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Current FRS Number:
(Found in EnviroFacts)

110000505640

Facility Name & Physical Address:

Citgo Corpus Christi Refinery East
1801 Nueces Bay Blvd
Corpus Christi TX 78407

Remarks:

Inspection report Aug 12-14, 112(4) Risk management plan inspection
2004

Requestor's Name & Phone Number:

Janet Adams 5-3157

FOR COMPLETE REPORT
SEE AIR CBI FILES

11000305670

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OCT 1 2009
Air/Toxics & Inspection
Coordination Branch
6EN-A

ENVIRONMENTAL PROTECTION AGENCY
REGION 6
SURVEILLANCE SECTION
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

DATE: 09/01/09

SUBJECT: Transmittal Memo - Compliance Monitoring Report
FROM: Stacey Dwyer, Chief Stacey Dwyer
Surveillance Section (6EN-AS

TO: Esteban Herrera, Chief
Air Enforcement Section (6EN-AA)

A 112 (r) Air Compliance inspection was conducted on August 12-14, 2009 at the following location:

FACILITY NAME: CITGO Corpus Christi Refining

ADDRESS: 1802 Nueces Bay Blvd

CITY: Corpus Christi Refinery 78407

INSPECTOR: Minerva De Leon (6EN-ASH),

Enforcement Officer: Guadalupe Pesina (6EN-AT)

TYPE FACILITY: FEDERAL ( ) INDUSTRIAL(X)

112r(x)

REGION 6
SURVEILLANCE SECTION
AIR INSPECTION REPORT

Report Date:	09/01/2009
Inspection Date:	08/12/2009-08/14/2009
Type of Inspection:	RMP and 112 R
Company Name:	CITGO Corpus Christi Refinery East Plant
Mailing Address:	P.O. Box 9176
Location:	**Corpus Christi, Tx. 78469-0321**
Corporate Address Email mricke@CITGO.com Agent of service Michael Ricke	CITGO Refining &Chemicals Co. L.P. 1801 Nueces Bay Blvd. Corpus Christi, Texas 78469-0321
Type of Industry/NAIC/SIC/AFS:	Refining
NAIC#	32411
SIC #	2912
AFS#	**RMP number #1000 0013 9566**
Identification Number	**TXD 10000013 9566**

Enforcement Officer	Guadalupe Pesina (6EN-AT)
EPA Inspector	**Minerva De Leon**(6EN-ASH)
Reviewed by:	

Signature *Minerva De Leon* 9/10/09

Richard Ziegler 9-10-09
Signature Date

Executive Summary:

This inspection report is comprised of three sections numbered I through III:

Section I discusses the purpose of the inspection, a general description of the portion of the facility inspected and names and phone numbers of individuals involved in the inspection. General process flow diagrams and process descriptions included in **ATTACHMENT 1**.

Section II includes a discussion on the finding's of the inspection. In the discussion section, only highlights of the inspection are discussed. Detailed records reviews occurring during the inspection are not discussed in detail unless any specific concerns were raised during the reviews of the many records the facility is required to maintain.

Section III includes a summary of areas of concern discovered during the inspection and closing conference. (Note that the findings stated in Section III of the report may include non-compliance, compliance or alleged areas of concern, and should not preclude any further enforcement document review, legal review or further enforcement action).

Section (I)
Purpose:

On August 12-14, 2009 an unannounced 112 (r) inspection was conducted by the United States Environmental Protection Agency Region 6 at the CITGO facility located in Corpus Christi, Texas. The inspection was conducted under the authority granted by Section 114 of the Clean Air Act. The facility was targeted for inspection to determine compliance with Section 112(r) of the Clean Air Act and Part 68 –Chemical Accident Prevention Provisions and Subpart D Program 3 Prevention Program of the Risk Management Plan.

Upon arrival at the facility Mr. Michael Ricke, HSE Manager, Mr. Paul Choucair, Sr. Environmental Advisor and Ryan Niltze, RMP coordinator and Emergency Services Leader for the facility were contacted, credentials were presented, and the purpose and scope of the inspection was explained. Mr. Ricke and his staff provided the requested information and accompanied the inspector during the inspection.

