

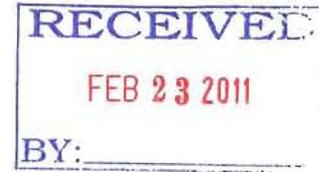


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February 18, 2011

Mr. R.M. Seeley,
Director, Southwest region
Pipeline and Hazardous Materials Safety Administration



RE: CPC 4-2011-5002M
Inadequacy in plans or procedures basis on a PHMSA Inspection Oct 4-7, 2010

Dear Mr. Seeley;

PB Energy Storage Services, Inc. has made changes to our Integrity Management Plan after the audit in order to correct the inadequacies found in this program. Following are the audit findings and our responses thereto;

1. §195.452 Pipeline integrity management in high consequence areas.

Pipeline NA I traverses through the Herbert Pump Station and was not accurately considered for risk analysis and must be re-evaluated, if necessary, or corrected as appropriate for PEE's integrity management program. The analysis in table 3 shows the evaluation was performed for NAI pipeline instead of for the correct pipeline, NAI.

PB did evaluate the pump station with this requirement included in the program and we created the following tables to show the evaluation of the report to help explain the results.

Hebert Road Pump Station

The Hebert Road Pump Station is located within Segment 3 of the NA I pipeline but a leak or release from station piping is not capable of affecting a populated area HCA, an ecologically sensitive area HCA or a commercially navigatable waterway. The distance from the pump station to the nearest HCA, a populated area HCA, is 3960 feet while the maximum downwind vapor cloud fire hazard extends only 2444 feet from the pump station as shown in Table 3 of this Article.

The pump station has a motor operated valve at the station's inlet and a motor operated valve at the station's outlet to isolate the station from the pipeline in the event of a leak or release within the pump station. For the purpose of performing the hazard analysis for the station piping, 600 feet of 6.625-inch OD is assumed to empty to the atmosphere. 600 feet represents the length of pipe located between the inlet and outlet isolation valves.

Results

Details of air dispersion modeling are shown in the following tables.

Table 1. NA I Pipeline Segments 1 - 5

FEATURE	NA I SEGMENT 1	NA I SEGMENT 2	NA I SEGMENT 3	NA I SEGMENT 4	NA I SEGMENT 5
Spill location	Between Mont Belvieu and BV 15	Between BVs 15 and 16	Between BVs 20 and 21 and includes partial loop drainage	Between BVs 21 and 22	Between BVs 22 and 23
Maximum spill volume lb	284,175	240,277	302,989	259,079	255,015
Product	Ethane	Ethane	Ethane	Ethane	Ethane
Flashpoint °F	-211	-211	-211	-211	-211
Weight airborne gas lb	251,832	207,861	269,820	225,849	221,852
Flame jet length ft	881 ft	881 ft	881 ft	881 ft	881 ft
Vapor cloud fire downwind hazard length ft	3,023	2,887	3,074	2,945	2,933
Vapor cloud fire downwind hazard width ft	3,023	2,887	3,074	2,945	2,933
Vapor cloud explosion building damage ¹ ft	1774	1664	1815	1711	1701
Vapor cloud explosion building destruction ² ft	404	379	413	390	387
HCA's affected	City of Mont Belvieu	Trinity River	City of Port Arthur	City of Port Arthur, City of Nederland, Neches River	City of Bridge City and Cow Bayou Channel

¹ Based on 1 psig overpressure as found in Table 5.1 of "Arehie" manual.

² Based on 10 psig overpressure as found in Table 5.1 of "Arehie" manual.

Table 2. NA I Pipeline Segments 6 - 10

FEATURE	NA I SEGMENT 6	NA I SEGMENT 7	NA I SEGMENT 8	NA I SEGMENT 9	NA I SEGMENT 10
Spill location	Between BVs 23 and 25 and includes partial loop drainage	Between BVs 25 and 26	Between BVs 26 and 27	Between BVs 28 and 29	Between BVs 29 and 30
Maximum spill quantity lb	231,184	264,421	392,503	366,478	271,319
Product	Ethane	Ethane	Ethane	Ethane	Ethane
Flashpoint °F	-211	-211	-211	-211	-211
Weight airborne gas lb	197,868	231,845	192,761	166,689	239,840
Flame jet length ft	881 ft	881 ft	881 ft	881 ft	881 ft
Vapor cloud fire downwind hazard length ft	2,853	2,964	2,835	2,738	2,988
Vapor cloud fire downwind hazard width ft	2,853	2,964	2,835	2,738	2,988
Vapor cloud explosion building damage ³ ft	1637	1726	1623	1546	1746
Vapor cloud explosion building destruction ⁴ ft	373	393	370	353	397
HCA's affected	City of Orange, City of West Orange, Sabine, Neches Waterway	City of West Orange	Vinton Waterway	City of Sulphur	City of Sulphur

