

General Information:

Date Submitted to UPA:

9/27/2019

Copy Sent to EPA (Yes/No):

Yes

Reason for Submittal:

e. Other (Specify, see §2745.10)

Cal ARP Program 4 Resubmittal

Section 1. Registration Information

1.1 Source Identification:

- a. Facility Name:
- b. Parent Company #1 Name:
- c. Parent Company #2 Name:

Valero Benicia Refinery
Valero Refining Company – CA

1.2 EPA Facility Identifier:

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1.3 Other EPA Systems Facility ID:

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1.4 Dun and Bradstreet Numbers (DUNS):

- a. Facility DUNS:
- b. Parent Company #1 DUNS:
- c. Parent Company #2 DUNS:

04-365-2424

1.5 Facility Location Address:

- a. Street 1:
- b. Street 2:
- c. City:
- d. State:
- e. Zip Code:
- f. County:

3400 East Second St
Benicia
CA
94510-1005
Solano

Facility Latitude and Longitude:

- g. Facility Latitude (dd.ddddd):
- h. Facility Longitude (ddd.ddddd):

38.074414
-122.144491

1.6 Owner or Operator:

- a. Name:
- b. Phone:

Valero Refining Company – CA
(707) 745-7011

Mailing Address:

- c. Street 1:
- d. Street 2:
- e. City:
- f. State:
- g. Zip Code:

3400 East Second St

Benicia
CA
94510-1005

1.7 Name and title of person or position responsible for CalARP Implementation:

- a. Name of person:
- b. Title of person or position:
- c. Email address:

Environmental Staff Engineer

1.8 Emergency Contact:

- a. Name:
- b. Title:
- c. Phone:
- d. 24-Hour Phone:
- e. Ext. or PIN:
- f. Email address:

Superintendent Emergency Services
(707) 745-7011
(707) 745-7011

1.9 Other Points of Contact:

- a. Facility or Parent Company E-mail Address:
- b. Facility Public Contact Phone Number:
- c. Facility or Parent Company WWW Homepage Address:

(707) 745-7534
www.valero.com

1.10 LEPC:

Region II

1.11 Number of full time employees on site:

450

1.12 Covered by (Yes/No):

- a. OSHA PSM:
- b. EPCRA 302:
- c. CAA Title V:
- If so, Air Operating Permit ID:

Yes
Yes
Yes
B2626

1.13 OSHA Star or Merit Ranking (Yes/No):

Yes

1.14 Last Safety Inspection Date (by an External Agency):

9/23/2019

1.15 Last Safety Inspection Performed by an External Agency (who):

BAAQMD

1.16 Will this RMP involve Predictive Filing (Yes/No):

Yes

1.18 RMP Preparer Information (if done by a third party):

- a. Name:
- b. Telephone:
- c. Street 1:
- d. Street 2:
- e. City:
- f. State:
- g. Zip:

Section 1.17 Processes:

(This section is applicable to all Stationary Sources regardless of covered process program level)

a. Process ID#:	1000075454
Program Level:	4
Process Name:	Tank Storage
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Pentane	109-66-0	
Propane	74-98-6	
Ethyl mercaptan [Ethanethiol]	74-98-6	
Ethane	74-84-0	
Methane	74-82-8	
Hydrogen	1333-74-0	
Ammonia (conc 20% or greater)	7664-41-7	
Sulfuric Acid	7664-93-9	

a. Process ID#:	1000008519
Program Level:	4
Process Name:	Alkylation/Dimersol
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Isobutane [Propane, 2-methyl]	75-28-5	
Pentane	109-66-0	
Methane	74-82-8	
Propane	74-98-6	
Ammonia (Anhydrous)	7664-41-7	
H2SO4 w/Flammables	7664-93-9	

Section 1.17 Processes:

a. Process ID#:	1000075456
Program Level:	4
Process Name:	Hydrocracker
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Ammonia (Anhydrous)	7664-41-7	
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Hydrogen Sulfide	7783-06-4	

a. Process ID#:	1000075457
Program Level:	4
Process Name:	Mogas Reformulation Unit
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Hydrogen Sulfide	7783-06-4	<TQ

Section 1.17 Processes:

a. Process ID#:	1000075458
Program Level:	4
Process Name:	Pipestill/VLE
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Ammonia (conc 20% or greater)	7664-41-7	<TQ
Hydrogen Sulfide	7783-06-4	<TQ

a. Process ID#:	1000075459
Program Level:	
Process Name:	FCCU/CLE
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Hydrogen Sulfide	7783-06-4	
Ammonia (conc 20% or greater)	7664-41-7	<TQ

Section 1.17 Processes:

a. Process ID#:	1000075460
Program Level:	4
Process Name:	Ultra Low Sulfur Diesel
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Hydrogen Sulfide	7783-06-4	<TQ

a. Process ID#:	1000075461
Program Level:	4
Process Name:	Butamer
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Isobutane (Propane, 2-methyl)	72-28-5	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	

Section 1.17 Processes:

a. Process ID#:	1000085462
Program Level:	4
Process Name:	Coker
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	
Hydrogen Sulfide	7783-06-4	<TQ

a. Process ID#:	1000075463
Program Level:	4
Process Name:	Cat Feed
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Isobutane (Propane, 2-methyl)	72-28-5	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	
Hydrogen Sulfide	7783-06-4	<TQ

Section 1.17 Processes:

a. Process ID#:	1000075464
Program Level:	4
Process Name:	NRU
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Isobutane (Propane, 2-methyl)	72-28-5	
Methane	74-82-8	
Pentane	109-66-0	
Propane	74-98-6	

a. Process ID#:	34
Program Level:	4
Process Name:	Sulfur Gas Unit SGU / MEA / TGU / FLX
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Hydrogen Sulfide	7783-06-4	
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	
Hexane	110-54-3	
Ammonia (Anhydrous)	7664-41-7	<TQ

Section 1.17 Processes:

a. Process ID#: Utilities Storage H2SO4 (already accounted for and listed in Process 1)

Program Level: 4

Process Name: Misc Ancillary Utilities and Processes

b. NAICS Code:

Number: 32411

Description: Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Sulfuric Acid - TK2712 Already Accounted for in Process 1	7664-93-9	
Hydrogen Sulfide	7783-06-4	<TQ
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	
Hexane	110-54-3	

a. Process ID#: Refinery Units <TQ

Program Level: 4

Process Name: H2U A

b. NAICS Code:

Number: 32411

Description: Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	

Section 1.17 Processes:

a. Process ID#:	Refinery Units <TQ
Program Level:	4
Process Name:	H2U B
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	

a. Process ID#:	Refinery Units <TQ
Program Level:	4
Process Name:	WWT
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	<TQ
Hydrogen	1333-74-0	<TQ
Isobutane [Propane, 2-methyl]	75-28-5	<TQ
Isopentane	78-78-4	<TQ

a. Process ID#:	Refinery Units <TQ
Program Level:	4
Process Name:	Asphalt Plant
b. NAICS Code:	
Number:	32411
Description:	Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	<TQ
Hydrogen Sulfide	7783-06-4	<TQ

Section 1.17 Processes:

a. Process ID#:

Refinery Units <TQ

 Program Level:

4

 Process Name:

Cogeneration

b. NAICS Code:
 Number:

32411

 Description:

Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
Flammable Mixture	00-11-11	<TQ
CHEMICALS IN MIXTURE		
Butane	106-97-8	
Ethane	74-84-0	
Hydrogen	1333-74-0	
Pentane	109-66-0	

a. Process ID#:

Refinery Units <TQ

 Program Level:

4

 Process Name:

Flue Gas Scrubber

b. NAICS Code:
 Number:

32411

 Description:

Petroleum Refineries

c. Process Chemicals: (add more rows as necessary)

c.1 Process Chemical (ID/Name)	c.2 CAS No.	c.3 Qty (lbs)
NA		

Section 2. Toxics: Worst Case

(Complete this section if the Stationary Source has regulated toxic substances)

Toxics: Worst Case ID:

Aqueous Ammonia Storage Tank 1943

2.1 a. Chemical Name:

Ammonia (aqueous)

b. Percent weight of chemical (if in a mixture):

30

2.2 Physical State:

Liquid

2.3 Model Used:

EPA's RMP*Comp™

2.4 Scenario Description:

Aqueous Ammonia Storage Tank 1943 Liquid Spill and Vaporization

2.5 Quantity Released (lbs):

2.6 Release Rate (lbs/min):

2.7 Release Duration (min):

10

2.8 Wind Speed (m/s):

1.5

2.9 Atmospheric Stability Class:

F

2.10 Topography (Urban/Rural):

Urban

2.11 Distance to Endpoint (miles):

1.6

2.12 Estimated residential population within distance to endpoint:

15,078

2.13 Public receptors within distance to endpoint:

- a. Schools (Yes/No):
- b. Residences (Yes/No):
- c. Hospitals (Yes/No):
- d. Prison/Correction Facilities (Yes/No):
- e. Recreation Areas (Yes/No):
- f. Major Commercial, Office or Industrial Areas (Yes/No):
- g. Other (Specify):

Yes
Yes
No
No
Yes
Yes

2.14 Environmental receptors within distance to endpoint:

- a. National or state parks, forests, or monuments (Yes/No):
- b. Officially designated wildlife sanctuaries, preserves, or refuges (Yes/No):
- c. Federal wilderness area (Yes/No):
- d. Other (Specify):

No
No
No

2.15 Passive Mitigation Considered:

- a. Dikes (Yes/No):
- b. Enclosures (Yes/No):
- c. Berms (Yes/No):
- d. Drains (Yes/No):
- e. Sumps (Yes/No):
- f. Other (Specify):

