



**Region 6 Compliance Assurance and Enforcement Division  
INSPECTION REPORT**

|                                        |                                                                                            |                                                       |                          |
|----------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------|
| Inspection Date(s):                    | 07/14-16/2015                                                                              |                                                       |                          |
| Media:                                 | Air                                                                                        |                                                       |                          |
| Regulatory Program(s)                  | Clean Air Act Section 112(r) and 40 C.F.R. Part 68 Chemical Accident Prevention Provisions |                                                       |                          |
| Company Name:                          | Pasadena Refining Systems, Inc. (PRSI)                                                     |                                                       |                          |
| Facility Name:                         | Pasadena Refinery                                                                          |                                                       |                          |
| Facility Physical Location:            | 111 Red Bluff Road                                                                         |                                                       |                          |
| (city, state, zip code)                | Pasadena, TX 77506                                                                         |                                                       |                          |
| Mailing address:                       | 111 Red Bluff Road                                                                         |                                                       |                          |
| (city, state, zip code)                | Pasadena, TX 77506                                                                         |                                                       |                          |
| County/Parish:                         | Harris County                                                                              |                                                       |                          |
| Facility Contact:                      | James (Jim) Wallwork                                                                       | Environmental Manager                                 |                          |
|                                        | Jameswallwork@pasadenarefining.com                                                         |                                                       |                          |
| FRS Number:                            | 110000462703                                                                               |                                                       |                          |
| Identification/Permit Number:          | Air Operating Permit ID: O1544                                                             |                                                       |                          |
| Media Number:                          | AFR # 4820100006, RMP EPA Facility Identifier: 1000 0003 8274                              |                                                       |                          |
| NAICS:                                 | 32411 = Petroleum Refineries                                                               |                                                       |                          |
| Personnel participating in inspection: |                                                                                            |                                                       |                          |
| Bill Domesick                          | PRSI                                                                                       | Maintenance Director                                  | (713) 472-2461           |
| Denice McGaston                        | PRSI                                                                                       | Human Resource Director                               | (713) 472-2461           |
| Fernando F. Oliveira                   | PRSI                                                                                       | Chef Executive Officer                                | (713) 472-2461           |
| Galicia Cruz                           | PRSI                                                                                       | Environmental Contractor (SAGE)                       | (713) 472-2461           |
| Jim Wallwork                           | PRSI                                                                                       | Environmental Manager                                 | (713) 472-2461           |
| John Edmonds                           | PRSI                                                                                       | Operations Director                                   | (713) 472-2461           |
| Mark Berlinger                         | PRSI                                                                                       | Director of Health, Safety, Security, and Environment | (713) 472-2461           |
| Richard C. Funesti                     | PRSI                                                                                       | Health & Safety Manager                               | (713) 472-2461           |
| Ronald Bernads                         | PRSI                                                                                       | Petrobras Maintenance Department                      | (713) 472-2461           |
| Tayares Pillard                        | PRSI                                                                                       | Process Safety Representative                         | (713) 472-2461           |
| Wade Hollman                           | PRSI                                                                                       | Tech Service Manager                                  | (713) 472-2461           |
| Dave Hensley                           | US EPA/6EN-AS                                                                              | Physical Scientist (Environmental)                    | (214) 665-6739           |
| Tony Robledo                           | US EPA/6EN-AA                                                                              | Enforcement Officer                                   | (214) 665-8182           |
| EPA Lead Inspector Signature/Date      | <i>Dave Hensley</i><br>Dave Hensley                                                        |                                                       | <i>8/25/2015</i><br>Date |
| Supervisor Signature/Date              | <i>Samuel Tate</i><br>Samuel Tate                                                          |                                                       | <i>8/25/2015</i><br>Date |

## Section I - INTRODUCTION

### PURPOSE OF THE INSPECTION

United States Environmental Protection Agency (EPA) Region 6 inspectors Tony Robledo and Dave Hensley arrived at the Pasadena Refining Systems, Inc.'s (PRSI) Pasadena Refinery at 09:00 on July 14, 2015 for an announced inspection. We met with the following persons during an opening meeting at 09:30.