Introduction:

The former Champlin Refinery in Corpus Christi, which was purchased by PDVSA from Union Pacific, was integrated into the CITGO refining network in 1990. CITGO is owned by Venezuelan state oil company Petroleos de Venezuela and is a major US refiner with a system-wide capacity of 865,000 barrels per day. Roughly, half of the oil it processes, some 430,000 b/d, is sourced from Venezuela. There had been no previous accidents reported to US EPA which include fire and explosions at the Plant which meet the criteria outlined in 40 CFR 68.42 (a), and the only incident reported occurred on July 19, 2009 at 8:30 am., which is the purpose for this investigation. This investigation focused on the RMP and 112 (r) issues. According to the facility and the incident report (attachment A) stated that on July 19, 2009, at approximately 0835 hours, an equipment failure resulted causing a fire of released Butane, and a potential release of Hydrogen Fluoride from a #2 Alkylation Unit at the CITGO Corpus Christi east plant. Perimeter monitoring conducted by TCEQ and CITGO did not detect any VOCs or Hydrogen

Fluoride. The fire fighting and water spray suppression appear to have prevented any releases from being detectable at the site perimeter. One injury resulted from the initial fire.

The following personnel were involved in the inspection:

Michael Ricke	HSE manager mricke@CITGO.com	CITGO	361-844-4188
Ryan Nitzel	RMP rnitzel@CITGO.com	CITGO	361-815-3760
Paul Choucair	Air Specialist pchoca@CITGO.com	CITGO	361-844-4648
Minerva De Leon	Environmental Scientist deleon.minerva@epa.gov	US EPA	281-983-2149
Guadalupe Pesina	Enforcement Officer Pesina.guadalupe@epa.gov	US EPA	214-665-8375
Ronald Tenpas	Morgan &Lewis rtenpas@morganlewis.com	CITGO outside attorney	202-739-5435

Section (II) Inspection Findings:

On August 12-14, 2009, (USEPA) Minerva De Leon and Guadalupe Pesina arrived at the CITGO Plant and presented credentials to Michael Ricke, Manager of HSE and Paul Choucair, Title V Air Specialist. The last emission report provided to the Texas Commission on Environmental Quality (TCEQ),on August 14, 2009 stated that an equipment failure resulted causing a fire and release of the following:

Butane (12,187lbs), Heptane (8271.5lbs), Nonane (4363.4lbs), and total **Hydrogen fluoride (3,996.9lbs)**, Isobutane (25,544lbs.), Butylene (1110.7lbs), Pentane (7522lbs), Hexane (686.4lbs), Octane (56,102lbs), and Propane 2107.3lbs and other VOC including benzene form two emission points. The two emission points reported on Steers Incident 126966 list the Alky unit 83-u83 and the Fluor Flare stack F442. One person was severely burned /injured and is in intensive care. We provided a list of documents that we would need to conduct the CAA 112 r and RMP inspection to Mr.Choucair and a tour was provided to the accident site at the Alkylation unit. There was asbestos on the ground near the Alkyation unit next to the HF settler. The company was requested to provide an asbestos survey of the plant as required in NESHAPS part 61. (See photos). Evident in the Benzene unit (hydrar) next to the burned HF Acid Settler

unit was also the Hydrar burned compressors and equipment. It appears that the fire started in the HF unit and spread to the Hydrar. According to the two people that were interviewed; a blocked valve failure caused the Isomerization unit to over pressurize causing the cooling system to begin failing so the operators were asked by the central control (DCS) board operator to ***manually re-route*** the flow to another pump (Pumps 83-P8A/B). When they realized they were not getting a flow, they rerouted the flow directly to the unit, and the control valve began shaking, that is when one of the operators saw a section of the pipe split, and a vapor cloud was emitted. The other operator said he was trying to ***unlock an emergency water hose/pump when he saw the injured operator run pass him with the*** **vapor cloud behind him.** This same operator then ran passed the Hydrar unit and heater to try to help the injured operator open another hose, but there was an immediate ignition and fire.

- **The following areas of concern were discovered during the inspection:**

§ 68.3 Definitions.

Accidental release means an unanticipated emission of a regulated substance or other extremely hazardous substance into the ambient air from a stationary source.

Covered process means a process that has a regulated substance present in more than a threshold quantity as determined under § 68.115.