³ Based on 1 psig overpressure as found in Table 5.1 of "Archie" manual.

⁴ Based on 10 psig overpressure as found in Table 5.1 of "Archie" manual.

Table 3. NA II Pipeline and Hebert Road Pump Station

FEATURE	NA II	HEBERT STREET PUMP STATION
Spill location	MP 3	Within pump station
Maximum spill quantity lb	342,190	103,553 ⁵
Product	Ethane	Ethane
Flashpoint °F	-211	-211
Weight airborne gas lb	283,180	103,553
Flame jet length ft	1,149	881
Vapor cloud fire downwind hazard length ft	3,110	2,444
Vapor cloud fire downwind hazard width ft	3,110	2,444
Vapor cloud explosion building destruction ⁶ ft	420	239
Vapor cloud explosion building damage ⁷ ft	1,845	1,048
HCAAs affected	Cities of Sulphur and Lake Charles	None, per Article Error! Reference source not found.

The following additional information/assumptions were utilized in making spill calculations:

1. All lines are operating with maximum operating pressure and normal operator control.
2. The atmospheric stability class is D with a 10 mph wind⁸ at ground level.
3. For spill potential occurring along looped segments,⁹ the portion of the adjacent loop bounded by remotely operated valves is also assumed to drain.
4. The pipelines are operating at maximum flow rate, maximum operating pressure and normal operator control.
5. Information on soil corrosive properties and the potential for frost action is taken from the United States Department of Agriculture Natural Resources Conservation Service – Soil Data Mart.

⁵ 30 minutes to shut pump station down

⁶ Based on 10 psig overpressure as found in Table 5.1 of "Archie" manual.

⁷ Based on 1 psig overpressure as found in Table 5.1 of "Archie" manual.

⁸ Based on National Climatic Data Center information for Port Arthur, Texas.

⁹ Segments 3 through 6.

2. §195.452(1) (see 1. above)

PBE's section 9.1 of their Integrity Management Program manual did not adequately describe P&M measures that must be taken to protect HCAs from detected threats. PEE must include a procedure for evaluating and categorizing P & M measures to be considered based on risk scores developed from identified threats.

PB had these measures in the IMP but it was requested that we put them in a table format. The procedures and the table follows.

Article 9 - Identification of Preventative and Mitigative Measures to Protect Unusually Sensitive Areas and Populated Areas (Reference §195.452(i)).

Evaluation Process for Additional Measures

The PB Engineer will evaluate the need for additional Preventative and Mitigative Measures for each segment capable of affecting an HCA not more than twelve months after completing an integrity assessment for that segment. The form contained in [Article 20](#) will be used as the primary tool for indicating the need for and prioritization of additional preventative and mitigative measures. A flowchart depicting this process is included in [Article 23](#).

The PB Engineer will review the individual threat scores from the most recent Risk Analysis for each pipeline segment and identify each threat factor having a score of five. Threat factors having a score of five will then be evaluated for the application of preventative and mitigative measures. Threat factors having a score less than five may also be evaluated for application of preventative and mitigative measures if the PB Engineer has reason to believe that there may be interaction with a threat factor having a score of five.

The PB Engineer will review the individual consequence scores from the most recent Risk Analysis for each pipeline segment and identify each consequence factor having a score of five. Consequence factors having a score of five will then be evaluated for the application of preventative and mitigative measures. Consequence factors having a score less than five may also be evaluated for application of preventative and mitigative measures if the PB Engineer has reason to believe that there may be interaction with a consequence factor having a score of five.

