EPA United States Environmental Protection Agency

Region 6 - Enforcement & Compliance Assurance Division

Virtual Partial Compliance Evaluation Findings

Inspection Date(s):	January 26, 2021 – July 19, 2021	
Media Program:	Air	
Regulatory Program(s)	Clean Air Act Section 112(r) and 40 C.F.R. Part 68 Chemical Accident Prevention Provisions – Risk Management Program (RMP)	
Company Name:	**Sasol Chemicals USA LLC**	
Facility Name:	**Sasol Chemicals USA LLC**	
Facility Physical Location:	2201 Old Spanish Trail	
(city, state, zip code)	Westlake, Louisiana 70669	
Mailing address:	2201 Old Spanish Trail	
(city, state, zip code)	Westlake, Louisiana 70669	
County/Parish:	Calcasieu	
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Facility Contact:	Michael McCarble	Senior Manager Process Safety
	Michael.mccarble@us.sasol.com	
FRS Number:	110017418061	
Media Identifier Number:	1000 0009 9886 (EPA Facility Identifier)	
NAICS:	32511 Petrochemical Manufacturing	
SIC:	N/A	

Personnel participating in inspection:		
Justin McDowell	US EPA	Inspector
Howard Cole	US EPA	Inspector
Bryn Ray	LDEQ	Inspector
Keri Meyers	LDEQ	Inspector
Jamie Vicknair	LDEQ	Inspector
Glen Jenkins	LDEQ	Inspector
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Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

On January 19, 2021, the United States Environmental Protection Agency (EPA) Region 6 sent an email to facility personnel at the Sasol Chemicals USA LLC plant (Sasol), located in Westlake, Louisiana, to announce the initiation of a Clean Air Act Risk Management Plan (RMP) Virtual Partial Compliance Evaluation (VPCE). The e-mail informed Sasol personnel of the start of the VPCE which included a Microsoft Teams video opening conference scheduled on January 26, 2021. During the opening conference, Region 6 inspectors Howard Cole and Justin McDowell and the Louisiana Department of Environmental Quality (LDEQ) Chemical Accident Prevention Program inspectors Bryn Ray, Keri Meyers, Jamie Vicknair and Glen Jenkins met with Pieter Potgieter, Michael McCarble, Scott Tyler, Bruce Hubbard and Heather Kress. I presented my credentials and informed Sasol personnel that this was an EPA inspection to determine compliance with the federal Chemical Accident Prevention Program. The scope of the VPCE was to evaluate the facility's compliance with the Clean Air Act (CAA) Section 112(r) and the Chemical Accident Prevention Provisions in 40 C.F.R. Part 68 as well as the General Duty Clause. EPA inspectors discussed general VPCE procedural questions, confidential business information (CBI) procedures, interview schedules, the proposed timeline and the exit conference and final report. This VPCE is a new compliance monitoring tool that EPA Region 6 is utilizing during the COVID-19 Public Health Emergency. This evaluation included reviewing and obtaining copies of documents and records and conducting interviews and taking of statements via video conference.

FACILITY DESCRIPTION

According to the facility, Sasol's Lake Charles Chemical Complex (Sasol) uses natural gas and by-products from refinery operations to produce specialty chemicals for detergents and cosmetics. The chemical complex uses or produces several regulated flammables such as ethylene, propane, butane, propylene, ethane, butane, hydrogen, methane, and pentane. Regulated chemicals include Chlorine, Ethylene Oxide and Hydrogen Flouride. As such, the Sasol facility is classified as a Program 3 RMP facility. Sasol employs 1,258 full-time employees.

Section II – OBSERVATIONS

N/A

Closing Meeting – EPA convened a closing meeting on July 19, 2021, to discuss the Areas of Concern (AOC) noted during the VCPE, the inspection report completion process, and answer questions from Sasol personnel.

Section III – AREAS OF CONCERN (AOC)

AOC 1 – 40 C.F.R §68.67 (e) Process Hazard Analysis

"(e) The owner or operator shall establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.**"**

Sasol did not assure that 19 recommendations of the 2016 PHA were resolved in a timely manner and the actions were completed as soon as possible. The 19 recommendations from the 2016 PHA had not been completed as of February 2021.