Table 1: Opening Meeting Attendance

| Name               | Position                                                    |
|--------------------|-------------------------------------------------------------|
| Bill Domescik      | Maintenance Director                                        |
| Denice Gaston      | Human Resource Director                                     |
| Galicia Cruz       | Environmental Contractor (SAGE)                             |
| Jim Wallwork       | Environmental Manager                                       |
| John Edmunds       | Operations Director                                         |
| Mark Berlinger     | Director of Health, Safety, Security, and Environment       |
| Richard C. Funesti | Health & Safety Manager                                     |
| Ronald Bernads     | Petrobras Maintenance Department                            |
| Tayares Pillard    | Process Safety Representative                               |
| Wade Hollman       | Tech Service Manager                                        |
| Tony Robledo       | Enforcement Officer U.S EPA Region 6 (6EN-AA)               |
| Dave Hensley       | Physical Scientist (Environmental) US EPA Region 6 (6EN-AS) |

I presented my credentials to those present at the opening meeting and informed them that the scope of the inspection was a partial compliance evaluation (PCE) and included an evaluation of the compliance of the facility with the Clean Air Act Section 112(r) and the Chemical Accident Prevention Provisions (40 C.F.R. Part 68). An employee representative was invited to participate in the inspection.

### FACILITY DESCRIPTION

PRSI's Pasadena Refinery is located in Pasadena, Texas. It operates a variety of processes to produce petroleum products (e.g., refinery grade propylene, gasoline, fuel oil, and coke) from raw crude oil. The refinery has several regulated flammables, such as hydrogen, methane, ethane, propane, butane, and pentane. In addition, the refinery uses chlorine for algae control in cooling towers and hydrogen fluoride in the making of gasoline, which are also regulated substances. (Risk Management Plan)

## Section II - OBSERVATIONS

### 40 C.F.R. Part 68 – CHEMICAL ACCIDENT PREVENTION PROVISIONS

#### Subpart A – General

**40 C.F.R. § 68.10 Applicability** – EPA inspectors Tony Robledo and Dave Hensley (We) observed that PRSI is an owner and operator of a stationary source that has more than a threshold quantity of regulated substances, listed in 40 C.F.R. § 68.130, in a process and as such is subject to these Chemical Accident Prevention Provisions. PRSI listed the NAICS code of 32411, Petroleum Refineries for all the processes listed in their Risk Management Plan (RMP). Also, PRSI's process are subject to the

Occupational Safety & Health Administration (OSHA) process safety management standard, 29 CFR 1910.119. These factors make the processes at Pasadena Refinery Program 3 via 40 C.F.R. § 68.10(d).

**40 C.F.R. § 68.12 General Requirements** – PRSI submitted a RMP most recently on June 25, 2014. This submittal lists seven covered processes, which are all program level 3.

**40 C.F.R. § 68.15 Management** – PRSI has an established a management system to oversee the implementation of the risk management program elements and has assigned a qualified person or position that has the overall responsibility for the development, implementation, and integration of the risk management program elements.

#### **Subpart B – Hazard Assessment**

**40 C.F.R. § 68.20 Applicability** – PRSI is an owner or operator of a stationary source subject to this part with seven program 3 processes that must prepare an offsite consequence analysis as provided in 40 C.F.R. § 68.25 of this part, complete the five-year accident history as provided in 40 C.F.R. § 68.42, and comply with all sections in this subpart for these processes.

**40 C.F.R. § 68.22 Offsite Consequence Analysis Parameters** – We requested documentation of the offsite consequences analysis while conducting the inspection. We reviewed the documentation PRSI provided and had a discussion with PRSI staff. PRSI used the parameters specified by EPA in this rule by using RMP\*Comp.

**40 C.F.R. § 68.25 Worst-Case Release Scenario Analysis** – PRSI identified and reported a worst-case release scenario analysis for each RMP covered toxic substance present at the facility and for each RMP covered flammable substance.

**40 C.F.R. § 68.28 Alternative Release Scenario Analysis** – PRSI analyzed alternative release scenarios for each of the covered toxic and flammable substances.