Based on the results of these reviews, the PB Engineer will identify potential Preventative and Mitigative Measures for the pipeline. Measures that may be considered include the following:

- a. Implementing damage prevention best practices.
- b. Enhanced monitoring of cathodic protection.
- c. Shortening inspection intervals.
- d. Installing EFRDs.
- e. Modifying systems that detect leaks and monitor pressure.
- f. Additional emergency response training.
- g. Drills with local emergency responders.
- h. Other Measures as appropriate for the specific pipeline segment.

The PB Engineer will then make appropriate recommendations for preventative and mitigative Measures to the Assistant Operations Manager. The Assistant Operations Manager will utilize reasonable judgment in the decision making process for implementing such Measures.

The PB Engineer is responsible for implementing the approved measures within the time frame specified in the approved Measures.

Continuing Preventative and Mitigative Measures

The following other Preventative and Mitigative measures have been implemented and will be continued until changed by the Assistant Operations Manager.

1. PB Energy's Pipeline Operations groups will maintain active participation in the Texas and Louisiana "One Call" Systems.
2. PB Energy's Pipeline Operations groups will continually monitor pipeline ROW patrol reports for unreported excavation or other activity along the pipeline ROWs.
3. The Assistant Operation Manager will review and update the Emergency Response Plan (ERP) annually and after each leak or spill incident, if required. The Assistant Operations Manager will ensure that updates to the ERP, O&M manual and IMP are in agreement with each other.
4. The Assistant Operations Manager and Pipeline Operations Manager shall ensure that the Operator Qualification program remains a fully functioning program for all Contractors performing covered tasks related work for PB Energy. The Assistant Operations Manager and Pipeline Operations Manager will advise the Operations Manager of necessary changes to be made to the Operator qualification Program.
5. The Assistant Operations Manager will maintain and integrate the integrity management program with all other regulatory and PB Energy programs in pipeline operations and maintenance. The Assistant Operations Manager is responsible for developing an awareness of the integration of these programs within the Contract Operations and Maintenance Group.
6. The Assistant Operations Manager shall maintain and expand as necessary PB Energy's public awareness program.
7. The Pipeline Operations Manager shall maintain and expand as necessary contacts with local emergency agencies. Such contacts shall be made at least annually and records of meetings kept. At least one joint drill will be held annually.
8. Only OQ qualified individuals may perform annual cathodic protection readings as required by §195.573.
9. Engineering work required as part of the ongoing IMP shall be performed by or supervised by registered professional engineers.

2010 Preventative and Mitigative Measures Evaluation Summary for Segments of the NAI Line that Are Capable of Affecting HCAs

Results of the 2010 preventative and mitigative measures evaluations are shown in the following table.

SEGMENT #	RELATIVE RISK SCORE	P&M MEASURES CONSIDERED PER 49 CFR 195.452(1)(4)	P&M MEASURES CURRENTLY IMPLEMENTED	COMMENTS
9	5.72	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	Additional EFRDs not recommended for installation per EFRD Evaluation completed on June 19, 2007
4	5.57	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
1	5.39	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
3	5.38	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
5	5.22	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
6	5.21	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
7	5.04	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment

SEGMENT #	RELATIVE RISK SCORE	P&M MEASURES CONSIDERED PER 49 CFR 195.452(1)(4)	P&M MEASURES CURRENTLY IMPLEMENTED	COMMENTS
10	4.99	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	EFRDs currently installed on this segment
8	4.93	Enhance cathodic protection if corrosion is a concern Conduct drills with emergency responders Implement damage prevention best practices	Hourly line balancing from leak detection system Annual drills with emergency responders Weekly patrol	Additional EFRDs not recommended for installation per EFRD Evaluation completed on June 19, 2007
2	4.11	Enhance cathodic protection if corrosion is a concern Implement damage prevention best practices	Hourly line balancing from leak detection system Weekly patrol	EFRDs currently installed on this segment

Notes:

1. Larger relative risk scores indicate greater risk.
2. Details of the P&M measures evaluation for each segment are available for review.
3. P&M measures considered are based on scores of threat and consequence factors from the 2010 Risk Analysis.

3. §195.452(1) (see 1. above)

(7) Methods to measure the program's effectiveness (see paragraph (k) of this section);

a. Performance metrics report must be developed for including safety concerns related to the operator's unique operating conditions. Reports on trending, developed from metrics analysis, must gauge such issues as over-pressurization, right-of-way encroachments, SCADA outages, and other safety concerns found in the pipeline system, and a means to update performance events to assure they are providing useful information to determine the effectiveness of IM Program activities.