Petroleum refining process unit means a process unit used in an establishment primarily engaged in petroleum refining as defined in NAICS code 32411 for petroleum refining (formerly SIC code 2911) and used for the following: Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants; Separating petroleum; or Separating, cracking, reacting, or reforming intermediate petroleum streams. Examples of such units include, but are not limited to, petroleum based solvent units, alkylation units, catalytic hydrotreating, catalytic hydrorefining, catalytichydrocracking, catalytic reforming, catalytic cracking, crude distillation, lube oil processing,hydrogen production, isomerization, polymerization, thermal processes, and blending, sweetening, and treating processes. Petroleum refining process units include sulfur plants. The CITGO EAST Plant Crude /Vacuum Unit is a covered process.

§68.42 Five-year accident history.

(a) The owner or operator shall include in the five-year accident history all accidental releases from covered processes that resulted in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage.

CITGO failed to list an accident that occurred on February 22, 2008 in their 5 year accident history (see attachment letter March 27, 2008 CITGO Inter office letter attachment level III PSM RCFA Investigation report).

On February 22, 2008 at approximately 10:40 am a bleeder on the inlet of 11E-030A failed while two Repcon employees were in the process of installing a chemical/steam injection manifold. The injection manifold was to be used for chemical cleaning and steam out of the Crude /Vacuum unit during the upcoming turnaround. The manifold was initially installed upside down and was being loosened for repositioning when the incident occurred. The bleeder suffered an instant load failure in a root thread at the face of the thread o-let due to the load of the injection manifold and other forces involved in the installation process. Exchanger product was released through the ¾" bleeder break and immediately sprayed the personnel and surrounding equipment Two Repcon (contractors) employees directly involved in the incident and three other Repcon employees associated with the response were transported and treated for hot oil burns from the resulting release of 550 degree F. Vacuum Tower bottoms. The Crude Vacuum tower is listed in CITGO's 2009 RMP submittal and is a covered process with flammables and toxics. The most recent RMP submittal did not list this accident or mention that five Repcon employees were taken from the Crude/Vacuum Unit and transported for medical treatment because of this incident. CITGO released hydrocarbons from the crude unit and injured five contractors.

§ 68.73 Mechanical Integrity

Mechanical integrity means the process of ensuring that process equipment is fabricated from the proper materials of construction and is properly installed, maintained, and replaced to prevent failures and accidental releases.

d) Inspection and testing. (1) Inspections and tests shall be performed on process equipment.

(2) Inspection and testing procedures shall follow recognized and generally accepted good engineering practices.

(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.

- From the quick review of their last CITGO Corp. 2009, RMP Audit clamps on pipes were not being inspected on a regular basis. Also from the operator's interview, it appears that the RMP mechanical integrity program is not functioning (68.73(d) 3. Pipes in HF service should not be screwed they should be welded and clamps on top of clamps on large pipes in HF service is not the best available control technology according to UOP technology which is the engineering basis for the Alkylation unit process 68.73(f)(3).

§ 68.67 Process hazard analysis.

(a) The owner or operator shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this part. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the

process. The owner or operator shall determine and document the priority order for conducting process hazard analyses based on a rationale, which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. The process hazard analysis shall be conducted as soon as possible, but not later than June 21, 1999. Process hazards analyses completed to comply with 29 CFR 1910.119(e) are acceptable as initial process hazards analyses. These process hazard analyses shall be updated and revalidated, based on their completion date.

(c) The process hazard analysis shall address:

(1) The hazards of the process;

(2) The identification of any previous incident, which had a likely potential for catastrophic consequences

- It also appears that the water cannons that are supposed to turn on automatically failed to detect HF and turn on during the fire. They failed to detect HF in the unit and the control room operator had to turn them on manually (see Incident command log page 00009716) at approximately 10:56 am almost 2 hours later after an operator had been injured. The sequential laser beam monitor's records provided as attachment 00010975 prove that the monitors were detecting 100-164 ppm of HF yet the deluge system failed to turn on automatically. The water cannons had to be turned on manually according to the Incident Command Log provided in attachment page number 00009106. This is a failure of the mechanical integrity program and improper poor analysis of the (PHA) hazards and consequences of the Iso-stripper's failure, which provide only the water cannons deluge system as the backup for an accidental HF release. According to a senior operator, this Alky unit had previously vibrated and shaken out of control and this incident was not considered or taken into account in the PHA established as required by this section (see PHA 00000577).

d) Inspection and testing. (1) Inspections and tests shall be performed on process equipment.