No
No
No
No
No

2.16 Graphics file name (if included):

No

Section 3. Toxics: Alternative Release

(Complete this section if the Stationary Source has regulated toxic substances subject to Program 2, 3 or 4 requirements)

Toxics: Alternate Release ID:

Hydrocracker

3.1 a. Chemical Name:

Ammonia (anhydrous)

b. Percent weight of chemical (if in a mixture):

30

3.2 Physical State:

Liquid

3.3 Model Used:

EPA's RMP*Comp™

3.4 Scenario Description:

Hydrocracker Transfer Hose Failure

3.5 Quantity Released (lbs):

3.6 Release Rate (lbs/min):

3.7 Release Duration (min):

15

3.8 Wind Speed (m/s):

3

3.9 Atmospheric Stability Class:

F

3.10 Topography (Urban/Rural):

Urban

3.11 Distance to Endpoint (miles):

0.5

3.12 Estimated residential population within distance to endpoint:

0

3.13 Public receptors within distance to endpoint:

a. Schools (Yes/No):

No

b. Residences (Yes/No):

No

c. Hospitals (Yes/No):

No

d. Prison/Correction Facilities (Yes/No):

No

e. Recreation Areas (Yes/No):

No

f. Major Commercial, Office or Industrial Areas (Yes/No):

No

g. Other (Specify):

3.14 Environmental receptors within distance to endpoint:

a. National or state parks, forests, or monuments (Yes/No):

No

b. Officially designated wildlife sanctuaries, preserves, or refuges (Yes/No):

No

c. Federal wilderness area (Yes/No):

No

d. Other (Specify):

3.15 Passive Mitigation Considered:

a. Dikes (Yes/No):

No

b. Enclosures (Yes/No):

No

c. Berms (Yes/No):

No

d. Drains (Yes/No):

No

e. Sumps (Yes/No):

No

f. Other (Specify):

3.16 Active Mitigation Considered:

a. Sprinkler Systems (Yes/No):

No

b. Deluge Systems (Yes/No):

No

c. Water Curtain (Yes/No):

No

d. Neutralization (Yes/No):

No

e. Excess Flow Valve (Yes/No):

Yes

f. Flares (Yes/No):

No

g. Scrubbers (Yes/No):

No

h. Emergency Shutdown Systems (Yes/No):

No

j. Other (Specify):

Yes

Operator Intervention, Fire Monitors/Hydrants

3.17 Graphics file name (if included):

No

Section 3. Toxics: Alternative Release

(Complete this section if the Stationary Source has regulated toxic substances subject to Program 2, 3 or 4 requirements)

Toxics: Alternate Release ID:

Tank Storage

3.1 a. Chemical Name:

Ammonia (conc 20% or greater)

b. Percent weight of chemical (if in a mixture):

30

3.2 Physical State:

Liquid

3.3 Model Used:

EPA's RMP*Comp™

3.4 Scenario Description:

Transfer hose failure

3.5 Quantity Released (lbs):

3.6 Release Rate (lbs/min):

3.7 Release Duration (min):

60

3.8 Wind Speed (m/s):

3

3.9 Atmospheric Stability Class:

D

3.10 Topography (Urban/Rural):

Urban

3.11 Distance to Endpoint (miles):

0.1

3.12 Estimated residential population within distance to endpoint:

0

3.13 Public receptors within distance to endpoint:

a. Schools (Yes/No):

No

b. Residences (Yes/No):

No

c. Hospitals (Yes/No):

No

d. Prison/Correction Facilities (Yes/No):

No

e. Recreation Areas (Yes/No):

No

f. Major Commercial, Office or Industrial Areas (Yes/No):

No

g. Other (Specify):

3.14 Environmental receptors within distance to endpoint:

a. National or state parks, forests, or monuments (Yes/No):

No

b. Officially designated wildlife sanctuaries, preserves, or refuges (Yes/No):

No

c. Federal wilderness area (Yes/No):

No

d. Other (Specify):

3.15 Passive Mitigation Considered:

a. Dikes (Yes/No):

No

b. Enclosures (Yes/No):

No

c. Berms (Yes/No):

No

d. Drains (Yes/No):

No

e. Sumps (Yes/No):

No

f. Other (Specify):

3.16 Active Mitigation Considered:

a. Sprinkler Systems (Yes/No):

No

b. Deluge Systems (Yes/No):

No

c. Water Curtain (Yes/No):

No

d. Neutralization (Yes/No):

No

e. Excess Flow Valve (Yes/No):

Yes

f. Flares (Yes/No):

No

g. Scrubbers (Yes/No):

No

h. Emergency Shutdown Systems (Yes/No):

No

j. Other (Specify):

Yes

Operator Intervention, Fire Monitors/Hydrants

3.17 Graphics file name (if included):

No

Section 3. Toxics: Alternative Release

(Complete this section if the Stationary Source has regulated toxic substances subject to Program 2, 3 or 4 requirements)

(Make additional copies of this Section 3 worksheet as necessary)

Toxics: Alternate Release ID:

Vessel Leak At HCU

3.1 a. Chemical Name:

Hydrogen Sulfide

b. Percent weight of chemical (if in a mixture):

30

3.2 Physical State:

Gas

3.3 Model Used:

EPA's RMP*Comp™

3.4 Scenario Description:

Vessel Leak

3.5 Quantity Released (lbs):

3.6 Release Rate (lbs/min):

3.7 Release Duration (min):

10

3.8 Wind Speed (m/s):

1.5

3.9 Atmospheric Stability Class:

F

3.10 Topography (Urban/Rural):

Urban

3.11 Distance to Endpoint (miles):

2.4

3.12 Estimated residential population within distance to endpoint:

24670

3.13 Public receptors within distance to endpoint:

- a. Schools (Yes/No):
- b. Residences (Yes/No):
- c. Hospitals (Yes/No):
- d. Prison/Correction Facilities (Yes/No):
- e. Recreation Areas (Yes/No):
- f. Major Commercial, Office or Industrial Areas (Yes/No):
- g. Other (Specify):

Yes

Yes

Yes

No

Yes

Yes

3.14 Environmental receptors within distance to endpoint:

- a. National or state parks, forests, or monuments (Yes/No):
- b. Officially designated wildlife sanctuaries, preserves, or refuges (Yes/No):
- c. Federal wilderness area (Yes/No):
- d. Other (Specify):

No

No

No

3.15 Passive Mitigation Considered:

- a. Dikes (Yes/No):
- b. Enclosures (Yes/No):
- c. Berms (Yes/No):
- d. Drains (Yes/No):
- e. Sumps (Yes/No):
- f. Other (Specify):

No

No

No

No

No

3.16 Active Mitigation Considered:

- a. Sprinkler Systems (Yes/No):
- b. Deluge Systems (Yes/No):
- c. Water Curtain (Yes/No):
- d. Neutralization (Yes/No):
- e. Excess Flow Valve (Yes/No):
- f. Flares (Yes/No):
- g. Scrubbers (Yes/No):
- h. Emergency Shutdown Systems (Yes/No):
- j. Other (Specify):

No

No

No

No

No

No

No

No

Yes

Operator Intervention

3.17 Graphics file name (if included):

No

Section 3. Toxics: Alternative Release

(Complete this section if the Stationary Source has regulated toxic substances subject to Program 2, 3 or 4 requirements)

(Make additional copies of this Section 3 worksheet as necessary)

Toxics: Alternate Release ID:

Pipe Leak at Alkylolation / Dimersol

3.1 a. Chemical Name:

Sulfuric Acid

b. Percent weight of chemical (if in a mixture):

89

3.2 Physical State:

Liquid

3.3 Model Used:

Dames & Moore Evaluation of Tetraethyl Lead and Sulfuric Acid

3.4 Scenario Description:

Pipe Leak

3.5 Quantity Released (lbs):

3.6 Release Rate (lbs/min):

3.7 Release Duration (min):

10

3.8 Wind Speed (m/s):

6.7

3.9 Atmospheric Stability Class:

D

3.10 Topography (Urban/Rural):

Urban

3.11 Distance to Endpoint (miles):

<0.25

3.12 Estimated residential population within distance to endpoint:

0

3.13 Public receptors within distance to endpoint:

a. Schools (Yes/No):

Yes

b. Residences (Yes/No):

Yes

c. Hospitals (Yes/No):

Yes

d. Prison/Correction Facilities (Yes/No):

No

e. Recreation Areas (Yes/No):

Yes

f. Major Commercial, Office or Industrial Areas (Yes/No):

Yes

g. Other (Specify):

3.14 Environmental receptors within distance to endpoint:

a. National or state parks, forests, or monuments (Yes/No):

No

b. Officially designated wildlife sanctuaries, preserves, or refuges (Yes/No):

No

c. Federal wilderness area (Yes/No):

No

d. Other (Specify):

3.15 Passive Mitigation Considered:

a. Dikes (Yes/No):

No

b. Enclosures (Yes/No):

No

c. Berms (Yes/No):

No

d. Drains (Yes/No):

Yes

e. Sumps (Yes/No):

Yes

f. Other (Specify):

3.16 Active Mitigation Considered:

a. Sprinkler Systems (Yes/No):

No

b. Deluge Systems (Yes/No):

No

c. Water Curtain (Yes/No):

No

d. Neutralization (Yes/No):

Yes

e. Excess Flow Valve (Yes/No):

Yes

f. Flares (Yes/No):

No

g. Scrubbers (Yes/No):

No

h. Emergency Shutdown Systems (Yes/No):

No

j. Other (Specify):

Yes

Operator Intervention

3.17 Graphics file name (if included):

No

Section 4. Flammables: Worst Case

(Complete this section if the Stationary Source has regulated flammable substances)