**40 C.F.R. § 68.30 Defining Offsite Impacts – Population** – The documentation we reviewed contained maps with the circles delineating the areas covered by all scenarios and tables with the population numbers within each circle from the 2010 US Census. PRSI reported these numbers to two significant figures in their RMP submittal.

**40 C.F.R. § 68.33 Defining Offsite Impacts – Environment** – The maps we reviewed identified the potential offsite impacts with icons and names. PRSI also provided a list of offsite impacts in the documentation.

**40 C.F.R. § 68.36 Review and Update** – PRSI reviewed and updated the offsite consequence analysis in preparation for their June 25, 2014, RMP submittal. We discussed potential changes to the process including the addition of a larger sphere tank or removal of chlorine, which would require a review and update of the offsite consequence analysis.

**40 C.F.R. § 68.39 Documentation** – The documentation provided by PRSI, which we reviewed for the worst-case scenarios, contained a description of the vessel or pipeline and substance selected as worst case, assumptions and parameters used, and the rationale for selection. The documentation also included the anticipated effect of the controls and mitigation on the release quantity and rate. PRSI's documentation of alternative release scenarios included a description of the scenarios identified, assumptions and parameters used, and the rationale for the selection of specific scenarios. The documentation of estimated quantity released, release rate, duration of release, methodology used to

determine distance to endpoints, and data used to estimate population and environmental receptors potentially affected was included in the reviewed materials during this inspection.

**40 C.F.R. § 68.42 Five Year Accident History** – PRSI include in its June 25, 2014, RMP submittal two accidents. A pump fire that occurred on September 30, 2011, and an explosion and fire on December 10, 2011. I reviewed reports PRSI had submitted to the National Response Center and State of Texas Environmental Electronic Reporting System for the last five year and identified no other incidents that appear to meet the requirements of this part to be reported.

#### **Subpart D – Program 3 Prevention Program**

**40 C.F.R. § 68.65 Process Safety Information** – We asked PRSI how they manage their process safety information. PRSI had a system that included electronic documents managed on an intranet system and a physical paper document management system. We reviewed some randomly selected piping and instrumentation diagram (P&ID) drawings and all the Safety Data Sheets for all the RMP covered chemicals at PRSI.

**40 C.F.R. § 68.67 Process Hazard Analysis** – I requested to review the two most recent Process Hazard Analyses (PHA). PRSI provided the PHA for the Fluid Catalytic Cracking (FCC) and Boiler 6 done on February 16, 2015, and the PHA for the Sulphur Recovery Unit (SRU) done on August 11, 2014. During the review, we did not find a list of the incidents that I typically see as identification of any previous incidents, which had a likely potential for catastrophic consequences; however, there was language that stated these incidents were reviewed. PRSI staff was able to produce a list of these incidents from a database.

**40 C.F.R. § 68.69 Operating Procedures** – PRSI uses an electronic system to maintain their operating procedures. We reviewed several randomly selected operating procedures and discussed how the procedures were used. The operators print the procedure to be followed, check off tasks done, and turn the completed procedures to their supervisor. The operating procedures met the requirements of this part.

**40 C.F.R. § 68.71 Training** – We discussed the training program that PRSI had set up, specifically the new employee procedure and how they insure that the three year refresher trainings are occurring. I requested and was provide the training files for five randomly selected employees who work in risk management program covered units. We reviewed these and noted the initial certification of training and the occurrence of the three year refresher training.

**40 C.F.R. § 68.73 Mechanical Integrity** –I requested and was provided a written procedure to maintain the ongoing integrity of process equipment. It appeared to be a quality procedure. We discussed the mechanical integrity with several PRSI staff. The inspectors are trained and required to obtain certification in their specialties, such as American Petroleum Institute (API) and/or Vibration Institute certifications. We reviewed examples of the documentation of each inspection and test that has been performed on process equipment. This documentation included the date of the inspection or test, the name of the person who performed the inspection or test, an identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test. We discussed the procedure PRSI has in place to correct deficiencies in equipment that are outside acceptable limits and several examples of this procedure in action. PRSI's positive material identification program and the process used to assure that equipment as it is fabricated is suitable for the process application assures that equipment is installed properly and consistent with design specifications and the manufacturer's instructions and assures that maintenance

materials, spare parts and equipment are suitable for the process application for which they will be used were discussed.