PB had these measures in the IMP but has improved clarity by putting them in a table format. See below.

Article 10 - Annual Program Measurement Parameters (Reference §195.452 (k))

Pipeline Specific

PARAMETERS→ PIPELINE SEGMENT ↓	NUMBER OF LEAKS, OR RELEASES	PIPE TO SOIL READINGS (MINIMUM)	QUANTITY OF ETHANE RELEASED (LBS)	MAINLINE VALVE, RECTIFIER, RELIEF VALVE MAINTENANCE AND INSPECTIONS COMPLETED AS REQUIRED	UNPLANNED RELIEF VALVE OPENINGS
NA I segment 1	0	All satisfactory	0	Completed and documented	None
NA I segment 2	0	All satisfactory	0	Completed and documented	None
NA I segment 3	0	All satisfactory	0	Completed and documented	None
NA I segment 4	0	All satisfactory	0	Completed and documented	None
NA I segment 5	0	All satisfactory	0	Completed and documented	None
NA I segment 6	0	All satisfactory	0	Completed and documented	None
NA I segment 7	0	All satisfactory	0	Completed and documented	None
NA I segment 8	0	All satisfactory	0	Completed and documented	None
NA I segment 9	0	All satisfactory	0	Completed and documented	None
NA I segment 10	0	All satisfactory	0	Completed and documented	None
NA II	0	All satisfactory	0	Completed and documented	None

System-Wide Performance Measures

1. **Community outreach.**
 - a. Annual awareness mailing to local community.
 - b. Annual meeting with local emergency agencies.
2. Integrity assessment schedules maintained per [Article 5](#) and [Article 6](#).
3. Annual Risk Analysis performed and appropriate actions taken in a timely manner.
4. All personnel performing pipeline operations and maintenance tasks, including contractors, are qualified for tasks performed per PB Energy's Operator Qualification Program requirements.
5. Annual review and comparison of PHMSA accident data to PB Energy's performance.

3. §195.452(1) (see 1. above)

b. PBE must establish a procedure for thoroughly completing analyses of threats that affect overall risk which includes the identification of human factors issues, management systems problems, generic component or process failures and trends, and system wide implementation of good practices. Recommendations and corrective actions as well as lessons learned from root-cause analysis of incidents must be included in the analysis and distributed to appropriate company employees.

PB did not have a copy of Sasol's root cause analysis program during the Audit, but we have since placed this into article 26 of our program. See below.

Abnormal Operating Conditions

The Operations Department will document each Abnormal Operating Condition as defined in §195.402(d) and as described in PB Energy's Operations and Maintenance Manual occurring each year. For significant events, the PB Engineer will perform a root cause analysis, determine if an unfavorable trend is developing and decide on appropriate action.

The PB Engineer will utilize Sasol's root cause analysis process which is located in [Article 26](#)

Article 26 – SASOL’s Root Cause Analysis Process

Subject: RC-ADM-01-03 Incident Investigation and Reporting Procedure

Revision No.: 07 Revision Date: January 21, 2009

Effective: August 27, 1999

Approved By: Steve C. Mercer - Signature on File Manager, Safety and Health

Approved By: Michael G. Hayes - Signature on File Manager, Environmental

Approved By: Stephen H. Hookanson - Signature on File Manager, Process Safety

Approved By: J. Paul Warner - Signature on File Manager, Responsible Care®

1.0 Purpose

To obtain knowledge and information that can be used to prevent similar Safety, Process Safety (PSM) or Environmental incidents in the future. Incident investigations will be conducted to identify unsafe situations and conditions that may be a direct or contributing cause of an incident. This includes reliability incidents that could have caused problems directly related to Safety, Process Safety, or Environmental incidents. Frequently, hazards and conditions are discovered which do not directly apply to the incident being investigated but could cause injury, property loss or environmental noncompliance if not corrected. The purpose of this procedure is also to generate a report to communicate the events surrounding these incidents, communicate recommendations generated by the investigation, and to provide a tracking system for closure of those recommendations. Meeting the requirements of this procedure will assist the Lake Charles Chemical Complex (LCCC) of Sasol North America in meeting the requirements of the Incident Investigation section of the OSHA Process Safety Standard 29 CFR 1910.119(m) and EPA’s Risk Management Plan program 40 CFR 68.81.