(2) Inspection and testing procedures shall follow recognized and generally accepted good engineering practices.

- The quarterly calibrations set points of the laser beam monitoring/deluge system were set at 10 parts per million (ppm) which is higher than the 15 minute OSHA STEL of 3 ppm for HF. According to the Ryan Nitzel, RMP coordinator the set points are at 10 ppmm (parts per million per meter) because it would be difficult for workers to try to find, correct and indentify a leak with 12,000 gallons of water on them.

§ 68.87 Contractors

5) The owner or operator shall periodically evaluate the performance of the contract owner or operator in fulfilling their obligations as specified in paragraph (c) of this section

The quick review of their last CITGO Corp. 2009 RMP Audit stated that they had not evaluated to date the 3 year training requirements on the contractors and that they were to accomplish this by 12/2009. The Audit finding details that CITGO has failed to audit the contractor's training records or to verify these records by an independent contractor.

§ 68.69 Operating procedures

(a) The owner or operator shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements.

(2) Operating limits:

(i) Consequences of deviation; and

(ii) Steps required to correct or avoid deviation.

(3) Safety and health considerations:

(i) Properties of, and hazards presented by, the chemicals used in the process;

(ii) Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment;

(iii) Control measures to be taken if physical contact or airborne exposure occurs;

(iv) Quality control for raw materials and control of hazardous chemical inventory levels; and,

(v) Any special or unique hazards.

(4) Safety systems and their functions.

- The Worst-case Scenario at CITGO is the loss of two tanks that contain HF. The last (2008) CITGO Corp. RMP audit recommended that the tanks have installed a sight gauge in order to verify the level of the tanks. CITGO representative Charlie O'Brien stated that they refuted this recommendation since they did not fill the tanks and only placed 500 barrels of acid in each tank. I asked Mr. O'Brien for this operating procedure and CITGO failed to produce an operating procedure. It is imperative that an operating procedure be conducted because a new operator may not know not to receive more than 500 barrels of acid since both tanks can hold 1500 barrels of HF. The regulation's intent is to prevent accidents and not installing simple preventive measures is impeding the success and intention of this regulation and failing to meet the best available control technology.

§ 68.79 Compliance audits

(a) The owner or operator shall certify that they have evaluated compliance with the provisions of this subpart at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed.

The facility failed to conduct the previous RMP Audit in 2006 they only completed an OSHA PSM audit. In the PSM audit, they mention that 14 tanks had not been inspected in 10 to 43 years and were over due for an inspection. There was no mention of any RMP Part 68 rules in this PSM Audit.

CITGO also failed to comply with, Section 112(r) (1) which states:

(r) Prevention of Accidental Releases

(1) Purpose and General Duty - It shall be the objective of the regulations and programs authorized under this subsection to prevent the accidental release and to minimize the consequences of any such release of any substance listed pursuant to paragraph (3) or any other extremely hazardous substance. The owners and operators of stationary sources producing, processing, handling or storing such substances have a general duty, in the same manner and to the same extent as section 654, title 29 of the United States Code, to identify hazards which may result from such releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur. The general duty clause has been in effect and enforceable since November 15, 1990. It applies to any facility where extremely hazardous substances are present. The general duty clause is a performance-based authority recognizing that owners and operators have primary responsibility in the prevention of chemical accidents. As part of this responsibility, many industries have developed standards and generally recognized safe practices to manage the risks associated with extremely hazardous substances. The EPA believes that owners and operators who have these substances must adhere, at a minimum, to recognized industry standards and practices (as well as any government regulations) in order to be in compliance with the general duty clause.

The general duty clause imposes the following primary obligations on the owners and operators of stationary sources:

- identify hazards which may result from accidental releases using appropriate hazard assessment techniques,
- Design and maintain a safe facility taking such steps as are necessary to prevent releases, and
- Minimize the consequences of accidental releases, which do occur.

