

TH, DV, NA, SH, MPD, TMA, SD

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CONTRA COSTA
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HAZARDOUS MATERIALS PROGRAMS

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CONTRA COSTA HEALTH SERVICES

COMPLAINT, INCIDENT, AND NOTIFICATION REPORT FORM

Type (Circle One): C I N

Received Date: 8/13/16 Received Time: _____ Received By: TH Lead: _____

Incident Date: _____ Incident Time: 1258 Assigned to: _____ Assigned Date: _____

CASE NUMBER: 16-08-13 -01

COMPLAINANT / REPORTING PARTY:

Name: _____ RP is from Facility Anonymous

Organization: stell Martinez

Primary Phone Number: 925 313-3060 Secondary Phone Number: _____

Email: _____

Address: Pacheco

City: Martinez State: CA Zip Code: _____

FACILITY / LOCATION OF INCIDENT:

Name: Same As Above CUPA Facility I.D.: _____

Phone Number: _____

Address: _____ Unit: _____

City: _____ State: _____ Zip Code: _____

Location Description: _____

INITIAL INCIDENT DESCRIPTION:

stell level of reported

INCIDENT TYPE / DESCRIPTION:

Community Warning System Level (Circle Highest Level): N/A 0 1 2 3 actual

FACILITY	ISO / MCAR	TRANSPORTATION	MISCELLANEOUS
<input type="checkbox"/> Fire or Explosion	<input type="checkbox"/> Fatality (one or more)	<input type="checkbox"/> Tank Truck	<input type="checkbox"/> Storm Drain/Creek
<input type="checkbox"/> Spill or Release	<input type="checkbox"/> > 24 hrs. Hospital, 3 or more people	<input type="checkbox"/> Railroad	<input type="checkbox"/> Drug Lab
<input type="checkbox"/> Startup or Shutdown	<input type="checkbox"/> Flammable Vapor Cloud > 5,000 lbs.	<input type="checkbox"/> On Water	<input type="checkbox"/> Disposal/Abandonment
<input checked="" type="checkbox"/> Flaring		<input type="checkbox"/> Pipeline	<input type="checkbox"/> Odor Complaint
<input type="checkbox"/> Upset		<input type="checkbox"/> Fuel Tank	<input type="checkbox"/> Other:

Time Enroute to Scene: _____ Time Arrived On Scene: _____ Time Departed From Scene: _____

REFERRED TO OTHER AGENCY:

DTSC STATE FUNDING (if applicable):

CLU/ERER Number: _____

STORMWATER STATUS (if applicable):

Actual Discharge Potential Discharge



①

AGENCIES ON SCENE OR NOTIFIED:

<u>Agency Type</u>	<u>Agency</u>	<u>O/N</u>	<u>Contact Person</u>	<u>Phone Number</u>	<u>Case Number</u>
Fire Department	Can Fire		Pete Marshall		
Law Enforcement					
Air District					
State OES					
shell	shell		Lynley Harris	925 313-3060	

REPORT:

See attached Typed
Report for All
Details.

Additional Required Items: Bill of Lading, Request for Invoice, and Site Safety Plan

Report Prepared by:



IR 16-08-13-01

August 13, 2016

On-call Team: TH, DV, NU, SH, MPD, TMA, SD

1258 hours: Shell reports Level 0 sulfur dioxide release. Shift super states no offsite consequences.

See attachment #4 for summary of event.

1337 hours: SO Dispatch reports numerous phone calls about a strong sulfur smell in the vicinity of Treat BLVD and Clayton Road. A couple of calls came in prior to this from the vicinity adjacent to the south of shell facility. Reported that Con Fire Engine Co. was pursuing odor.

Made contact with Con Fire's Pete Marshall (925 383-5049). He explained his Agency's efforts to locate to no avail.

Wind direction from Shell Martinez consistent with odor complaints.

6814 and private vehicles Dispatched to investigate and coordinate with ConFire.

1402 Hours: Hazmat Paged by 925 783-2465. This is private cell # of Lynley Harris of Shell Martinez. She reported a RQ of Sulfur Dioxide. Start 1223, stop 1249.