AOC 2 – 40 C.F.R §68.73 (b) Mechanical Integrity

"(b) *Written procedures.* The owner or operator shall establish and implement written procedures to maintain the on-going integrity of process equipment.**"**

Sasol failed to implement written procedures to maintain the on-going integrity of the following process equipment:

1. Mixing Tees
2. Injection Points
3. Dead Leg Inspections
4. CUI Inspection
5. Soil/air interface

AOC 3 – 40 C.F.R §68.73 (d)(1) Mechanical Integrity

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

<u>Alcohol Unit:</u>

- External visual inspection records were not provided for circuit 6-HM-073.3-684-N-A2-1. During the virtual meeting on 6/17/2021, Sasol Chemical Inspection Manager stated that he was not sure if a previous record existed for that circuit. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> Alcohol>300-100.docx]
- Thickness examinations have not been taken for lines 1"-XP-073.3-1379-N-A2-5 and ¾-XP-073.3-1376-N-E2 since they were put into service. During the meeting on 6/17/2021, Sasol staff stated that they assume the piping installation date for these circuits were at the time the unit was built, which was sometime between 1965-1969. Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which sets thickness examinations of Class 1 piping to a maximum of every five (5) years. These lines are classified as Class 1 small bore piping, which "shall be inspected in accordance with all the requirements of this document" per API 570

section 6.6.1. The class of piping for these circuits was confirmed by Sasol staff during the meeting on 6/17/2021. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> Alcohol>ALC UPIPE.docx]

ETO Unit:

- Thickness examinations have not been taken for circuits 10"-HM-075-93-P-A16-3 1 and 1"IN-075-1142-N-A13-11 since they were put into service. During the meeting on 6/17/2021, Sasol MI staff stated that they assume the piping installation date for these circuits were at the time the unit was built, which was around the mid 1960's. Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which sets thickness examinations of Class 1 piping to a maximum of every five (5) years. These lines are classified as Class 1 small bore piping, which "shall be inspected in accordance with all the requirements of this document" per API 570 section 6.6.1. The class of piping for these circuits was confirmed by Sasol MI staff during the meeting on 6/17/2021. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> ETO>ETO UPIPE.docx]

- External visual inspection records were not provided for circuit 4"-HM-075-64-S-A16-3. During the virtual meeting on 6/17/2021, Sasol Chemical Inspection Manager stated that he was not sure if a previous record existed for that circuit. This class 2 piping circuit has gone without an external visual inspection since its time of installation, which was around the mid 1960's when the unit was built. API 570 *Piping Inspection Code* – fourth edition sets external visual inspections of Class 2 piping to a maximum of every five (5) years. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> ETO]

AOC 4 – 40 C.F.R §68.73 (d)(2) Mechanical Integrity

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

-failed to perform external piping inspections on Class 1 and Class 2 piping at 5-year intervals in the Alcohol and ETO units as required by API 570.

-failed to complete all CUI and Soil-Interface for pressure vessels such as but not limited to FB-613A in the Alcohol Unit in accordance with API 510.

-failed to perform internal inspections of pressure vessels such as but not limited to T6-677-FB-613A, T6-663-FB-805, D7-324-FA-410, in accordance with API 510.

AOC 5 – 40 C.F.R §68.73 (d)(3) Mechanical Integrity

"(d) *Inspection and testing.* (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."

Alcohol Unit:

- Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which sets external visual inspections of Class 1 piping to a maximum of every five (5) years. Piping circuits 10-HM-073.3-676-N-A2-1; 12-HM-073.3-662-H-A2-1 had an external visual inspection performed on 5/29/2013, which would have set the next one to be due on or before 5/29/2018 to meet the five (5) year inspection frequency. No external visual inspection was performed in 2018. During the virtual meeting on 6/17/2021, Sasol Chemical Inspection Manager stated that they were currently in the process of getting the external visual inspection performed for 2021. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> Alcohol>300-100.docx]