Substances which causes death or serious injury because of its acute toxic effect or because of an explosion or fire or which causes substantial property damage by blast, fire, corrosion or other reaction would create a presumption that such substance is extremely hazardous.

CITGO failed to accomplish all the aforementioned listed areas and thus failed to comply with the General Duty Clause by failing to comply with Part 68, the Risk Management Prevention Program.

Closing conference:

On August 14, 2009 at approximately 10:00 a.m., a closing conference with Mr. Michael Ricke and his staff (CITGO) was conducted concerning the investigation findings and the areas of concern. I explained to Mr. Ricke that this investigation was part of a 112r response to the incident that occurred on July 19, 2009 and inspect the Risk Management and Prevention Program (RMP) issues. I explained that I found that CITGO had failed to keep the facility safe by failing to comply with the mechanical integrity program. The most glaring concern was that of their previous 2008/2009 Audit results from their CITGO Corporation-stating that most of the findings dealt with the mechanical integrity program inspections. Mr. Ricke said that he understood that the facility had this one incident, but his company had not had any previous reported RMP incidents. Mr. Ricke also commented on the mechanical integrity issue stating that he recently had closed those outstanding RMP Audit issues. I explained that the workers were very concerned with the mechanical integrity issues at the facility, and that it was not normal operating procedures to have releases of toxic gases, flammable substances, fires, explosions and injuries. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Attachments:

The following documents were provided by CITGO during this investigation

10 Photos of damages that were taken by CITGO,

Please make notation of documents that you do hold at this time or cannot be located.

*Root cause and all latest discoveries relating to the incident of July 19, 2009,
***An official report to what happened to the best of their knowledge at this time.**

Particulars

RMP: 40 CFR – Part 68.

Mechanical Integrity: Process equipment, flare and Alkylation Unit

• List and describe all open vented combustible Pressure Relief Devices.

• List and Describe open vented knockout drums, if any.

• Location, and performance studies of Pressure Relief devices, with records of recent valve liftings.

• Emergency shutdown methods that affect PCVs, Open vented PRVs, and Flares – automated, mechanical, controlled by operator.

• Flares: WCSs studies: Describe Worst Case Scenario analyses re: complete and substation power failures, simultaneous steam and cooling water failures. Flare system mass-flow rates, tip velocities, radiation rates, header pressure drops. Include effect of new refinery installations – engineering studies for each, and 5 year updates.

• Power supply: Cogen status and steam supply cushion – measures taken to prevent full power failures.

• Training, instructions and feedback re Emergency shutdown methods – frequency, quality.

• Near miss lists and tracking procedures – last 5 years reports, how tracked.

• Incident investigations, reports, and follow-up process, if different from above.
  • Review releases and notification times

- Investigation reports and root cause analysis: how are root cause analyses performed
- Measures to prevent recurrence

• Internal Audit Result Analysis – who performs 3 year updates.

• **Analysis** of refinery Inspection Department results–a copy indicating frequency, status, and who does.

• Alkylation unit

PHA participation – who does and method for 5 year updates.

• MOC participants and procedures:
For added capacity
For process and pressure changes

• Standards for equipment maintenance – how selected; who decides.

• Process Turnaround Selection Methods – cycle for each process.

• Process Safety Analysis – Who looks at full process unit safety situation:
Annual operating instruction validation and recertification.

• Equipment Replacement Determinations

I. Who in the refinery organization decides if, and when, repairs are "required" in a facility to maintain mechanical integrity?

II. If repair involves major expense (i.e;>$10 MM), how is money made available in the current accounting system in place for upgrading facility?

III. If funds not available, then what happens?

• Pre-startup procedures: Who is responsible. Approvals required – MOCs required. Who involved.

• Supervisor training and qualification criteria

• Unit Supervisor Job Description/Task delegation – contractors used.

• Management with technical experience to non-technical personnel ratio,
and selection criteria – Who. How.

• Contractor use: employee classifications and training – methods, schools supplying skills and
operator training?

• Emergency plan
Emergency equipment inspections, certifications operating procedures

Refinery Communications: when, where, who, and how?
- Outside operators to: Other units, Supervisors, Board operators
Management, Contractors, Maintenance, Process engineers
- Process engineering interaction with all of above.

Title V Permit
Special provisions and Maert (maximum allowable emission rate tables),