This is the point that the source of the Incident became clear and consistent with the odor complaints.

1402-1700 Hours: Hazmat continues to investigate and monitor, while coordinating with Dispatch, Con Fire, and the Facilities RTL Team.

1700 Hours: 6814 departed Shell Martinez for Hazmat. No additional odors detected or complaints from the public.

1800 hours: 6814 refurb complete and Specialist travel complete.

SEE ATTACHED:

- 1) Incident Form
- 2) OES Control #16-4943
- 3) Shell retraction of SO₂ release. Dated 8-24-16
- 4) J-168 Flaring Event Tech Study. Dated 9-8-2016
- 5) Shell 30 day report letter. Dated 9-13-16
- 6) Request for billing.

Follow Up:

See attachment 3 "retraction of reported SO₂ release"

Issues to Consider:

- 1) What is the interaction in the Facility thought process with regards to issuing a level (0,1,2,3) and the anticipated (yet to be calculated exactly) release amount in relation to the RQ?

- 2) In this case, 253 lbs. of SO₂ caused significant complaints from the community. The RQ is 500 lbs. It appears that Facilities, in general, are using the threshold reporting criteria as the trigger for a level 0. This Incident was reported by Shell as a level 0, at which time they believed they had exceeded the RQ. If they knew it was so much less than the RQ would they have still activated the CWS?
- 3) Do the RQ's need to be reevaluated?
- 4) **Does the CCC Hazmat Notification Policy need revision?**



Hazardous Materials Spill Report: Cal OES Control #:16-4943
Warning Center to: ccchazmat

08/13/2016 01:46 PM

History:

This message has been forwarded.

Governor's Office of Emergency Services
Hazardous Materials Spill Report

DATE: 08/13/2016 | RECEIVED BY Cal OES: | Cal OES CNTRL #:16-4943
TIME: 1341 | RECEIVED BY OSPR: | NRC#:

1.a. PERSON NOTIFYING Cal OES

1. NAME: Lynley Harris | 2. AGENCY: Shell Martinez Refinery
3. PHONE #: 925-783-2465 / 925-313-3777 | 4. EXT: | 5. PAGER #:

1.b. PERSON REPORTING SPILL (If different from above):

1. NAME: | 2. AGENCY:
3. PHONE #: | 4. EXT: | 5. PAGER #:

2. SUBSTANCE TYPE:

a. SUBSTANCE: / b.QTY: / Amount / Measure / c. TYPE / d. OTHER / e.
PIPELINE / f. Vessel Over => 300 tons

1. SOX / > / 500 / Lbs. / VAPOR / / No / No

2.

3.

g. DESCRIPTION: RP states that they believe that the refinery has exceeded the RQ of 500 lbs of SOX due to a flaring event. The refinery continues to operate.

h. CONTAINED: Yes | i. WATER INVOLVED: No

j. WATERWAY: | k. DRINKING WATER IMPACTED: No

l. KNOWN IMPACT: None

3.a. INCIDENT LOCATION: 3485 Pacheco Blvd

b. CITY: Martinez | c. COUNTY: Contra Costa County | d. ZIP:

4. INCIDENT DESCRIPTION:

a. DATE: 8/13/2016 | b. TIME(Military): 1223 | c. SITE: Refinery
| d. CAUSE: Other Reason for Other: flaring

e. INJURIES: No | f. FATALITY: No | g. EVACUATIONS: No | h.
CLEANUP BY: Unrecoverable

e. INJURIES #: | f. FATALS #: | g. EVACS #:

5. SUSPECTED RESPONSIBLE PARTY:

a. NAME: Lynley Harris | b. AGENCY: Shell Martinez Refinery

c. PHONE#: 925-783-2465 / 925-313-3777 | d. EXT:

e. MAIL ADDRESS: 3485 Pacheco Blvd

f. CITY: Martinez | g. STATE: CA | h. ZIP:

6. NOTIFICATION INFORMATION:

(2)

a. ON SCENE: | b. OTHER ON SCENE:
c. OTHER NOTIFIED:
d. ADMIN. AGENCY: Contra Costa County Health Services Department
e. SEC. AGENCY:
f. ADDITIONAL COUNTY: | g. ADMIN. AGENCY:
h. NOTIFICATION LIST: DOG Unit: | RWQCB Unit: 2

AA/CUPA, DFG-OSPR, DTSC, RWQCB, US EPA, USFWS, AIR RESOURCES BD

CONFIDENTIAL REMARKS:

Created by Warning Center on 8/13/2016 1:41:38 PM Last
Modified by Warning Center on 8/13/2016 1:45:37 PM

California State Warning Center
Governor's Office Emergency Services
Phone: (916) 845-8911
Warning.Center@oes.ca.gov

Link to Spill Report:

https://urldefense.proofpoint.com/v2/url?u=http-3A_w3.calema.ca.gov_operation_al_malhaz.nsf_SpillAllDocs_3B8A212FC30C45128825800E0071ACD1-3FOpenDocument&d=CwIBAg&c=VbbQuzWQQb42ogS3R1ZU_L1SLDEQBDhprl4-G3ChIcw&r=xdD7oupitUaubWHxd2cL708ea-OrhRgJZjanu0KhUCc&m=5pjr4yagV4zfYfBo4Yp0oN00HVp600gOd_7kyZQggOE&s=PytE_90AU4vu42Z13FYjw_zAhzuNc0NrleH2qRRxBqA&e=

110-08-13-01



Shell Oil Products US

Martinez Refinery
PO Box 711
Martinez, CA 94553-0071

August 24 , 2016

RECEIVED
AUG 26 2016
Contra Costa Health
Hazardous Materials

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Contra Costa Health Services Department
ATTENTION: Randall L. Sawyer
Hazardous Materials Programs Director
4585 Pacheco Boulevard, Suite 100
Martinez, CA 94553

ATTENTION: Section 304 Reports
Chemical Emergency Planning and Response Commission (CEPRC)
Hazardous Materials Unit
3650 Schriever Avenue
Mather, CA 95655

RE: RETRACTION OF REPORTED SULFUR DIOXIDE RELEASE ON AUGUST 13, 2016

As required by section 2705(b) of Title 19 of the California Code of Regulations, the Chemical Emergency Planning and Response Commission and Contra Costa County's Hazardous Material Notification Policy, this is the written follow-up report regarding flaring at the Shell Oil Products US Martinez Refinery (Shell) on August 13 2016. The CR-ERNS Numbers are 1156156 for the National Response Center (NRC) and 16-4943 for the California Emergency Management Agency (Cal are-EMA).

An upset at the straight run hydrotreater caused it to vent to the flare to relieve pressure. Flaring began at 12:23 PM and continued for 28 minutes. Once flaring began, a possible exceedance of the 500 pound 24-hour reportable quantity (RQ) for sulfur dioxide was reported. Based on the measured flare volume and the flare gas H2S content, the actual SO2 released for this event was approximately 253 lbs. The RQ was not exceeded.

Please call Lynley Harris at (925) 313-3060 if you need additional information.

Sincerely,

Gordon Johnson
Manager, Environmental Affairs
Shell Oil Products US – Martinez Refinery

(3)



1.0 Summary of Event

At approximately 12:10 pm on August 13, 2016, an overhead pump at the straight run hydrotreater gasoline distillation column seized unexpectedly, causing the overhead accumulator to overflow liquid gasoline into the vent gas header and the vent gas compressor knock-out pot. The vent gas compressor tripped on a controlled protective function due to high liquid level in the knock-out pot and the vent gas line was subsequently flared for relief.

The spare overhead pump was started and levels returned to normal. The vent gas compressor was then restarted and flaring was stopped. The flaring lasted for approximately 26 minutes.