2.0 Scope

The Sasol North America Lake Charles Chemical Complex (LCCC), including the Ethylene Storage Facility and the Research and Development Facility, will maintain a program to report all safety, process safety, and environmental incidents and safety-related reliability incidents and to investigate those incidents as defined in Section 3.0 - Definitions – “Incident”. Incidents not listed in Section 3.0 - Definitions – “Incident” may be investigated at the discretion of LCCC Management.

For the purpose of this procedure, all types of occurrences described in this section will be referred to as incidents.

In some instances, incidents may be of a nature that do not require further investigation, i.e. nothing new would be learned from a formal investigation. In other instances, it may not be clear if an investigation is necessary, i.e. near miss situations. For all investigations, the final decision on whether or not to conduct a formal investigation per this procedure will be made by with the appropriate Manager, Safety and Health (Safety incidents), the Manager, Process Safety (PSM

incidents) or the Manager, Environmental (Environmental Incidents) and the affected Department Head.

3.0 Definitions

3.1 Catastrophic Release

A major uncontrolled emission, fire or explosion involving one or more highly hazardous chemicals that presents serious danger to employees in the workplace.

3.2 Highly Hazardous Chemical

A substance possessing toxic, reactive, flammable, or explosive properties and specified by paragraph (a)(1) of the OSHA PSM Standard 29 CFR 1910.119.

3.3 Near Miss Incident

An event that resulted or could have resulted in a significant accident, fire, equipment damage, explosion, catastrophic release of highly hazardous chemicals, or environmental release. Near miss incidents as they relate to injuries are those events that occurred and could have caused injury but did not.

3.4 Off-Site Impact

An emergency event initiated at LCCC that has an impact outside of Sasol North America property.

3.5 OSHA

Occupational Safety and Health Administration.

3.6 OSHA Recordable Injury or Illness

Those occupational injuries and illnesses which meet the criteria for recordability as defined by OSHA.

3.7 PSM

Process Safety Management.

3.8 PSM Incident (Regulatory)

An incident that resulted in or could have reasonably resulted in a catastrophic release of highly hazardous chemicals in the workplace.

3.9 PSM Incident - Sasol Reporting Purposes

A fire or explosion causing \$25,000 in damage or a release of a flammable gas in excess of 5,000 pounds.

3.10 CTIRP Incident

A transportation incident as defined by Sasol North America's Chemical Transportation Incident Response Plan (CTIRP).

3.11 Incident

Event that resulted or could have resulted in a significant accident or near miss accident, injury, fire, equipment damage, explosion, catastrophic release of chemicals, loss of primary containment, or other environmental releases. Examples of incidents that will be investigated are:

6. A LCCC OSHA recordable medical treatment injury, injury or illness involving days of restricted work or days away from work, or fatality;
7. A LCCC contractor OSHA recordable injury or illness or fatality;
8. Overnight hospitalization (including for observation) of a Sasol North America employee, contractor employee or non-employee (such as vendor, service person, visitor, etc.);
9. CTIRP notification or response;
10. Catastrophic equipment failure (such as line or vessel rupture, complete or partial disintegration of rotating equipment, collapsed structure, etc.);
11. Fire (Does not include incidental expected fires resulting from normal material handling on the hot side of the alcohol unit or the quench system.);
12. Explosion (includes detonations and over pressures);
13. Chemical release (loss of containment) of an "extremely hazardous substance" (as defined in SARA Title III section 302) at a quantity reportable under SARA;
14. Accidental release from processes covered by the Risk Management Program regulation (Part 68) that results in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering-in-place, property damage, or environmental damage;
15. A OSHA reportable release of a "highly hazardous chemical" (as defined by the OSHA PSM Standard, 29 CFR 1910.119); For LCCC, those chemicals are:
 - All Flammable Liquids and Gases
 - Ammonia Solutions (>44% by weight)
 - Ethylene Oxide
 - Alkyl-Aluminum
 - Chlorine
 - Hydrogen Fluoride
16. A release (loss of containment) of 5,000 pounds of a flammable material; or
17. A TSCA (Toxic Substances Control Act) Section 8 reportable or recordable event. See the Safety and Health Procedure – 2.18 TSCA Section 8 Reporting Procedure for additional information.