Flammables: Worst Case ID:

Tank 1726 Flammable Mixture

4.1 Chemical Name:

Flammable Mixture

4.2 Model Used:

EPA's RMP*Comp™

4.3 Scenario:

Vapor Cloud Explosion

4.4 Quantity Released (lbs):

4.5 Endpoint Used:

1 PSI

4.6 Distance to Endpoint (miles):

4.7 Estimated Residential Population within Distance to Endpoint:

27516

4.8 Public Receptors within Distance to Endpoint:

a. Schools (Yes/No):

Yes

b. Residences (Yes/No):

Yes

c. Hospitals (Yes/No):

No

d. Prisons/Correction Facilities (Yes/No):

No

e. Recreation Areas (Yes/No):

Yes

f. Major Commercial, Office, or Industrial Areas (Yes/No):

Yes

g. Other (Specify):

4.9 Environmental Receptors within Distance to Endpoint:

a. National or State Parks, Forests, or Monuments (Yes/No):

Yes

b. Officially Designated Wildlife Sanctuaries, Preserves, or Refuges (Yes/No):

No

c. Federal Wilderness Areas (Yes/No):

No

d. Other (Specify):

4.10 Passive Mitigation Considered:

a. Blast Walls (Yes/No):

No

b. Other (Specify):

4.11 Graphic File Name (if included):

No

Section 5. Flammables: Alternative Release

(Complete this section if the Stationary Source has regulated flammables subject to Program 2, 3 or 4 requirements)

Flammables: Alternative Release ID:

Tank Storage TK 1721

5.1 Chemical Name:

Flammable Mixture

5.2 Model Used:

EPA's RMP*Comp™

5.3 Scenario:

Vapor Cloud Explosion

5.4 Quantity Released (lbs):

5.5 Endpoint Used:

1 PSI

5.6 Distance to Endpoint (miles):

5.7 Estimated Residential Population within Distance to Endpoint:

2587

5.8 Public Receptors within Distance to Endpoint:

- a. Schools (Yes/No):
- b. Residences (Yes/No):
- c. Hospitals (Yes/No):
- d. Prisons/Correction Facilities (Yes/No):
- e. Recreation Areas (Yes/No):
- f. Major Commercial, Office, or Industrial Areas (Yes/No):
- g. Other (Specify):

Yes

Yes

No

No

Yes

Yes

5.9 Environmental Receptors within Distance to Endpoint:

- a. National or State Parks, Forests, or Monuments (Yes/No):
- b. Officially Designated Wildlife Sanctuaries, Preserves, or Refuges (Yes/No):
- c. Federal Wilderness Areas (Yes/No):
- d. Other (Specify):

No

No

No

5.10 Passive Mitigation Considered:

- a. Dikes (Yes/No):
- b. Fire Walls (Yes/No):
- c. Blast Walls (Yes/No):
- d. Enclosures (Yes/No):
- e. Other (Specify):

No

No

No

No

5.11 Active Mitigation Considered:

- a. Sprinkler System (Yes/No):
- b. Deluge Systems (Yes/No):
- c. Water Curtain (Yes/No):
- d. Excess Flow Valve (Yes/No):
- e. Other (Specify):

No

No

No

No

5.12 Graphic File Name (if attached):

No

Section 6. Accident History

(If there were any qualifying accidents in the last five years, complete this table. Otherwise, identify there were no qualifying accidents and proceed to the next section)

Where there any qualifying accidents in the last 5 years (Yes/No)?

Accident History ID:

6.1 Date of Accident:

6.2 Time Accident Began (Military Time HHMM):

6.3 NAICS Code of Process Involved:

6.4 Release Duration (min):

6.5 Chemicals: (add more rows as necessary)

a. Chemical Name	CAS No.	b. Qty Released (lbs)	c. % Weight
Sulfur Dioxide (Anhydrous)	7446-09-5	74420	0.5
Hydrogen Sulfide	7783-06-4	4	0.3
Flammable Mixture	00-11-11	252	
CHEMICALS IN MIXTURE			
Methane	74-82-8		
Ethane	74-84-0		
Butane	106-97-8		
Propane	74-98-6		
Pentane	109-66-0		
Hydrogen	1333-74-0	3	
Ammonia (Anhydrous)	7664-41-7	3	0.6

6.6 Release Event:

- a. Gas Release (Yes/No):
- b. Liquid Spill/Evaporation (Yes/No):
- c. Fire (Yes/No):
- d. Explosion (Yes/No):
- e. Uncontrolled/Runaway Reaction (Yes/No):

6.7 Release Source:

- a. Storage Vessel (Yes/No):
- b. Piping (Yes/No):
- c. Process Vessel (Yes/No):
- d. Transfer Hose (Yes/No):
- e. Valve (Yes/No):
- f. Pump (Yes/No):
- g. Joint (Yes/No):
- h. Other (Specify):

6.8 Weather conditions at time of event (if known):

- a. Wind Speed (miles/hr):
- Wind Direction (blowing from):
- b. Temperature (°F):
- c. Atmospheric Stability Class:
- d. Precipitation Present? (Yes/No):
- e. Unknown Weather Conditions? (Yes/No):

6.9 On-Site Impacts:

	Employees or Contractors	Public Responders	Public
a. Deaths:	0	0	0
b. Injuries:	0	0	0
c. Property Damage (\$):			

Section 6. Accident History

6.10 Known Offsite Impacts:

- a. Deaths:
- b. Hospitalizations:
- c. Other Medical Treatments:
- d. Evacuated:
- e. Sheltered-in-place:
- f. Property Damage (\$):
- g. Environmental Damage:
 - 1. Fish or Animal Kills (Yes/No):
 - 2. Tree, lawn, shrub, or crop damage (Yes/No):
 - 3. Water Contamination (Yes/No):
 - 4. Soil Contamination (Yes/No):
 - 5. Other (Specify):

	0
	0
	68
	6500
	28174
	0
No	
No	
No	
No	

6.11 Initiating Event:

Human Error

6.12 Contributing Factors:

- a. Equipment Failure (Yes/No):
- b. Human Error (Yes/No):
- c. Improper Procedures (Yes/No):
- d. Overpressurization (Yes/No):
- e. Upset Condition (Yes/No):
- f. By-pass Condition (Yes/No):
- g. Maintenance Activity/Inactivity (Yes/No):
- h. Process Design Failure (Yes/No):
- i. Unsuitable Equipment (Yes/No):
- j. Unusual Weather Condition (Yes/No):
- k. Management Error (Yes/No):
- l. Other (Specify):

Yes
No
Yes
No
No
No
Yes
No
No
No
No

6.13 Offsite Responders Notified (Yes/No):

Yes

6.14 Changes introduced as a result of the accident:

- a. Improved or Upgraded Equipment (Yes/No):
- b. Revised Maintenance (Yes/No):
- c. Revised Training (Yes/No):
- d. Revised Operating Procedures (Yes/No):
- e. New Process Controls (Yes/No):
- f. New Mitigation Systems (Yes/No):
- g. Revised Emergency Response Plan (Yes/No):
- h. Changed Process (Yes/No):
- i. Reduced Inventory (Yes/No):
- j. None (Yes/No):

No
No
Yes
Yes
No
No
Yes
No
No

k. Other (Specify):

On planned basis re-engineer SPS system to provide higher system security. Review and update PG&E / Valero agreements to include required inspections, communication expectations, clearance coordination.

Section 7. Prevention Program 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 requirements. If the same information applies to