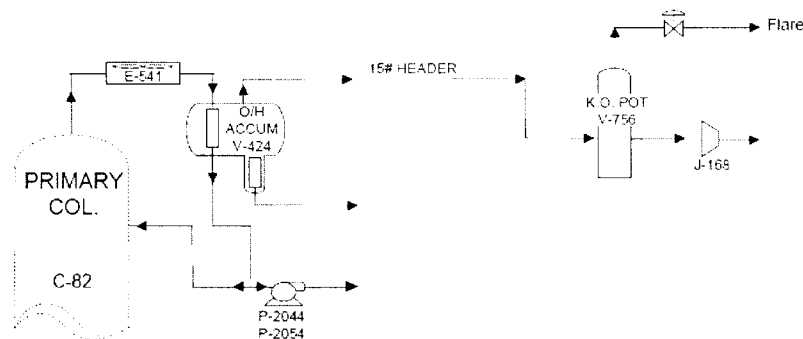
2.0 Impact

The pump trip caused a 26 minute flaring event and odor complaints from the surrounding community.

3.0 Process Background

The primary column (C-82) separates gasoline to diesel range hydrocarbons. The column overhead accumulator (V-424) stabilizes the column overhead liquid product by allowing vent gases to evolve to the 15# header before the liquid is pumped by overhead pumps P-2044 or P-2054 to a downstream process unit. The vent gas from the overhead accumulator is routed by the 15# header to the vent gas compressor knock-out pot (V-756) prior to being compressed through the vent gas compressor (J-168). The vent gas compressor has a controlled protective function to trip on high knock-out pot level to prevent liquid from going to the compressor. See process flow diagram below for details.

At approximately 12:21 pm J-168 tripped on a controlled protective function due to high liquid level in V-756. The increasing liquid level in the knock-out pot was caused by an overflow from the upstream overhead accumulator, V-424. The level in V-424 began to increase when overhead pump P-2054 tripped unexpectedly. At the time of the pump trip, the spare overhead pump (P-2044) was drained and blocked in due to a potential fugitive emission leak on a fitting of the seal flush tubing. After it was determined that the spare pump (P-2044) was safe to re-start, Operations started pump P-2044 and levels returned to normal.



Process Flow Diagram (PFD)

4



Shell
Martinez
Refinery

J-168 Flaring Incident

Level 1 Technical Study

Final

Date: 9/8/2016

4.0 Incident Timeline

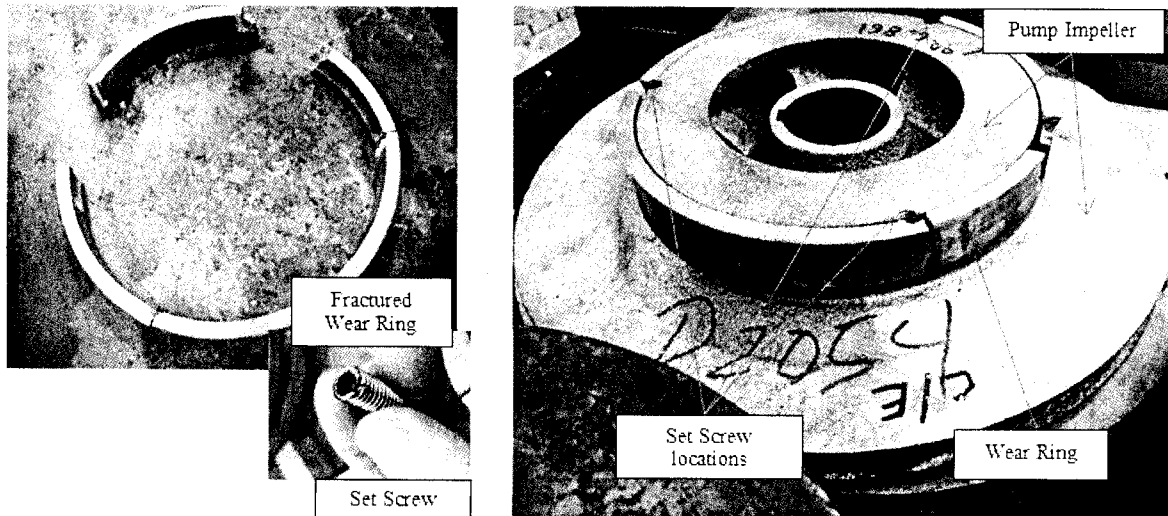
The times referenced below are approximations based on a variety of information sources. All times are reported in 24 – hour format.