3.12 Environmental Non-compliance

Activities, actions, or events that are outside the scope of those authorized by regulation or are outside the scope of limitations established in permits. Examples of this type of event are: NPDES permit exceedances, air permit emission limit exceedances, and non-compliance with any specific condition.

3.13 Environmental Permit

Document issued by a regulatory agency that authorized an activity. Examples include Air Permits issued by the DEQ which authorize operation and emission of air contaminants, NPDES Permits which allow wastewater discharge and waste permits which allow treatment and storage of wastes.

3.14 Environmental Regulation

Rules issued by the DEQ, EPA, DOT, and Coast Guard which define the limitations established by State and Federal Laws.

3.15 Immediately Reportable Release

A spill, atmospheric release, or discharge which requires the regulatory agencies be notified immediately (no later than 48 hours) of the occurrence due to the size of the release, potential for offsite impact, or due to the fact that the event is not an authorized activity.

3.16 Safety-Related Reliability Incidents

Incidents involving plant equipment (compressors, drums, towers, motors, pumps, electrical substations, etc.) that can be classified as a “near-miss incident” and are outside the normal classification for Safety, PSM or Environmental incidents.

3.17 DMS – Document Management System

Location on the Sasol computer network where incident investigation reports are placed for review by employees.

3.18 RMP

Risk Management Program regulation 40 CFR 68.81.

4.0 References

- OSHA 29 CFR 1910.119 - Process Safety Management
- Sasol North America - Corporate Safety, Health, and Environmental Standards, - GS-050
- LCCC Safety and Health Procedure – 1.30, Contractor Safety, Selection and Auditing
- LCCC Safety and Health Procedure - 1.35, Safety Meeting Procedure
- LCCC Safety and Health Procedure – 2.18, TSCA Section 8 Reporting Procedure
- Creating an Environmental Incident Report Procedure, - EI-01-01
- EPA’s Risk Management Plan program 40 CFR 68.81.

5.0 Responsibilities

5.1 Employee

- 5.1.1 Employee(s) involved in an incident shall immediately report the occurrence to their supervisor. All injuries (or potential injuries) and releases (or potential releases) shall be reported immediately so that appropriate medical attention can be provided, appropriate notifications made and investigations initiated.

5.2 Supervisor

- 5.2.1 Upon being notified of an incident, covered by Section 2.0 (Scope), complete an electronic LC Safety Incident Reporting (SIR) prior to the end of their shift. The Safety Incident Report (SIR) will provide initial incident facts. Completion of the Safety Incident Report begins the investigation process. It will also be used to

determine if further investigation is required or requested. Some incidents will require that both the EIR and the SIR be initiated and issued.

- 5.2.2 Ensure all incidents that occur in his/her area of responsibility are reported on shift before Supervisors or employees leave the plant.
- 5.2.3 Responsible for preserving the incident scene and for gathering information that may be needed to investigate the incident. The following guidelines should be used to collect information that could be used during later investigation..
 - Obtain statements from witnesses to the incident
 - Obtain instrument output printouts, computer data, etc.
 - Obtain copy of work permit(s),
 - Take photographs of the incident scene or diagram the scene
 - Collect or obtain physical evidence such as ruptured gaskets, blown fuses, broken components, etc.
 - Obtain individual statements from involved employees and witnesses

5.3 Department Manager/Head

- 5.3.1 Ensure all incidents that occur in his/her area of responsibility are reported on shift before Supervisors or employees leave the plant.
- 5.3.2 Decide if a formal incident investigation is desired with input from the appropriate SHE Department Manager. If a formal investigations is needed then name the incident investigation team members by the first business day after the incident occurred.
- 5.3.3 Ensure that the SIR/EIR incident report information described in Section 5.2.1 is completed for all Safety, Process Safety and/or Environmental Incidents.
- 5.3.4 Review all investigation report action item recommendations that are assigned to his/her area and ensure that the recommendations are completed by the date indicated in the report.
- 5.3.5 Assign responsibility for corrective action in his/her affected area(s).
- 5.3.6 Ensure that Safety / PSM / Environmental incidents that have occurred in his/her area are reviewed with all affected personnel and contract employees whose jobs or tasks are related to the incident.