Process ID: Federal	1000075454	1000063424	1000063425	1000063426	1000063427	1000063428	1000063429	1000063430	1000063430	1000087871	
Process ID: California	27	28	29	31	30	32	33				
Process Name:	Tank Storage	Alkylation/Dimersol	Hydrocracker	Pipestill	Mogas Reformulation Unit	Fluid Catalytic Cracking Unit	Ultra Low Sulfur Diesel	Butamer	Coker	Cat Feed	NRU
7.1 NAICS code for stationary source:	32411	32411	32411	32411	32411	32411	32411	32411	32411	32411	32411
7.2 Highly hazardous materials:	(add more rows as necessary)										
	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture	Flammable Mixture
	Ammonia (conc 20% or greater)	Ammonia (anhydrous)	Ammonia (anhydrous)			Hydrogen Sulfide					
7.3 Date on which the safety information was last reviewed or revised:	2/15/2019	6/13/2019	4/26/2019	6/6/2019	5/18/2018	4/17/2019	2/18/2019	8/31/2018	5/6/2019	3/5/2019	8/30/2016
7.4 Process Hazards Analysis (PHA):											
a. Date of last PHA or PHA revalidation:	2/4/2019	6/13/2016	3/20/2019	12/5/2018	5/9/2018	8/2/2017	9/21/2016	6/27/2018	8/6/2018	8/16/2018	3/13/2018
b. Technique Used:											
What if Checklist	No	No	No	No	No	No	No	No	No	No	No
What if/Checklist HAZOP	No	No	No	No	No	No	No	No	No	No	No
Failure Mode & Effect Analysis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fault Tree Analysis	No	No	No	No	No	No	No	No	No	No	No
Other (Specify):	No	No	No	No	No	No	No	No	No	No	No
c. Expected or actual date of completion of all changes from last PHA or PHA revalidation:	8/6/2021	8/17/2017	3/30/2021	4/13/2020	5/30/2018	6/1/2021	12/1/2019	6/28/2020	8/31/2022	1/29/2019	3/13/2020
d. Major hazards identified:											
Toxic Release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Fire	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Explosion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Runaway Reaction	No	Yes	Yes	No	Yes	No	No	No	No	No	No
Polymerization	No	Yes	No	No	No	No	No	No	No	No	No
Overpressurization	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Corrosion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overfilling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Contamination	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Equipment Failure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loss of cooling, heating, electricity, instrument air	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Earthquake	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Floods (flood plain)	No	No	No	No	No	No	No	No	No	No	No
Tornado	No	No	No	No	No	No	No	No	No	No	No
Hurricanes	No	No	No	No	No	No	No	No	No	No	No
Other (specify):	No	----	----	----	----	----	----	----	----	----	----
e. Process controls in use:											
Vents	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Relief Valves	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Check Valves	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scrubbers	No	No	No	No	No	No	No	No	No	No	No
Flares	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual Shutoffs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automatic Shutoffs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interlocks	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alarms and Procedures	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Keyed Bypass	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emergency Air Supply	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emergency Power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Backup Pump	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Grounding Equipment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibitor Addition	No	No	No	Yes	No	Yes	No	No	No	No	No
Rupture Disks	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excess Flow Device	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quench System	No	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Purge System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
None	No	No	No	No	No	No	No	No	No	No	No
Other (Specify):	No	----	----	----	----	----	----	----	----	----	----
f. Mitigation systems in use:											
Sprinkler System	No	No	No	No	No	No	No	No	No	No	No
Dikes	Yes	No	No	No	No	No	No	No	No	No	No
Fire Walls	No	No	No	No	No	No	No	No	No	No	No
Blast Walls	No	No	No	No	No	No	No	No	No	No	No
Deluge Systems	No	No	No	No	No	No	No	No	No	No	No
Water Curtain	No	No	No	No	No	No	No	No	No	No	No
Enclosure	No	No	No	No	No	No	No	No	No	No	No
Neutralization	No	No	No	No	No	No	No	No	No	No	No
None	No	No	No	No	No	No	No	No	No	No	No
Other (Specify):	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant	Fire Monitors/ Hydrant
g. Monitoring/detection systems in use:											
Process Area Detectors	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Perimeter Monitors	Yes	No	No	No	No	No	No	No	No	No	No
None	No	Yes	No	Yes	No	No	No	No	No	No	No
Other (Specify):	No	----	----	----	----	----	----	----	----	----	----
h. Changes since last PHA or PHA revalidation:											
Reduction in chemical inventory	No	No	No	No	No	No	No	No	No	No	No
Increase in chemical inventory	No	No	No	No	No	No	No	No	No	No	No
Change in process parameters	No	No	No	No	No	No	No	No	No	No	No
Installation of process controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Installation of process detection systems	No	No	No	No	No	No	No	No	No	No	No
Installation of perimeter monitoring systems	No	No	No	No	No	No	No	No	No	No	No
Installation of mitigation systems	No	Yes	No	No	No	No	No	No	No	No	No

Section 7. Prevention Program 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 requirements. If the same information applies to

Process ID: Federal	1000075454	1000063424	1000063425	1000063426	1000063427	1000063428	1000063429	1000063430	1000063430	1000087871	
Process ID: California	27	28	29	31	30	32	33				
Process Name:	Tank Storage	Alkylation/Dimersol	Hydrocracker	Pipestill	Mogas Reformulation Unit	Fluid Catalytic Cracking Unit	Ultra Low Sulfur Diesel	Butamer	Coker	Cat Feed	NRU
None recommended	No	No	No	No	No	No	No	No	No	No	No
None	No	No	No	No	No	No	No	No	No	No	No
Other (Specify):	Car seal valves	----	----	----	Car seal valves	Car seal valves	----	Car seal valves	----	----	----
7.5 Date of most recent review of operating procedures:	4/15/2019	8/27/2019	6/13/2019	6/28/2019	9/20/2019	6/11/2019	9/17/2019	8/27/2019	5/29/2019	4/1/2019	6/25/2019
7.6 Training:	7/22/2019	7/23/2019	7/22/2019	7/22/2019	8/28/2017	7/22/2019	8/28/2017	6/4/2018	9/9/2018	6/4/2018	8/28/2017
a. The date of the most recent review or revision of training programs:											
b. Type of training provided:											
Classroom	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On the job	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other (Specify):	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c. The type of competency testing used:											
Written Test	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oral Test	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demonstration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other (Specify):											
7.7 Maintenance:	9/11/2019	8/25/2019	9/4/2019	9/3/2019	9/4/2019	9/11/2019	7/9/2019	7/1/2019	8/25/2019	3/13/2019	7/1/2019
a. The date of most recent review or revision of maintenance procedures:											
b. The date of most recent equipment inspection or test:	9/20/2019	9/3/2019	9/3/2019	9/3/2019	8/21/2019	9/10/2019	9/10/2019	9/10/2019	9/10/2019	5/21/2019	9/11/2019
c. Equipment most recently inspected or tested:	SV-19121	SV-1015	SV-515-SP	SV-188	SV-440008	SV-1127	SV-5409	SV-48009	SV-963	SV-634	SV-29056
7.8 The date of the most recent review or revision of Management of Change procedures:	2/15/2019	6/13/2019	4/26/2019	6/6/2019	2/6/2019	4/17/2019	10/25/2018	4/22/2019	5/6/2019	2/25/2019	8/27/2019
a. Date of the most recent change that triggered Management of Change procedures:											
b. Date of most recent review or revision of Management of Change procedures:	8/7/2019	7/17/2019	9/13/2019	6/6/2019	2/6/2019	4/17/2019	2/18/2019	4/22/2019	4/22/2019	3/5/2019	8/28/2019
7.9 The date of most recent pre-startup safety review:	3/21/2019	6/14/2019	5/3/2019	8/2/2019	4/12/2019	4/26/2019	12/3/2018	4/22/2019	5/11/2019	5/15/2019	8/28/2019
7.10 Compliance Audits:	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017
a. The date of the most recent compliance audit:											
b. Expected or actual date of completion of all changes resulting from the compliance audit:	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019
7.11 Incident Investigation:				7/16/2019		7/16/2019			7/16/2019		
a. The date of the most recent Major Incident investigation (if any):											
b. Expected or actual date of completion of all changes resulting from the investigation:				9/18/2019		9/18/2019			9/18/2019		
7.12 The date of the most recent review or revision of employee participation plans:	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019
7.13 The date of the most recent review or revision of hot work permit procedures:	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019
7.14 The date of the most recent review or revision of contractor safety procedures:	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016
7.15 The date of the most recent evaluation of contractor safety performance:	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019
7.16 The date of the most recent Hierarchy of Hazard Control Analysis:	2/4/2019		3/20/2019	12/5/2018	5/9/2018			6/27/2019	8/6/2018	8/16/2018	
7.17 The date of the most recent Process Safety Culture Assessment:	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019
7.18 The date of the most recent evaluation of the Accidental Release Prevention Program Management policies and procedures:	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019
7.19 The date of the most recent evaluation of the Human Factors Program:	2/4/2019	8/11/2015	3/20/2019	12/5/2018	5/9/2018	8/2/2017	9/21/2016	6/27/2018	8/6/2018	8/16/2018	3/13/2018
7.20 The date of the most recent Safeguard Protection Analysis:	2/4/2019		3/20/2019	12/5/2018	5/9/2018			6/27/2018	8/6/2018	8/16/2018	3/13/2018
7.21 Damage Mechanism Review:		43614	43175	43727	43529				43336	43482	
a. The date of the most recent Damage Mechanism Review or update:											
b. The expected date of completion of any changes resulting from the Damage Mechanism Review:		Final recommendations are being written.	43951	Final recommendations are being written.	Final recommendations are being written.				Final recommendations are being written.	Final recommendations are being written.	
c. Major damage mechanisms identified:		Sulfuric Acid Corrosion, Caustic Stress Corrosion Cracking, Corrosion Under Insulation (CUI)	Brittle Fracture, High Temp H2/H2S Corrosion, Wet H2S (HIC/SOHIC/Blistering) Cracking	Naphthenic Acid/Sulfidation Corrosion, Ammonium Chloride Corrosion, Internal Chloride Stress Corrosion Cracking	General Corrosion, Underdeposit Corrosion, Amine Corrosion				Mechanical Fatigue, Erosion, Ammonium Chloride Corrosion	High Temperature Hydrogen Attack, Amine Corrosion, Brittle Fracture	
d. Changes since last Damage Mechanism Review:											

Section 7. Prevention Program 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 requirements. If the same information applies to

Process ID: Federal

Process ID: California

	1000075454	1000063424	1000063425	1000063426	1000063427	1000063428	1000063429	1000063430	1000063430	1000087871	
	27	28	29	31	30	32	33				
Tank Storage		Alkylation/Dimersol	Hydrocracker	Pipestill	Mogas Reformulation Unit	Fluid Catalytic Cracking Unit	Ultra Low Sulfur Diesel	Butamer	Coker	Cat Feed	NRU
None recommended		Yes									
None		Yes									
Other (Specify):		No									

Section 7. Prevention Program 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 re

Process ID: Federal
Process ID: California

NA									
----	----	----	----	----	----	----	----	----	----

Process Name:

None recommended
None
Other (Specify):

34									
Sulfur Gas Unit / MEA / TGU / FLX	Utilities Storage	H2U	Product Blending the Loading	Marine Loading Facilities	WWT	Utilities, Flare, Steam,	Asphalt Plant	Cogen	FGS
No	No	No	No	No	No	No	No	No	No
No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Steam trace/Insulate	----	----	Car seal valves	----	----	----	----	----	----

7.5 Date of most recent review of operating procedures:

7/1/2019	4/1/2019	9/23/2019	4/15/2019	4/15/2019	5/13/2019	4/1/2019	4/17/2019	2/13/2019	6/20/2019
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7.6 Training:

a. The date of the most recent review or revision of training programs:

10/16/2017	6/4/2018	7/31/2017	10/17/2018	1/22/2018	3/1/2019	6/4/2018	7/22/2019	7/31/2017	7/22/2019
------------	----------	-----------	------------	-----------	----------	----------	-----------	-----------	-----------

b. Type of training provided:

Classroom
On the job
Other (Specify):

Yes									
Yes									
Yes									

c. The type of competency testing used:

Written Test
Oral Test
Demonstration
Observation
Other (Specify):

Yes									
Yes									
Yes									
Yes									

7.7 Maintenance:

a. The date of most recent review or revision of maintenance procedures:

8/7/2019	9/3/2019	9/4/2019	9/11/2019	7/2/2019	12/9/2018	9/3/2019	3/13/2019	9/11/2019	7/22/2019
----------	----------	----------	-----------	----------	-----------	----------	-----------	-----------	-----------

b. The date of most recent equipment inspection or test:

9/10/2019	9/10/2019	8/25/2019	9/3/2019	8/27/2019	9/11/2019	9/10/2019	9/4/2019	8/2/2019	9/12/2019
-----------	-----------	-----------	----------	-----------	-----------	-----------	----------	----------	-----------

c. Equipment most recently inspected or tested:

SV-45001-SP	SV-2736	SV-326	SV-1984	SV-1992	SV-2060	SV-2736	SV-46053	SV-49029	SV-56014
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7.8 The date of the most recent review or revision of Management of Change procedures:

a. Date of the most recent change that triggered Management of Change procedures:

7/30/2019	7/10/2019	4/20/2019	7/22/2019	8/1/2019	8/26/2019	8/23/2019	7/18/2019	5/8/2019	4/25/2019
-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	----------	-----------

b. Date of most recent review or revision of Management of Change procedures:

9/12/2019	7/10/2019	4/20/2019	7/22/2019	8/1/2019	8/26/2019	8/23/2019	7/18/2019	5/8/2019	4/25/2019
-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	----------	-----------

7.9 The date of most recent pre-startup safety review:

8/13/2019	8/14/2019	5/3/2019	12/7/2018	1/22/2019	9/5/2019	9/9/2019	1/2/2019	5/13/2019	4/29/2019
-----------	-----------	----------	-----------	-----------	----------	----------	----------	-----------	-----------

7.10 Compliance Audits:

a. The date of the most recent compliance audit:

5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017
----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

b. Expected or actual date of completion of all changes resulting from the compliance audit:

8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019	8/11/2019
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.11 Incident Investigation:

a. The date of the most recent Major Incident investigation (if any):

									7/16/2019
--	--	--	--	--	--	--	--	--	-----------

b. Expected or actual date of completion of all changes resulting from the investigation:

									9/18/2019
--	--	--	--	--	--	--	--	--	-----------

7.12 The date of the most recent review or revision of employee participation plans:

5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.13 The date of the most recent review or revision of hot work permit procedures:

7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.14 The date of the most recent review or revision of contractor safety procedures:

7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016	7/29/2016
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.15 The date of the most recent evaluation of contractor safety performance:

8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.16 The date of the most recent Hierarchy of Hazard Control Analysis:

6/17/2019									
-----------	--	--	--	--	--	--	--	--	--

7.17 The date of the most recent Process Safety Culture Assessment:

3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019
----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

7.18 The date of the most recent evaluation of the Accidental Release Prevention Program Management policies and procedures:

9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

7.19 The date of the most recent evaluation of the Human Factors Program:

6/17/2019	6/12/2017	8/19/2019	2/4/2019	2/4/2019				6/6/2018	
-----------	-----------	-----------	----------	----------	--	--	--	----------	--

7.20 The date of the most recent Safeguard Protection Analysis:

6/17/2019		8/19/2019	2/4/2019	2/4/2019				6/6/2018	
-----------	--	-----------	----------	----------	--	--	--	----------	--

7.21 Damage Mechanism Review:

a. The date of the most recent Damage Mechanism Review or update:

		43298							
--	--	-------	--	--	--	--	--	--	--

b. The expected date of completion of any changes resulting from the Damage Mechanism Review:

		Final recommendations are being written.							
--	--	--	--	--	--	--	--	--	--

c. Major damage mechanisms identified:

		High Temperature Hydrogen Attack, CO2 Corrosion, Internal Chloride Stress Corrosion Cracking							
--	--	--	--	--	--	--	--	--	--

d. Changes since last Damage Mechanism Review:

--	--	--	--	--	--	--	--	--	--

Section 7. Prevention Program 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 re)

Process ID: Federal
Process ID: California

NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
34									
Sulfur Gas Unit / MEA / TGU / FLX	Utilities Storage	H2U	Product Blending the Loading	Marine Loading Facilities	WWT	Utilities, Flare, Steam,	Asphalt Plant	Cogen	FGS
Yes									
No									
No									

Process Name:

- None recommended
- None
- Other (Specify):

Section 7. Prevention Program 4

See Other Page for Section 4

(Complete this section if the Stationary Source is subject to CalARP Program 4 requirements. If the same information applies to more than one Program 4 process, the owner or operator may provide the information only once, but shall indicate to which processes the information applies. Make additional copies of this section as necessary to record all Program 4 processes)

Process ID:

Process Name:

7.1 NAICS code for stationary source:

7.2 Highly hazardous materials: (add more rows as necessary)

7.3 Date on which the safety information was last reviewed or revised:

7.4 Process Hazards Analysis (PHA):

a. Date of last PHA or PHA revalidation:

b. Technique Used:

- What If
- Checklist
- What if/Checklist
- HAZOP
- Failure Mode & Effect Analysis
- Fault Tree Analysis
- Other (Specify):

c. Expected or actual date of completion of all changes from last PHA or PHA revalidation:

d. Major hazards identified:

- Toxic Release
- Fire
- Explosion
- Runaway Reaction
- Polymerization
- Overpressurization
- Corrosion
- Overfilling
- Contamination
- Equipment Failure
- Loss of cooling, heating, electricity, instrument air
- Earthquake
- Floods (flood plain)
- Tornado
- Hurricanes
- Other (specify):

e. Process controls in use:

- Vents
- Relief Valves
- Check Valves
- Scrubbers
- Flares
- Manual Shutoffs
- Automatic Shutoffs
- Interlocks
- Alarms and Procedures
- Keyed Bypass
- Emergency Air Supply
- Emergency Power
- Backup Pump
- Grounding Equipment
- Inhibitor Addition
- Rupture Disks
- Excess Flow Device
- Quench System
- Purge System
- None
- Other (Specify):

f. Mitigation systems in use:

- Sprinkler System
- Dikes
- Fire Walls
- Blast Walls
- Deluge Systems
- Water Curtain
- Enclosure
- Neutralization
- None

Section 7. Prevention Program 4

See Other Page for Section 4

Other (Specify):

g. Monitoring/detection systems in use:

Process Area Detectors

Perimeter Monitors

None

Other (Specify):

h. Changes since last PHA or PHA revalidation:

Reduction in chemical inventory

Increase in chemical inventory

Change in process parameters

Installation of process controls

Installation of process detection systems

Installation of perimeter monitoring systems

Installation of mitigation systems

None recommended

None

Other (Specify):

7.5 Date of most recent review of operating procedures:

7.6 Training:

a. The date of the most recent review or revision of training programs:

b. Type of training provided:

Classroom

On the job

Other (Specify):

c. The type of competency testing used:

Written Test

Oral Test

Demonstration

Observation

Other (Specify):

7.7 Maintenance:

a. The date of most recent review or revision of maintenance procedures:

b. The date of most recent equipment inspection or test:

c. Equipment most recently inspected or tested:

7.8 The date of the most recent review or revision of Management of Change procedures:

7.9 The date of most recent pre-startup safety review:

7.10 Compliance Audits:

a. The date of the most recent compliance audit:

b. Expected or actual date of completion of all changes resulting from the compliance audit:

7.11 Incident Investigation:

a. The date of the most recent Major Incident investigation (if any):

b. Expected or actual date of completion of all changes resulting from the investigation:

7.12 The date of the most recent review or revision of employee participation plans:

7.13 The date of the most recent review or revision of hot work permit procedures:

7.14 The date of the most recent review or revision of contractor safety procedures:

7.15 The date of the most recent evaluation of contractor safety performance:

7.16 The date of the most recent Hierarchy of Hazard Control Analysis:

7.17 The date of the most recent Process Safety Culture Assessment:

7.18 The date of the most recent evaluation of the Accidental Release Prevention Program Management policies and procedures:

7.19 The date of the most recent evaluation of the Human Factors Program:

7.20 The date of the most recent Safeguard Protection Analysis:

7.21 Damage Mechanism Review:

a. The date of the most recent Damage Mechanism Review or update:

b. The expected date of completion of any changes resulting from the Damage Mechanism Review:

c. Major damage mechanisms identified:

d. Changes since last Damage Mechanism Review:

Section 7. Prevention Program 4

See Other Page for Section 4

Prevention Program 4 Addendum

Section 2745.7.5(t) of the CalARP regulations includes additional requirements related to the evaluation of External Events that are not included within the federal RMP data sheets. The UPA requires that if a Stationary Source has identified an External Event as likely, the following information needs to be included in the RMP either as a narrative in the text or within the covered process data elements.

Did your Stationary Source identify one or more External Events as likely?

If No, the remainder of this section is not applicable

If the answer was Yes, Is the External Event addendum included within the Data Elements or within the body of the RMP?