- Piping circuits 1"-XP-073.3-1379-N-A2-5, ¾-XP-073.3-1376-N-E2, and 2"-XP-073.3-1359-N-E2-1 had an external visual inspection performed on 6/3/2013, which would have set the next one to be due on or before 6/3/2018 to meet the five (5) year inspection frequency. No external visual inspection was performed in 2018. During the virtual meeting on 6/17/2021, Sasol Chemical Inspection Manager stated that they were currently in the process of getting the external visual inspection performed for 2021. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> Alcohol>300-159.docx]

- Thickness examinations for circuit 2"-XP-073.3-1359-N-E2-1 had not been taken since 4/8/2015 at the time of EPA's inspection. The next thickness examination was required to be conducted on or before 4/8/2020 to meet the five (5) year inspection frequency; however, this was not met. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> Alcohol>ALC UPIPE.docx]

Note: Thickness readings for this line have historically been late since the first reading was taken on 8/9/2005. The next thickness measurement was required to be taken on or before 8/9/2010; however, no readings were taken at that time. The UPIPE data report uploaded showed "EMPTY" under the rows for 2/15/2012, 3/17/2014, and 6/16/2014 readings. During the 6/17/2021 meeting, it was confirmed that the "EMPTY" classification meant that no reading was taken at that time. The next reading was taken on 4/8/2015, which was five (5) years late.

ETO Unit:

- Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which sets external visual inspections of Class 1 piping to a maximum of every five (5) years. Piping circuits 10"-HM-075-93-P-A16-3 and 1"IN-075-1142-N-A13-11 had an external visual inspection performed on 11/13/2014, which would have set the next one to be due on or before 11/13/2019 to meet the five (5) year inspection frequency. No external visual inspection was performed in 2019. During the virtual meeting on 6/17/2021, Sasol Chemical Inspection Manager stated that they were currently in the process of getting the external visual inspection performed for 2021. These circuits are class 1 small bore piping, which API 570 fourth edition section 6.6.1 requires to be inspected in accordance with all the requirements of the API 570

document. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> ETO>ETO-34.docx]

LAB Unit:

- Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which sets external thickness measurements of Class 1 piping to a maximum of every five (5) years. Piping circuit 10"-HM-811-182-P-B2-9 had thickness measurements taken on 10/1/2005, which would have set the next one to be due on or before 10/1/2005 to meet the five (5) year inspection frequency. No external visual inspection was performed in 2010. The next thickness measurement was not taken until 4/27/2016, making this circuit six (6) years late. See Table 1 below. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> LAB>10"-HM-811-182-P-B2-9>10"-HM-811-182-P-B2-9 & 6in-HM-992-H-B2-9 UpipeInfo.docx]

- Sasol's maintenance plan for pumps P72-306 and P72-307 sets a General PM and Turbine maintenance task to every six (6) months.

    - For P72-307, the 5/9/2017 6-month PM was four (4) months late and there was one 6-month PM missed during 2018. See Table 2 below.

    - For P72-306, there was one 6-month PM missed during 2016, the 12/20/2017 6-month PM was four (4) months late, and the 9/20/2018 6-month PM was three (3) months late. See Table 3 below.

Table 1. Late thickness readings for TMLs on circuit 10"-HM-811-182-P-B2-9.