Note - The completed Safety / PSM / Environmental investigation reports through 2007 can be found in DMS. The reports are located: DMS/Responsible Care/Investigation Reports/Year of the Incident Occurrence The review of investigation reports shall be documented by:

- *Copy of the e-mail sent for review or,*
- *Safety Meeting Sign-In Sheet per 1.35, Safety Meeting Procedure*

Reports since 2007 can be found in the computer based application for "LC Safety Incident Reporting" on the intranet page.

5.4 Investigation Team

- 5.4.1 Conduct the formal investigation.

- 5.4.2 Identify all the pertinent facts.
- 5.4.3 Determine the direct and indirect or underlying incident causes.
- 5.4.4 Recommend corrective actions to prevent recurrence of the incident, assign the action item(s) to the department / department head as required, and determine a date for completion of the action item(s).
- 5.4.5 Recommend in the action item section of the report that the investigation report be posted for employee review per Section 5.3.6 and that the Manager, Safety and Health, or designee, send an e-mail (with the completed report attached) to notify Lake Charles employees of the completion of the investigation with all employees and contract employees whose job tasks are relevant to the incident findings.
- 5.4.6 Develop the incident investigation report using the format generated by the electronic system.
- 5.4.7 Submit the final investigation report (with any information collected during the investigation attached) for review and approval using the electronic SIR reporting system.

5.5 Manager, Safety and Health (or designee)

- 5.5.1 Assist in the identification of significant Safety / PSM incidents, near miss safety incidents and/or Safety-Related incidents.
- 5.5.2 Keep management and employees informed on the status of recommended action items generated from the investigation report.
- 5.5.3 Review draft of investigation reports from department members for completeness and accuracy.
- 5.5.4 Track the status of recommended action items.
- 5.5.5 Retain investigation reports for at least five years and then archive the reports for the life of the process in which the incident occurred.
- 5.5.6 (Deleted)
- 5.5.7 Ensure that all reports of incidents, and near-miss safety incidents are submitted within the required time frame to external agencies or governmental bodies as needed or required and to Sasol North America Management where applicable per the Corporate Safety, Health and Environmental Standard G-050.
- 5.5.8 The following items shall be reported immediately to the Corporate Manager Responsible Care[®] :
 - Fatalities – Sasol or Contractor employee(s)
 - Significant explosions or fires with off-site impact
 - Hospitalizations (not observations) resulting from accidents or incidents - - Sasol or Contractor employee (s)
 - OSHA recordable injuries and illnesses – Sasol or Contractor employee(s)
 - Significant explosions or fires as determined by local management (not having off-site impact)
 - Any other event reportable by regulation to an outside agency, state or federal
 - Events where there is a reasonable probability of national media coverage,

- Other significant events where resources from other locations are needed

- 5.5.9 The following items shall be reported to the Corporate Manager, Responsible Care™ and the by e-mail or phone no later than the end of the next business day of their occurrence or determination:
- 5.5.10 Ensure that the Manager, Responsible Care (or designee) is informed as soon as possible but within two hours of the event of all regulatory required external notifications for incidents and/or near-miss safety incidents. For other events which result in or have a likely potential to result in adverse impact on the community/general public or imminent regulatory agency response/ investigation, or where there is a reasonable probability of media coverage beyond the local media, the Manager Responsible Care™ should be notified immediately.

5.6 Manager, Environmental (or designee) or Manager, Process Safety (or designee)

- 5.6.1 Assist in the identification of significant environmental incidents and near miss environmental incidents.
- 5.6.2 Review draft of investigation reports from their department members for completeness and accuracy.
- 5.6.3 Ensure that all reports of incidents and near-miss environmental incidents are submitted within the required time frame to external agencies or governmental bodies as needed or required and to Sasol North America Management per the Corporate Safety, Health and Environmental Standard G-050.
- 5.6.4 Ensure that the Manager, Responsible Care (or designate) is informed as soon as possible but within two hours of the event of all regulatory required external notifications for incidents and/or near-miss environmental or process safety incidents. For other events which result in or have a likely potential to result in adverse impact on the community/general public or imminent regulatory agency response/ investigation, or where there is a reasonable probability of media coverage, then the Manager, Responsible Care™ should be notified immediately.