I requested and was provide a list of any out of date inspections on RMP process equipment. Five pressure vessels were overdue for internal API 510 inspections and 7 % of piping circuits were overdue for external visual inspections. The piping circuit inspections will be done by the end of August 2015. PRSI has done fitness for service assessments on the overdue pressure vessels and is planning to get the internal inspections done.

**40 C.F.R. § 68.75 Management of Change (MOC)** – We reviewed PRSI’s written procedure for MOC and discussed the MOC process with PRSI staff. We reviewed MOC documentation from randomly selected MOCs, including a permanent closed change and a temporary change.

**40 C.F.R. § 68.77 Pre-startup Review** – Pre-Startup Safety Review (PSSR) was also covered by PRSI’s MOC written procedure. We discussed how PSSRs are conducted and reviewed the form used to record each PSSR.

**40 C.F.R. § 68.79 Compliance Audits** – I requested to review the two most recent risk management program compliance audits during the inspection. I was provided the two most recent compliance audits. The most recent audit was December 2013. It evaluated compliance with the provisions of this subpart and was conducted by at least one person knowledgeable in the process. A report of the findings of the audit was developed. PRSI had in place an administrative and database system to promptly determine and document an appropriate response to each of the findings of the compliance audit and document that deficiencies have been corrected.

**40 C.F.R. § 68.81 Incident Investigation** – I reviewed records from the National Response Center (NRC) and State of Texas Environmental Electronic Reporting System (STEERS) websites, and identified some potential incidents. I requested incident investigations from the following events:

1. May 25, 2012, a leak from the bottom of the acid re-run tower, releasing vapors to the atmosphere, Hydrogen fluoride (anhydrous) and etc. release;
2. July 18, 2012, a release of materials from two flares due to power outages, hydrogen sulfide;
3. January 27, 2015, a spill of reformate, other oil (reformate) (a gasoline blend stock that contains benzene);
4. March 29, 2015, a high-point bleeder vent cracked when it was inadvertently struck while removing adjacent piping for maintenance; and
5. April 19, 2015, a crack in the flare header downstream of the ARN resulted in a hydrofluoric acid release.

PRSI had these investigation reports ready for review during the inspection. I reviewed the reports and found that they contained date of incident, date investigation began, a description of the incident, the factors that contributed to the incident, and any recommendations resulting from the investigation. PRSI had established a system to promptly address and resolve the incident report findings and recommendations. Resolutions and corrective actions were documented in an electronic database system. PRSI had a system in place to insure that the report is reviewed with all affected personnel whose job tasks are relevant to the incident findings, including contract employees where applicable.

**40 C.F.R. § 68.83 Employee Participation** – We requested and reviewed a written plan of action regarding the implementation of employee participation to insure that consultation with employees and their representatives on the conduct and development of process hazards analyses, on the development

of the other elements of process safety management, and to provide employees and their representatives access to process hazard analyses and to all other information required to be developed under this rule. We discussed this document and employee participation with a union representative.

**40 C.F.R. § 68.85 Hot Work Permit** – We reviewed hot work permits that had been issued by PRSI the week prior to the inspection. The permits met the requirements of this part.

**40 C.F.R. § 68.87 Contractors** – We discussed how contractors are selected. PRSI takes into account the contractors safety performance, safety programs, training, and qualifications. PRSI utilizes a badging system to control access to the facility that insures contractors have site specific safety training that informs them of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.

#### **Subpart E – Emergency Response**

**40 C.F.R. § 68.90 Applicability** – PRSI's employees will respond to releases and fires. PRSI has a voluntary fire brigade.

**40 C.F.R. § 68.95 Emergency Response Program** – The volunteer fire brigade members are trained at an accredited fire school. I reviewed some of these records during the training records review. PRSI developed an emergency response plan, which is maintained at the stationary source. We reviewed this plan and it contained procedures for informing the public and local emergency response agencies about accidental releases, documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures, and procedures and measures for emergency response after an accidental release of a regulated substance. PRSI instituted an electronic system for tracking the inspection of emergency response equipment including fire extinguishers, self-contained breathing apparatuses, etc.