TML Number	Location Description	First Survey Thick Nt	First Survey Date	Previous Survey Thick Nt	Previous Survey Date	Last Survey Thick Nt	Last Survey Date
312	31-10" ELL	0.373	**10/1/2005**	0.373 RR	**4/27/2016**	0.376 OR	2/28/2018
313	31-10" PIPE	0.355	**10/1/2005**	0.348 RR	**4/27/2016**	0.351 E	2/28/2018
314	31-10" PIPE	0.347	**10/1/2005**	0.338 RR	**4/27/2016**	0.342 T	2/28/2018
315	31-10" PIPE	0.361	**10/1/2005**	0.354 RR	**4/27/2016**	0.353 N	2/28/2018
316	31-10" PIPE	0.355	**10/1/2005**	0.354	**4/27/2016**	0.353 N	2/28/2018
317	31-10" PIPE	0.355	**10/1/2005**	0.353	**4/27/2016**	0.353 RR	2/28/2018
318	31-10" TEE	0.35	12/12/2013	0.36	4/27/2016	0.360 S	2/28/2018
319	31-10" PIPE	0.339	**10/1/2005**	0.342	**4/27/2016**	0.340 N	2/28/2018
331	31-8" PIPE	0.354	**10/1/2005**	0.302	**4/27/2016**	0.302 B	2/28/2018
332	31-6" ELL	0.287	**10/1/2005**	0.284	**4/27/2016**	0.280 OR	2/28/2018
333	31-6" PIPE	0.273	**10/1/2005**	0.264 RR	**4/27/2016**	0.268 T	2/28/2018
334	31-6" ELL	0.264	**10/1/2005**	0.26	**4/27/2016**	0.260 OR	2/28/2018
335	31-6" PIPE	0.258	**10/1/2005**	0.253 RR	**4/27/2016**	0.260 E	2/28/2018

Table 2. Late six-month maintenance tasks for P72-307.

Date of 6-month PM	Notes
8/26/2016	
5/9/2017	*4 months late
11/30/2017	
6/26/2018	
no 12/2018 record	*missed 6M PM
6/28/2019	
11/21/2019	
5/14/2020	
11/5/2020	

Table 3. Late six-month maintenance tasks for P72-306.

Date of 6-month PM	Notes
3/3/2016	
No 9/2016 record	*missed PM
2/16/2017	
12/20/2017	*4 months late
9/20/2018	*3 months late
3/26/2019	
9/10/2019	
3/12/2020	
9/25/2020	
3/23/2021	

AOC 6 – 40 C.F.R §68.73 (e) Mechanical Integrity

"(e) *Equipment deficiencies.* The owner or operator shall correct deficiencies in equipment that are outside acceptable limits (defined by the process safety information in §68.65) before further use or in a safe and timely manner when necessary means are taken to assure safe operation."

a. Piping circuit 10"-XF-811-1322-N-B2-9X had an external visual inspection performed on 4/5/2018 in which the API 570 inspector noted a leak clamp located at VI-04 and provided written notification to remove the clamp and repair permanently. The leak clamp failed on 6/7/2019 causing a release of hydrofluoric acid (HF). This was associated with work order #950009217, which had a required start date of 4/9/2018 in the system. D. Morgan put into the comments section the following statement date stamped at 7:11:53 on 6/11/2019 – "On 11/16/2018 a visual inspection was performed on the leak clamp and there wasn't any evidence of leakage. Therefore, the next repair or visual inspection due date will be rescheduled 1 year from today's date 6/11/2019". This comment was date stamped at 7:11:53 on 6/11/2019, a year and two months past the required start date in the work order and four days after the leak clamp failed. Sasol holds their in-service piping to API 570 *Piping Inspection Code* – fourth edition, which states that temporary repairs may remain in place for a longer period of time only if approved and documented by the piping engineer. This was not done until after the leak clamp failed and caused a release; therefore, the owner or operator failed to correct deficiencies in equipment that are outside acceptable limits before further use or in a safe and timely manner when necessary means are taken to assure safe operation. [Location: Non-Confidential Business Information> 011-Section C-MI Program> Document Request 4 > Mechanical Integrity> LAB>10"-XF-811-1322-N-B2-9X>LAB 300 HF Acid-006 Final Report.pdf]

b. Sasol did not correct deficiencies in a timely manner by maintaining a pipe clamp (temporary repair) on a flange for more than 10 years. The pipe clamp was installed on the flange in 2010 and

was not removed and repaired until June 2021, 5 months after this RMP inspection was initiated. The leaking flange is located on a condensate line in the ETO Unit, operating at 366 F and 150 PSI.