Date	Time (24 hr)	Description of Event
5/31/16 - 6/14/16	--	P-2054 (Spare Pump) was overhauled. Scope included new pump shaft, mechanical seal repair, and bearing replacement. All other components met dimensional specification.
8/2/16 – 8/7/16	--	P-2044 (Main Pump) was observed to have a potential fugitive emission leak on a fitting of the seal flush tubing. P-2044 was drained, and blocked in for maintenance. P-2054 was put online.
8/13/16	11:59	Air cooler (E-541) was put online to decrease process temperature.
8/13/16	12:10	Pump P-2054 tripped on high amps
8/13/16	12:12	High Level Alarm in overhead accumulator V-424
8/13/16	12:15	Attempted to restart P-2054
8/13/16	12:18	High Level Alarm in J-168 knock-out pot (V-756)
8/13/16	12:21	J-168 tripped on high knock-out pot level and the 15# vent gas header was sent to the flare for relief
8/13/16	12:23	Flaring started
8/13/16	12:25	P-2044 was lined up and restarted (after it was determined safe to re-start)
8/13/16	12:28	V-424 level drops and is no longer in alarm
8/13/16	12:29	V-756 knock-out pot level was drained
8/13/16	12:30	2 odor calls came in from neighbors
8/13/16	12:43	J-168 was restarted
8/13/16	12:49	Flaring stopped

5.0 Causes of the Incident

The overhead pump (P-2054) tripped on high amps due to a resistance in the pump's forward rotation. The resistance to rotation was caused by friction between the impeller wear ring and the pump wear ring. The outer diameter of the impeller wear ring increased and touched off on the inner diameter of the pump case wear ring.

The pump's wear rings allow for small running clearances between the rotating impeller and stationary pump casing. The wear ring material is cast iron and is attached to the impeller by set screws. See photo below for reference. Cast iron is a common material in wear rings due to the material's resistance to galling.



P-2054 Impeller and Fractured Wear Ring

The impeller wear ring was found to be fractured at the set screw locations, as seen in the picture above. The causes of this incident were deduced basis visual inspection of the fractured wear rings, pump overhaul history and process conditions around the time of the incident.

The cause of the fracture was likely due to an existing crack in the wear ring at a set screw location. It is likely that a process temperature change caused the existing crack to propagate and the wear ring fractured Approximately 10 minutes prior to the overhead pump trip, an upstream air cooler (E-541) was actively placed online to decrease process temperature. The process temperature was decreased about 30°F and was operating within temperature limits.

The initial crack in the wear ring was likely due to the fact that the wear ring had been subject to thermal stresses over the life of the wear ring. Stress from thermal fatigue on the wear ring could be caused by pump start-up and shut-down activities or thermal fatigue could be caused by heat that was applied to the impeller, as part of common maintenance practice, for impeller removal from the shaft during pump overhauls.

The overhead pump (P-2054) was rebuilt with the existing impellers and a new shaft during the June 2016 overhaul. The pumps wear rings satisfied dimensional checks and visual inspections during the pump rebuild, and thus the pump was returned to service. Wear rings are left in place when visually inspected, however, making it difficult to identify cracks at the inner diameter of a set screw location.



Shell
Martinez
Refinery

J-168 Flaring Incident

Level 1 Technical Study

Final

Date: 9/8/2016

6.0 Recommendations

Recommendation	Responsible Manager or Individual	Estimated Completion
1. Non-destructively test (NDT) P-2054 pump wear rings during inspection after incident and determine whether wear rings are to be replaced with new.	CMD Shop Inspector	COMPLETED
2. Update P-2044 "Pump Inspection Work Scope Template" to include evaluation of cast iron wear rings for non-destructive testing or replacement with new	CMD Shop Inspector	3/30/2017
3. Update Mechanical Equipment Guidelines - 020 "Wear Rings in Centrifugal Pumps" to include verbiage regarding evaluation of cast iron set-screwed wear rings for NDT or to replace with new wear ring during pump inspection and repair.	Rotating Equipment Manager	3/30/2017