**Subpart G—Risk Management Plan** – I reviewed the RMP PRSI submitted on June 25, 2014. I noted that the PHA completion date associated with the unit described as "For PRSI's Alkylation Units 1&2, PRSI utilizes fire water sprays, fire water monitors, fire water hydrants, portable fire water monitors, firefighting foam monitor stations, snuffing steam for heater fire boxes, hydrofluoric acid gas detectors & combustible gas detectors" was more than five years previous to the submittal date. February 19, 2009, to June 25, 2014 is about 5 years and 4 months. PRSI provided me a schedule of PHAs during the inspection. The most recent PHA for this unit appeared to be from June 2013. I requested and was provided the cover page for this PHA that clearly shows it was done June 10-16, 2013. The PHA completion date of February 19, 2009 appear to be an error.

**40 C.F.R. § 68.190 Updates** – I reviewed the RMP history of PRSI and found that there have been four updates to the RMP since June 16, 1999, as seen on Table 3 below. The most recent submittal was submitted as the 5-year update by PRSI, on June 25, 2014. A new 5-year update will be due on or before June 25, 2019, or sooner if an update required by 40 C.F.R. § 68.190 (b)(2) through (b)(7). Updates are required no later than three years after a newly regulated substance is first listed by EPA, no later than the date on which a new regulated substance is first present in an already covered process above a threshold quantity, no later than the date on which a regulated substance is first present above a threshold quantity in a new process, within six months of a change that requires a revised PHA or hazard review, within six months of a change that requires a revised offsite consequence analysis as provided in 40 C.F.R. § 68.36, and within six months of a change that alters the Program level that applied to any covered process. PRSI and EPA discussed some scenarios that would require a RMP update, such as the construction of a new larger pressure vessel for storage of a RMP substance and the removal of chlorine from the facility.

Table 2: Pasadena Refinery Risk Management Plan Submittal History

| Plan Sequence Number | Sub Type | EPA Facility Identifier | Facility Name                             | Facility City | Facility State | Receipt Date |
|----------------------|----------|-------------------------|-------------------------------------------|---------------|----------------|--------------|
| 10434                | F        | 100000038274            | Crown Central Petroleum, Houston Refinery | Pasadena      | TX             | 06/16/1999   |
| 38541                | R        | 100000038274            | Crown Central Petroleum, Houston Refinery | Pasadena      | TX             | 06/25/2004   |
| 55654                | R        | 100000038274            | Pasadena Refinery                         | Pasadena      | TX             | 07/01/2009   |
| 14356                |          |                         |                                           |               |                | 04/11/2014   |
| 1000044930           | R        | 100000038274            | Pasadena Refinery                         | Pasadena      | TX             | 06/25/2014   |

**40 C.F.R. § 68.195 Required Corrections** – During the inspection, PRSI and EPA discussed required corrections to the RMP. PRSI will have to submit corrections to their RMP if there is an accidental release meeting the five-year accident history reporting criteria of 40 C.F.R. § 68.42 within six months of the release or by the time the RMP is updated under 40 C.F.R. § 68.190, whichever is earlier. Also, if the emergency contact information changes, a submission to correct that information has to be submitted within one month.

**Close Out Meeting** – A close out meeting was held on July 16, 2015, at 15:00. I thanked PRSI for their professionalism and cooperation during the inspection. The following persons were in attendance representing PRSI:

Table 3: Close Out Meeting Attendance

| Name                 | Position                                                     |
|----------------------|--------------------------------------------------------------|
| Bill Domescik        | Maintenance Director                                         |
| Fernando F. Oliveira | Chef Executive Officer                                       |
| Galicia Cruz         | Environmental Contractor (SAGE)                              |
| Jim Wallwork         | Environmental Manager                                        |
| John Edmunds         | Operations Director                                          |
| Mark Berlinger       | Director of Health, Safety, Security, and Environment        |
| Richard C. Funesti   | Health & Safety Manager                                      |
| Ronald Bernads       | Petrobras Maintenance Department                             |
| Tayares Pillard      | Process Safety Representative                                |
| Wade Hollman         | Tech Service Manager                                         |
| Tony Robledo         | Enforcement Officer U.S EPA Region 6 (6EN-AA)                |
| Dave Hensley         | Physical Scientist (Environmental) US EPA Region 6 (6EN-AS). |

The areas of concern (AOC) in the following section were discussed during this close out meeting. The process of the inspection report and potential enforcement process were discussed.