List the types of natural- and human-caused external event considered in the PHA:

List the estimated magnitude or scope of the external events which were considered. (If seismic events are applicable, the parameters used in the consideration of the seismic analysis and which edition of the Building Code was used when the process was designed):

The date of the most recent field verification that equipment is installed and maintained as designed:

7.22 External Event Addendum:

External Event Name:

Expected date of completion of any changes:

Applicable major hazards associated with the External Event:

- Toxic Release
- Fire
- Explosion
- Runaway Reaction
- Polymerization
- Overpressurization
- Corrosion
- Overfilling
- Contamination
- Equipment Failure
- Loss of cooling, heating, electricity, instrument air
- Earthquake
- Floods (flood plain)
- Tornado
- Hurricanes
- Other (specify):

Applicable process controls associated with the External Event:

- Vents
- Relief Valves
- Check Valves
- Scrubbers
- Flares
- Manual Shutoffs
- Automatic Shutoffs
- Interlocks
- Alarms and Procedures
- Keyed Bypass
- Emergency Air Supply
- Emergency Power
- Backup Power
- Grounding Equipment
- Inhibitor Addition
- Rupture Disks
- Excess Flow Device
- Quench System
- Purge System
- None
- Other (Specify):

Applicable mitigation systems associated with the External Event:

- Sprinkler System
- Dikes
- Fire Walls
- Blast Walls
- Deluge Systems
- Water Curtain
- Enclosure
- Neutralization
- None
- Other (Specify):

Applicable monitoring/detection systems associated with the External Event:

- Process Area Detectors
- Perimeter Monitors
- None
- Other (Specify):

Section 7. Prevention Program 4

See Other Page for Section 4

Applicable changes since the last External Events review:

- Reduction in chemical inventory
- Increase in chemical inventory
- Change in process parameters
- Installation of process controls
- Installation of process detection systems
- Installation of perimeter monitoring systems
- Installation of mitigation systems
- None recommended
- None
- Other (Specify):

Section 8. Prevention Program 3

NOT APPLICABLE

(Complete this section if the Stationary Source is subject to CalARP Program 3 requirements. If the same information applies to more than one Program 3 process, the owner or operator may provide the information only once, but shall indicate to which processes the information applies. Make additional copies of this section as necessary to record all Program 3 processes)

Process ID:

Process Name:

8.1 NAICS code for process:

8.2 Chemicals: Chemical Name (add more rows as necessary)

8.3 Date on which the safety information was last reviewed or revised:

8.4 Process Hazards Analysis (PHA):

a. Date of last PHA or PHA update:

b. Technique Used:

- What If
- Checklist
- What if/Checklist
- HAZOP
- Failure Mode & Effect Analysis
- Fault Tree Analysis
- Other (Specify):

c. Expected or actual date of completion of all changes from last PHA or PHA update:

d. Major hazards identified:

- Toxic Release
- Fire
- Explosion
- Runaway Reaction
- Polymerization
- Overpressurization
- Corrosion
- Overfilling
- Contamination
- Equipment Failure
- Loss of cooling, heating, electricity, instrument air
- Earthquake
- Floods (flood plain)
- Tornado
- Hurricanes
- Other (specify):

e. Process controls in use:

- Vents
- Relief Valves
- Check Valves
- Scrubbers
- Flares
- Manual Shutoffs
- Automatic Shutoffs
- Interlocks
- Alarms and Procedures
- Keyed Bypass
- Emergency Air Supply
- Emergency Power
- Backup Pump
- Grounding Equipment
- Inhibitor Addition
- Rupture Disks
- Excess Flow Device
- Quench System
- Purge System
- None
- Other (Specify):

f. Mitigation systems in use:

- Sprinkler System
- Dikes
- Fire Walls
- Blast Walls
- Deluge Systems
- Water Curtain
- Enclosure
- Neutralization
- None

Section 8. Prevention Program 3

NOT APPLICABLE

Other (Specify):
g. Monitoring/detection systems in use:
Process Area Detectors
Perimeter Monitors
None
Other (Specify):
h. Changes since last PHA or PHA update:
Reduction in chemical inventory
Increase in chemical inventory
Change in process parameters
Installation of process controls
Installation of process detection systems
Installation of perimeter monitoring systems
Installation of mitigation systems
None recommended
None
Other (Specify):

8.5 Date of most recent review of operating procedures:

8.6 Training:
a. The date of the most recent review or revision of training programs:
b. Type of training provided:
Classroom
On the job
Other (Specify):
c. The type of competency testing used:
Written Test
Oral Test
Demonstration
Observation
Other (Specify):

8.7 Maintenance:
a. The date of most recent review or revision of maintenance procedures:
b. The date of most recent equipment inspection or test:
c. Equipment most recently inspected or tested:

8.8 Management of Change:
a. The date of most recent change that triggered management of change procedures:
b. The date of most recent review or revision of management of change procedures:

8.9 The date of most recent pre-startup safety review:

8.10 Compliance Audits:
a. The date of most recent compliance audit:
b. Expected or actual date of completion of all changes resulting from the compliance audit:

8.11 Incident Investigation:
a. The date of most recent incident investigation (if any):
b. Expected or actual date of completion of all changes resulting from the investigation:

8.12 The date of most recent review or revision of employee participation plans:

8.13 The date of most recent review or revision of hot work permit procedures:

8.14 The date of most recent review or revision of contractor safety procedures:

8.15 The date of most recent evaluation of contractor safety performance:

Prevention Program 3 Addendum

Section 2745.7(q) of the CalARP regulations includes additional requirements related to the evaluation of External Events that are not included within the federal RMP data sheets. The UPA requires that if a Stationary Source has identified an External Event as likely, the following information needs to be included in the RMP either as a narrative in the text or within the covered process data elements.

Did your Stationary Source identify one or more External Events as likely?
If No, the remainder of this section is not applicable
If the answer was Yes, Is the External Event addendum included within the Data Elements or within the body of the RMP?

List the types of natural- and human-caused external event considered in the PHA:

List the estimated magnitude or scope of the external events which were considered. (If seismic events are applicable, the parameters used in the consideration of the seismic analysis and which edition of the Building Code was used when the process was designed):

Section 9. Prevention Program 2

NOT APPLICABLE

Water Curtain

Enclosure

Neutralization

None

Other (Specify):

f. Monitoring/detection systems in use:

Process Area Detectors

Perimeter Monitors

None

Other (Specify):

g. Changes since last hazard review or hazard review update:

Reduction in chemical inventory

Increase in chemical inventory

Change in process parameters

Installation of process controls

Installation of process detection systems

Installation of perimeter monitoring systems

Installation of mitigation systems

None recommended

None

Other (Specify):

9.5 Date of most recent review or revision of operating procedures:

--

9.6 Training:

a. The date of the most recent review or revision of training programs:

--

b. Type of training provided:

Classroom

On the job

Other (Specify):

c. The type of competency testing used:

Written Test

Oral Test

Demonstration

Observation

Other (Specify):

9.7 Maintenance:

a. The date of most recent review or revision of maintenance procedures:

--

b. The date of most recent equipment inspection or test:

--

c. Equipment most recently inspected or tested:

--

9.8 Compliance Audits:

a. The date of the most recent compliance audit:

--

b. Expected or actual date of completion of all changes resulting from the compliance audit:

--

9.9 Incident Investigation:

a. The date of the most recent incident investigation (if any):

--

b. Expected or actual date of completion of all changes resulting from the investigation:

--

9.10 The date of the most recent change that triggered a review or revision of safety information, the hazard review, operating or maintenance procedures, or training:

--

Prevention Program 2 Addendum

Section 2745.6(l) of the CalARP regulations includes additional requirements related to the evaluation of External Events that are not included within the federal RMP data sheets. The UPA requires that if a Stationary Source has identified an External Event as likely, the following information needs to be included in the RMP either as a narrative in the text or within the covered process data elements.

Did your Stationary Source identify one or more External Events as likely?

If No, the remainder of this section is not applicable

If the answer was Yes, Is the External Event addendum included within the Data Elements or within the body of the RMP?

List the types of natural- and human-caused external event considered in the hazard review:

--

List the estimated magnitude or scope of the external events which were considered. (If seismic events are applicable, the parameters used in the consideration of the seismic analysis and which edition of the Building Code was used when the process was designed):

The date of the most recent field verification that equipment is installed and maintained as designed:

--

For each External Event that has a potential to create a release of a regulated substance that will reach an endpoint offsite, you must submit the following (Make additional copies of the table below to summarize each qualifying External Event as necessary):

Section 10. Emergency Response

(This section is applicable to all Stationary Sources regardless of covered process program level)

10.1 Written Emergency Response (ER) Plan:

- a. Is facility included in the written community emergency response plan (Yes/No)?
- b. Does facility have its own written emergency response plan (Yes/No)?

Yes
Yes

10.2 Does facility's ER plan include specific actions to be taken in response to accidental releases of regulated substance(s) (Yes/No)?

Yes

10.3 Does facility's ER plan include procedures for informing the public and local agencies responding to accidental releases (Yes/No)?

Yes

10.4 Does facility's ER plan include information on emergency health care (Yes/No)?

Yes

10.5 Date of most recent review or update of facility's ER plan:

--

10.6 Date of most recent ER training for facility's employees:

--

10.7 Local agency with which facility's ER plan or response activities are coordinated:

- a. Name of Agency:
- b. Phone Number:

Benicia Fire Department
(707) 746-4275

10.8 Subject to:

- a. OSHA Regulations at 29 CFR 1910.38 (Yes/No):
- b. OSHA regulations at 29 CFR 1910. 120 (Yes/No):
- c. Clean Water Act Regulations at 40 CFR 112 (Yes/No):
- d. RCRA Regulations at 40 CFR 264, 265 and 279.52 (Yes/No):
- e. OPA-90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254 (Yes/No):
- f. State EPCRA Rules/Laws (Yes/No):
- g. Other (Specify):

Yes

10.9 For Program 4 stationary sources, the last date that a drill was performed with the emergency response agencies that may respond to an incident at the stationary source and the local UPA.

