the time all-clear was called by CCHS. All readings were well below: (1) Reportable release thresholds, (2) Cal/OSHA's Permissible Exposure Limits (PELs) and (3) California OEHHA/ARB chronic inhalation Reference Exposure Levels (RELs). Therefore, emissions from the incident were well under both worker and community health exposure limits.

	High Hill	Office Hill	Gertrude Street	OSHA 8 hour limit (PEL)	Chronic REL
H2S	4 ppb @ 05:18	2 ppb@ 05:18	1 ppb @ 05:18	10,000 ppb	400 ppb
H2S	56 ppb @ 06:39	3.5 ppb @ 07:30	2 ppb @ 07:37	10,000 ppb	400 ppb
S02	Station does not monitor	Non-detectable - <1 ppb	Non-detectable - <1 ppb	2,000 ppb	4 ppb

Note: The Cal/OSHA 8 hour PEL for SO_2 is 2,000 ppb (2 ppm) averaged over an 8-hour period. The Cal/OSHA PEL for H_2S is 10,000 ppb (10 ppm) averaged over an 8-hour period.

d) CCHS Monitoring:

In addition to the sampling and monitoring conducted by Chevron, CCHS gathered 3 ambient air samples during the incident and had them analyzed for VOCs. All results were characterized as at or near typical background levels.

IX. INCIDENT INVESTIGATION RESULTS:

The investigation to determine the cause of the incident has concluded. The team was composed of a Chevron third party team leader (non-Richmond Refinery employee), a Chevron third party facilitator (non-Richmond Refinery employee), Subject Matter Experts (SMEs) for analytical testing of equipment as well as Refinery operations and management personnel and two USW Union representatives. Additional SMEs were brought into the investigation on an as needed basis.

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

The investigation has concluded. The investigation team has determined there were 2 causal factors for this incident:

Causal Factor #1: A swing-out pipe for wash oil to the discharge of vacuum resid pump P-1165A has been connected for a lengthy period of time (20+ years).

Background: The pipe for connecting wash oil to the discharge of P-1165A is a swing-out type spool, which is intended to be connected to the P-1165A discharge line during maintenance or unit cleanup on shutdowns. Leaving the carbon steel swing-out spool connected to the discharge of P-1165A allowed exposure to process conditions. Metallurgical testing and analysis indicate the wash oil swing-out spool was thinned by high temperature sulfidation corrosion.

Causal Factor #2: Seats missing in 4 inch gate valve at the wash oil connection off the discharge of P-1165A. The missing seats allowed the full pump discharge pressure (approximately 350 psig) into the wash oil swing-out spool causing the failure of the thinned section of pipe.

Background: The missing seats are believed to have contributed to process conditions that allowed sulfidation corrosion and thinning to occur. The investigation team was unable to determine if the gate valve was originally installed without seats or if they were later removed during maintenance. The team determined that the seats were not missing due to corrosion or mechanical failure.

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

The following corrective actions have been implemented:

Corrective Actions for Causal Factor #1:

- P-1165A and swing-out spools in similar service within #4 Crude Unit have been modified with upgraded metallurgy, as an inherently safer protection. - Complete

Corrective Actions for Causal Factor #2:

- P-1165A gate valve was replaced. - Complete
- As a precaution, similar gate valves in # 4 Crude Unit were replaced with modern technology - Complete

NOTE: Consideration of additional PSM process improvements and system-wide corrective actions is ongoing and once identified, will be included in the final report which Chevron anticipates will be completed by April 15th 2007.

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

The detailed event timeline is presented in Sections I through IV. The rest of the requested information is being gathered as part of the investigation and will be provided upon completion of the investigation report.