### Section III – AREAS OF CONCERN

#### 1. 40 C.F.R. § 68.73(d)(3)

*“§ 68.73 Mechanical integrity... (d) Inspection and testing. (1) Inspections and tests shall be performed on process equipment... (3) The frequency of inspections and tests of process equipment shall be consistent with applicable manufacturers’ recommendations and good engineering practices, and more frequently if determined to be necessary by prior operating experience.”*

There were five of the seven hundred sixty five (765) pressure vessels identified by PRSI as overdue for American Petroleum Institute Standard 510 “Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration” internal inspections. This industry standard says “A primary goal of the internal inspection is to find damage that cannot be found by regular monitoring of external CMLs [Condition monitoring locations]”. PRSI has conducted engineering analysis determining if these vessels are safe to remain in operation. PRSI has taken one pressure vessel out of service that was on this list of overdoes.

Section 6.5.1.1 of API 510 says “unless justified by a RBI [Risk-based Inspection] assessment, the period between internal or on-stream inspections shall not exceed one half the remaining life of the vessel or 10 years, whichever is less”. PRSI stated that they do not do risk-based inspection. The five pressure vessels all have dates of last inspection done that are greater than ten years ago at the time of this inspection.

#### 2. 40 C.F.R. § 68.175(e)

*“§ 68.175 Prevention program/Program 3. (a) For each Program 3 process, the owner or operator shall provide the information indicated in paragraphs (b) through (p) of this section... (e) The date of completion of the most recent PHA or update and the technique used.”*

In the Risk Management Plan submitted by PRSI on June 25, 2014, Plan Sequence Number: 1000044930, the “PHA Completion Date (Date of last PHA or PHA update)” was listed as “19-Feb-2009”. This can be seen in the figure below. Taken from page 43 of 113 of the June 25, 2014, Risk Management Plan submittal. This date is more than five years from the submittal date, and thus raised the concern of a potential overdue PHA. It was determined during the inspection that there was a PHA done on June 10-18, 2013. This is the date of the latest PHA for the Alkylation 1 & 2 and Propane Defluorinator Units, and would be the correct date to replace “19-Feb-2009”. PRSI stated that they would make this correction in the RMP.

Facility Name: Pasadena Refinery  
EPA Facility Identifier: 1000 0003 8274

Plan Sequence Number: 1000044930

NAICS Code:

32411

### Safety Information

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Safety Review Date (The date on which the safety information was last reviewed or revised): 19-Feb-2009

### Process Hazard Analysis (PHA)

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PHA Completion Date (Date of last PHA or PHA update): 19-Feb-2009

Figure 1: Selection of Risk Management Plan showing the PHA Completion Date in question

## Section IV – FOLLOW UP

PRSI corrected the date of the date of the latest PHA for the Alkylation 1 & 2 and Propane Defluorinator Units to June 18, 2013, on July 28, 2015, to address area of concern 2 above.

Facility Name: Pasadena Refinery  
EPA Facility Identifier: 1000 0003 8274

Plan Sequence Number: 1000044930

NAICS Code:

32411

### Safety Information

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Safety Review Date (The date on which the safety information was last reviewed or revised): 18-Jun-2013

### Process Hazard Analysis (PHA)

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PHA Completion Date (Date of last PHA or PHA update): 18-Jun-2013

Figure 2: Selection of Risk Management Plan showing the PHA Completion Date corrected

## Section V – LIST OF APPENDICES

CBI = Confidential Business Information

Appendix 1 – Sign in sheet from opening and closing meetings

Appendix 3 – Mechanical Integrity, CBI

Appendix 4 – Cover Page of June 2013 PHA for the Alkylation 1 & 2 and Propane Defluorinator Units, CBI