AOC 7 – 40 C.F.R §68.75 (a)/(b) Management of Change

"(a) The owner or operator shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and, changes to stationary sources that affect a covered process.**"**

"(b) The procedures shall assure that the following considerations are addressed prior to any change: (1) The technical basis for the proposed change; (2) Impact of change on safety and health; (3) Modifications to operating procedures; (4) Necessary time period for the change.**"**

Sasol did not implement written procedures to manage changes to process equipment in that a management of change was not performed for the installation of a pipe clamp (Inlet 12" 300# flange,TR-2015-020), that assured that the following considerations were addressed:

-the technical basis for the proposed change;
-impact of change on safety and health;
-modifications to operating procedures;
-the time period for the change-10 years is not appropriate)

AOC 8 – 40 C.F.R §68.79 (d) Compliance Audits

"(d) The owner or operator shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected."

The 2016 Compliance Audit had action items past due for completion such as items #35 and #38.

The owner did not **promptly** document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.

1. The plant emergency alarms cannot be heard in all areas of the plant (CA 12938) (alarm system upgrade in-progress). Reference #10397
2. Mechanical Integrity: Mixing Tees (CA 12923) Reference #10366
3. Mechanical Integrity: Injection Points (CA 12922) Reference #10366
4. Mechanical Integrity: Dead Leg Inspections (12921) Reference #10366
5. Mechanical Integrity: CUI Inspection (12920) Reference #10366
6. Mechanical Integrity: Soil/air interface (12924) NDE. Reference #10366
7. Buried Piping (12913)
8. Pipe Trunions 12925
9. PMI Spare Parts (12930) and Retro PMI (10386), (12931)

AOC 9 – 40 C.F.R §68.81 (c) Incident Investigations

"(c) An incident investigation team shall be established and consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident."

The following investigation teams did not consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.

a. 2/ 2/ 2020
b. 12/27/2019
c. 12/26/ 2019
d. 12/20/2019
e. 7/27/2019

AOC 10 – 40 C.F.R §68.81 (d)(4) Incident Investigations

"(d) A report shall be prepared at the conclusion of the investigation which includes at a minimum: (4) The factors that contributed to the incident;"

The following report did not include factors that contributed to the incident:

a. 12/20/2019

AOC 11 – 40 C.F.R §68.81 (d)(5) Incident Investigations

"(d) A report shall be prepared at the conclusion of the investigation which includes at a minimum: (5) Any recommendations resulting from the investigation."

The following investigations did not have any recommendations resulting from the investigation:

a. 2/2/2020
b. 12/27/2019
c. 12/26/2019
d. 12/20/2019
e. 7/27/2019

AOC 12 – 40 C.F.R §68.81 (f) Incident Investigations

"(f) The report shall be reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable."

The following reports were not reviewed with all affected personnel:

a. 2/20/2020
b. 12/27/2019
c. 12/26/2019
d. 12/20/2019
e. 11/20/2019- the joint venture may have reviewed with personnel; however, I do not have any documentation or verbal confirmation that it was reviewed.
f. 7/27/2019

AOC 13 – 40 C.F.R §68.73 (f)(1) Mechanical Integrity

"(f) *Quality assurance.* (1) In the construction of new plants and equipment, the owner or operator shall assure that equipment as it is fabricated is suitable for the process application for which they will be used."

a. 1/13/2020 – Vent piping on vessel failed because bolts were under designed. The design is important because the system is operated at such a high pressure.

AOC 14 – 40 C.F.R §68.73 (f)(2) Mechanical Integrity

"(f) *Quality assurance.* (2) Appropriate checks and inspections shall be performed to assure that equipment is installed properly and consistent with design specifications and the manufacturer's instructions."

a. 12/20/2019 – XV-50272 valve bonnet leak. Result of an incorrect design for the valve as provided by a 3rd party firm. The design failure resulted in insufficient torque of the valve bonnet sealing surface bolts, which prevented the valve from retaining gas pressure.

AOC 15 – 40 C.F.R §68.69 (a) 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."

a. 1/11/2020 – The root cause was the procedure was not followed. The valve line-up once the nitrogen purging process is completed requires double block isolation from atmosphere. Only a single valve was closed. This single valve did not allow a tight isolation resulting in the loss of contamination. In addition, there was no single point of accountability. Inconsistency as to the way each step in the procedures in tracked and confirmed completed when multiple individuals work on different parts of the same process.