9/5/2019

Section 11. Executive Summary

(Also see the body of the submitted Risk Management Plan)

Include a brief description of the following elements:

- (a) The accidental release prevention and emergency response policies at the stationary source;
- (b) The stationary source and regulated substances handled;
- (c) The general accidental release prevention program and chemical-specific prevention steps;
- (d) The five-year accident history;
- (e) The emergency response program; and,
- (f) Planned changes to improve safety.

EXECUTIVE SUMMARY ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES

The Valero Benicia Refinery operates under a structured Process Safety Management (PSM) system where there is an assigned Management Sponsor and System Administrator for each PSM element.

The Valero Benicia Refinery has a long-standing commitment to employee and public safety and protecting the environment. This commitment is demonstrated by the resources invested in accident prevention, such as personnel training and considering safety in the design, installation, operation, and maintenance of our processes. Our objective is to implement reasonable controls to prevent foreseeable releases of regulated substances. However, if a release does occur, our trained personnel will respond to control, contain and mitigate the release.

DESCRIPTION OF THE STATIONARY SOURCE AND REGULATED SUBSTANCES

The Valero Benicia Refinery, located in Benicia, California, U.S.A., operates a variety of processes to produce petroleum products (e.g., propane, butane, gasoline products, jet fuels, diesel fuels, asphalt and coke) from raw crude oil. The refinery has several regulated flammables, such as propane, butane, etc. In addition, the refinery uses and/or processes anhydrous ammonia and aqueous ammonia (>20%), which are toxic regulated substances. The Refinery contains a total of eight covered processes for the purposes of this plan. The predictive filing box was marked for anhydrous ammonia.

EXTERNAL EVENTS ANALYSIS

The refinery is subject to external events, which may cause the release of hazardous materials. The refinery is designed and operated in such a way as to minimize the probability and the impact of such events. External events considered in the design and operation of the refinery include, but are not limited to: security, temperature extremes, earthquake, winds, precipitation, utility disruption, and wildland fires.

Of particular interest is the earthquake susceptibility. The refinery was built in the late 1960's to the best ground motion technology available at the time. Additionally, most of the refinery processing and storage areas are on solid rock, which limits the severity of ground motion. Additions and significant modifications to the Refinery since that time have been done using the codes and technology applicable at the time of construction of those projects. Even prior to the 1989 Loma Prieta Earthquake, the refinery had conducted independent assessments of risks associated with lateral ground motion. Although there will be damage to refinery equipment from a worst credible earthquake, studies have indicated that catastrophic loss of containment should not be a concern.

With the advent of the September 11, 2001 attacks in New York City, the refinery has done detailed evaluations of its physical security facilities and associated security plans. Both have been significantly updated to address issues identified in these evaluations, and they meet all federal requirements for marine and fuels terminals. In addition, the refinery has maintained strong links with local and national law enforcement agencies to ensure good coordination in the event of an incident.

Section 11. Executive Summary

GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM STEPS

The following is a summary of the general accident prevention program in place at the Valero Benicia Refinery. EPA's Program 3 prevention requirements are met because all Program Level 3 processes at the refinery are also subject to the OSHA Process Safety Management (PSM) standard.

The refinery is focused on fuels production and most of the light hydrocarbons are used in mixtures and are not recovered as pure components. Isomers and olefins of propane and butane origin are mixed without regard to the specific components, because they all behave similarly in their use as fuel. Where we had specific gas chromatograph information on the species of the hydrocarbon compounds, these have been marked in the inventory. If these data were not readily available, only the normal paraffinic component (propane, butane) is listed. In all cases, the normal paraffinic component is less dense but has a higher energy value than the olefins or isomers, and therefore, represents a more conservative case.

Additional details are included in the Data Element section of this RMPlan. Due to the ongoing nature of our safety program, the dates associated with the various activities in our accident prevention program are constantly changing. To minimize rework, October 7, 2016 (estimated 45 days prior to expected submittal date) was selected as the date to end collecting information regarding the 2016 voluntary update resubmission. Consequently, most of the reviews/updates conducted after that date are not reflected in the Data Element information.

Employee Participation

The Valero Benicia Refinery encourages employees to participate in all facets of process safety management and accident prevention. Examples of employee participation range from updating and compiling operating and maintenance procedures to participating as a member of a process hazard analysis (PHA) team. Employees have access to the information used to create the refinery accident prevention program. Specific ways that employees can be involved in the accident prevention program are documented in an employee participation plan that is maintained at the refinery and addresses each accident prevention program element. In addition, the refinery has a number of safety committees and forums that employees can use to address their process and personnel safety issues. The teams typically have members from various areas of the plant, including operations, maintenance, engineering, and plant management.

The refinery attained the California OSHA Voluntary Protection Program (VPP) Star status in 2006. Cal/VPP is designed to recognize safety and health systems that effectively prevent and control occupational hazards. These systems go beyond ensuring that the minimal Cal/OSHA standards are met by providing the best feasible protection at that site. The Benicia refinery has retained its' VPP Star status since that time, being recertified in March, 2014 for the next 3 years. A review of the PSM systems were included as part of each VPP recertification review.

The refinery implemented a behavior based safety program called Safety Needs Active Participation (SNAP) in 2005. The purpose of this program is to reduce at-risk behaviors and remove barriers to safe behaviors, thus improving safety performance. Peer observations are anonymous and confidential. The SNAP observers strive to be safety role models supporting continuous improvement processes at Valero Benicia Refinery.

Section 11. Executive Summary

Process Safety Information

The Valero Benicia Refinery keeps a variety of technical documents that are used to help maintain safe operation of the processes. These documents address chemical properties and associated hazards, limits for key process parameters and specific chemical inventories, and equipment design basis/configuration information. Specific groups within the refinery are assigned responsibility for maintaining up-to-date process safety information. A table summarizing the reference documents and their location is readily available as part of the PSM documentation to help employees locate any necessary process safety information.

Chemical-specific information, including exposure hazards and emergency response/exposure treatment considerations, is provided in Safety Data Sheets (SDSs). This information is supplemented by documents that specifically address known corrosion concerns and any known hazards associated with the inadvertent mixing of chemicals. For specific process areas, the refinery has identified operating envelopes; i.e. documented safety-related limits for specific process parameters such as temperature, level, and compositions. The refinery ensures that the process is maintained within these limits using computerized process controls and monitoring instruments, highly trained personnel, and protective instrumented systems (e.g., automated shutdown systems, alarm systems).

The refinery also maintains numerous technical documents that provide information about the design and construction of process equipment. This information includes materials of construction, design pressure and temperature ratings, electrical rating of equipment, etc. This information, in combination with written procedures and trained personnel, provides a basis for establishing inspection and maintenance activities, as well as for evaluating proposed process and facility changes to ensure that safety features in the process are not compromised.

Process Hazard Analysis

The Valero Benicia Refinery has a comprehensive program to help ensure that hazards associated with the various processes are identified and controlled. Within this program, each process is systematically examined to identify hazards and ensure that adequate controls are in place to manage these hazards.

The Valero Benicia Refinery primarily uses the guideword based Hazard and Operability (HAZOP) study methodology. HAZOP analysis is recognized as one of the most systematic and thorough hazard evaluation techniques. The analyses are conducted using a team of people who have operating experience and engineering expertise on the process to be evaluated. This PHA team identifies and evaluates hazards of the process as well as accident prevention and mitigation measures, and makes suggestions for additional prevention and/or mitigation measures when the team believes such measures are necessary.

The PHA team findings are reviewed with local management for resolution. Implementation of mitigation options in response to PHA findings is based on a relative risk evaluation done by the PHA team. The evaluation helps to ensure that potential accident scenarios assigned greater risk receive attention first. Some mitigation options, though, may involve process modifications that can only be implemented during a complete shutdown of the covered process. Implementation of such modifications may extend well into the future and are subject to change. All approved mitigation options being implemented in response to PHA team findings are tracked until they are complete. The resolution of each finding is documented and retained.

To ensure that the process controls and/or process hazards do not deviate significantly from the original design safety features, the Valero Benicia Refinery periodically updates and revalidates the hazard analysis results. These periodic reviews are conducted at least every 5 years for the life of the process. The results and findings from these updates are documented and retained. The team findings are forwarded to management for consideration, and resolution of the findings is documented and retained.

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Operating Procedures and Safe Work Practices

The Valero Benicia Refinery maintains written procedures that address various modes of process operations, such as (1) startup, (2) shutdown, (3), normal and (4) emergency operations. These procedures can be used as a reference by experienced operators and provide a consistent basis for training of new operators. The procedures are maintained current and accurate by revising them as necessary to reflect changes made through the management of change process. These procedures are periodically reviewed and annually certified as current and accurate.

The refinery has identified Operating Envelopes; i.e. documented safety-related limits for specific process parameters such as temperature, level, and compositions. This information, along with written operating procedures, is readily available to operators in the process unit and for other personnel to use as necessary to safely perform their job tasks.

Training

To complement the written procedures for process operations, the Valero Benicia Refinery has implemented a comprehensive training program for all employees involved in operating a process. New employees receive basic training in refinery operations and safety. After successfully completing this training, a new operator is paired with an experienced operator to learn process-specific duties and tasks. After employees demonstrate (e.g., through tests, skills demonstration) having adequate knowledge to perform the duties and tasks in a safe manner on their own, they can work independently. In addition, all operations personnel periodically receive refresher training on the operating procedures to ensure that their skills and knowledge are maintained at an acceptable level. This refresher training is conducted at least every 3 years. All of this training is documented for each operator, including the means used to verify that the operator understood the training.

Contractors

The Valero Benicia Refinery uses contractors to supplement its' workforce during periods of increased maintenance or construction activities. Because some contractors work to support on-going operations and on or near process equipment, the refinery has procedures in place to ensure that contractors (1) perform their work in a safe manner, (2) have the appropriate knowledge and skills, (3) are aware of the hazards in their workplace, (4) understand what they should do in the event of an emergency, (5) understand and follow site safety rules, and (6) inform refinery personnel of any hazards that they find during their work. This is accomplished by providing contractors with (1) a process overview, (2) information about safety and health hazards, (3) emergency response plan requirements, and (4) safe work practices prior to their beginning work. In addition, the Valero Benicia Refinery evaluates contractor safety programs and performance during the selection of a contractor. Refinery personnel periodically monitor contractor performance to ensure that contractors are fulfilling their safety obligations.

Pre-startup Safety Reviews (PSSRs)

The Valero Benicia Refinery conducts a PSSR for any new facility or facility modification that requires a change in the process safety information and therefore, is controlled by management of change (MOC). The purpose of the PSSR is to ensure that safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides one additional check to make sure construction is in accordance with the design specifications and that all supporting systems are operationally ready. The PSSR review team uses checklists to verify all aspects of readiness. A PSSR involves field verification of the construction and serves as a quality assurance function by requiring verification that accident prevention program requirements are properly implemented.

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Mechanical Integrity

The Valero Benicia Refinery has well-established practices and procedures to maintain pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems in a safe operating condition. The basic aspects of this program include: (1) conducting training, (2) developing written procedures, (3) performing inspections and tests, (4) correcting identified deficiencies, and (5) applying quality assurance measures. In combination, these activities form a system that maintains the mechanical integrity of the process equipment.

Maintenance personnel receive training on (1) an overview of the process, (2) safety and health hazards, (3) applicable maintenance procedures, (4) emergency response plans, and (5) applicable safe work practices to help ensure that they can perform their job in a safe manner. Written procedures help ensure that work is performed in a consistent manner and provide a basis for training. Inspections and tests are performed to help ensure that equipment functions as intended, and to verify that equipment is within acceptable limits (e.g., adequate wall thickness for pressure vessels). If a deficiency is identified, employees will address the deficiency before placing the equipment back into service.

Another integral part of the mechanical integrity program is quality assurance. The Valero Benicia Refinery incorporates quality assurance measures into equipment purchases and repairs. This helps ensure that new equipment is suitable for its intended use and that proper materials and spare parts are used when repairs are made.

Hot Work & Other Safe Work Practices

The Valero Benicia Refinery has long-standing safe work practices in place to help ensure worker and process safety. These include orientations for visitors/contractors, control of the entry/presence/exit of personnel, energy isolation for equipment being worked on, procedures for the safe removal of hazardous materials before opening of process piping/equipment, hot work permit/procedure to safely manage spark-producing activities, vehicle entry into process area, confined space entry permit/procedure to help ensure precautions are taken before entering confined spaces, and job safety analyses to identify and mitigate hazards associated with maintenance tasks. These practices, along with related procedures and training of affected personnel, form a system to help ensure operations and maintenance activities are performed safely.

Management of Change

The Valero Benicia Refinery has a comprehensive system to manage changes to processes. This system requires that changes to items such as process equipment, chemicals, technology (including process operating conditions), procedures, and other facility changes be properly reviewed and authorized before being implemented. Changes are reviewed by Subject Matter Experts to (1) ensure that adequate controls are in place to manage any new hazards and (2) verify that existing controls have not been compromised by the change. Affected chemical hazard information, process operating limits, and equipment information, as well as procedures are updated to incorporate these changes. In addition, operating and maintenance personnel are provided any necessary training before the change is implemented.

Incident Investigation

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Incident Investigation

The Valero Benicia Refinery promptly investigates all incidents that resulted in, or reasonably could have resulted in, a fire/explosion, toxic gas release, major property damage, environmental loss, or personal injury. The goal of each investigation is to determine the facts and develop corrective actions to prevent a recurrence of the incident or a similar incident. The investigation team documents its findings, develops recommendations to prevent a recurrence, and forwards these results to refinery management for resolution. Corrective actions taken in response to the investigation team's findings and recommendations are tracked until they are complete. The resolution of each finding or recommendation is documented, and the investigation results are communicated to employees (including contractors) who could be affected by the findings. Incident investigation reports are retained for at least 5 years so that the reports can be reviewed during future PHAs and PHA revalidations.

Compliance Audits

To help ensure that the accident prevention program is functioning properly, the Valero Benicia Refinery periodically conducts audits to determine whether the procedures and practices required by the accident prevention program are being implemented. Independent, 3rd party compliance audits are conducted at least every 3 years. The audit teams develop findings that are forwarded to refinery management for resolution. Corrective actions taken in response to the audit team's findings are tracked until they are complete. The resolution of each finding is documented, and the two most recent audit reports are retained.

CHEMICAL SPECIFIC PREVENTION STEPS

The processes at the Valero Benicia Refinery have hazards that must be managed to ensure continued safe operation. The accident prevention program summarized previously is applied to all covered processes at the Valero Benicia Refinery. Collectively, these prevention program activities help prevent potential accident scenarios that could be caused by (1) equipment failures and (2) human errors.

In addition to the accident prevention program activities, the Valero Benicia Refinery has safety features on many units to help, (1) quickly detect a release, (2) contain/control a release and (3) reduce the consequences of (mitigate) a release. The following types of safety features are used in various processes:

Release Detection

1. Hydrocarbon detectors with alarms
2. Hydrogen sulfide (H₂S) detectors with alarms
3. TV surveillance cameras

Release Containment/Control

1. Process relief valves that discharge to a flare to capture and recover or incinerate episodic releases
2. Valves to permit isolation of the process (manual or automated)
3. Automated shutdown systems for specific process parameters (e.g., high level, high temperature)
4. Curbing or diking to contain liquid releases
5. Redundant equipment and instrumentation (e.g., uninterruptible power supply for process control system, backup firewater pump)
6. Atmospheric relief devices

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Release Mitigation

1. Fire suppression and extinguishing systems
2. Deluge system for specific equipment
3. Trained emergency response personnel
4. Personal protective equipment (e.g., protective clothing, self-contained breathing apparatus)
5. Blast-resistant buildings to help protect control systems and personnel

FIVE-YEAR ACCIDENT HISTORY

The Valero Benicia Refinery has an excellent record of accident prevention over the life of the refinery. There is one incident reported in the 5 year accident history. On May 5, 2017, there was a sudden, immediate and total loss of PG&E 230 kV power that resulted in the immediate and unplanned shutdown of the entire refinery. This resulted in a flaring release of 74,420 pounds SO₂ until the refinery was shutdown safely. Additionally, 2 units had atmospheric safety valves lift and released 10,200 pounds combustible and flammable mixtures and 10 pounds combined of Ammonia, Hydrogen and H₂S. No one offsite was admitted to the hospital; the nearby elementary schools performed a precautionary shelter-in-place; and the business park was evacuated as a precaution, although several business park personnel chose to shelter-in-place.

EMERGENCY RESPONSE PROGRAM INFORMATION

The Valero Benicia Refinery maintains a written emergency response program, which is in place to protect worker and public safety as well as the environment. The program consists of procedures for responding to a release of a regulated substance, including the possibility of a fire or explosion if a flammable substance is accidentally released. The procedures address all aspects of emergency response, including proper first-aid and medical treatment for exposures, evacuation plans and accounting for personnel after an evacuation, notification of local emergency response agencies and the public if a release occurs, and post incident cleanup and decontamination requirements. In addition, the Valero Benicia Refinery has procedures that address maintenance, inspection, and testing of emergency response equipment, as well as instructions that address the use of emergency response equipment. Employees receive training in these procedures as necessary to perform their specific emergency response duties. The emergency response program is updated when necessary based on modifications made to refinery processes or other refinery facilities. The emergency response program changes are administered through the MOC process, which includes informing and/or training affected personnel in the changes.

The Valero Benicia Refinery maintains an onsite fire department with first responders on-site 24 hours per day. The overall emergency response program for the Valero Benicia Refinery is coordinated with the Solano County Local Emergency Planning Committee (LEPC). This coordination includes periodic meetings of the committee, which includes local emergency response officials, local government officials, and industry representatives. The Valero Benicia Refinery has around-the-clock communications capability with appropriate LEPC officials and emergency response organizations (e.g., City of Benicia Fire Department). This provides a means of notifying the public of an incident as well as facilitating quick response to an incident. In addition to periodic LEPC meetings, the Valero Benicia Refinery conducts periodic emergency drills that involve the City of Benicia Fire Department.

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PLANNED CHANGES TO IMPROVE SAFETY

The Process Safety Management systems form the cornerstone for continuous improvement in our safety-related systems. These systems are evergreen and are in a continuous state of improvement, usually through many small improvement steps. Some examples are the recommendations from our hazard reviews and any incident investigations. Other examples are the improvement steps that result from our operating and mechanical procedures systems that are tightly integrated with our training programs.

As noted earlier, the Valero Benicia Refinery has been certified as a CAL/OSHA VPP Star Site since 2006. As part of the CAL/VPP process, an annual assessment is required documenting the continuous improvement made with the safety and health systems. An onsite visit by CalOSHA is conducted every three years to review the progress. In addition, the refinery's behavior based safety observation process SNAP, continues to identify and remove barriers to safe behaviors of employees and contractors.