5.7 Contractors

- 5.7.1 Contract employee(s) involved in an incident shall immediately report the occurrence to his/her supervisor and the Sasol North America supervisor or engineer involved with the contractor's work. The supervisor or engineer will refer to Section 5.2 of this procedure for completion of the Safety Incident Report and to the Safety and Health Procedure, 1.30 – Contractor Safety, Selection and Auditing.
- 5.7.2 Participate on the investigation team if the incident involved work of the contractor employee and resulted in or could have resulted in a catastrophic release of highly hazardous chemicals in the workplace.

5.8 Manager, Responsible Care

- 5.8.1 The Manager of Responsible Care is responsible for the overall accident investigation program. He approves all incident investigations
- 5.8.2 The Manager of Responsible Care is responsible for ensuring that incident investigations with potential benefit to Sasol O&S and the Sasol Group are shared with the appropriate contacts.

6.0 Investigation Procedure

6.1 All Incidents as defined in Section 3.0 Definitions

- 6.1.1 “Incident” shall be formally investigated. Incidents that do not fall into the “shall be investigated” category will be evaluated for merit and benefit. These “other” incidents may be investigated per decision of the Manager, Safety and Health, the Manager, Process Safety, or the Manager, Environmental, and the affected Department Manager.
- 6.1.2 Immediately after an incident, the affected Supervisor shall initiate an investigation of the occurrence by completing and distributing a Safety Incident Report and/or EIR (Environmental Incident Report).
- 6.1.3 The completion of the Safety Incident Report and/or the Environmental Incident Report will signal the beginning of the investigation and must be completed by the end of the shift in which the incident occurred.
- 6.1.4 6.1.3 Where applicable, the Safety Incident Report or the EIR should include photographs and interviews from personnel involved in or witness to the occurrence. This information should be gathered as soon as possible by the Shift Supervisor or Maintenance Supervisor responsible for the area in which the incident occurred and submitted to the Manager, Safety and Health. See Section 5.2.3 for guidance for collecting information.
- 6.1.5 After notification of the incident, the Manager, Safety and Health, Manager, Process Safety, or the Manager, Environmental and the affected Department Head will jointly decide if additional investigation is required. If the incident requires further investigation, then a team will be formed and members named by the Department Head. Normally, the team will be composed of two to four members, but size may vary depending on the nature and complexity of the incident. The criteria outlined in Section 6.2 shall be used in selecting the investigation team that will be formed by the end of the first business day after the incident occurred.

6.2 Investigation Team Selection

- 6.2.1 Team Leader
- The Team Leader will normally be selected from personnel in the Responsible Care[®] (SHE) Department.
 - The Team Leader will have served as a member of at least one formal investigation team prior to serving as Team Leader.
 - The Team Leader must have prior training in conducting the investigation using the Apollo method of Root Cause Incident Investigation.
 - The more severe or potentially severe the incident, the more experience a person should have to act as Team Leader.
 - The Team Leader should be familiar with the technology involved with the incident especially when preliminary indication shows that technology is important to finding the incident causes and/or solutions.

6.2.2 Team Members Selection

- Personnel knowledgeable of the involved process, equipment or activities (Mechanical, Operations, etc.). At least one employee from the hourly group knowledgeable in the involved process or equipment should be named to the team.
- Depending on the nature and complexity of the incident, other personnel with appropriate knowledge and experience (Engineers, Chemists, Managers, Experts, etc.) shall be selected.
- Employees involved in the incident shall be called upon to participate in the investigation as witnesses and as information resources but will not normally be selected as investigation team members.
- A contract employee shall be included on the investigation team if the incident involved work of the contractor and resulted or could have resulted in an OSHA reportable release of highly hazardous chemicals in the workplace.
- Named team members must be immediately available to begin the formal investigation into the incident.

6.3 Team Guidelines

- 6.3.1 Visit the scene as soon as possible after the incident to investigate the physical facilities. Take photographs or make sketches / diagrams to record details of the physical environment. Collect any photographs, sketches, physical evidence, etc., that may be available from the initial response to the incident.
- 6.3.2 Interview witnesses, involved personnel, contract employees and injured personnel, if available. Safety Department personnel should be contacted to determine the extent of any injuries or disability. Additional affected personnel may be interviewed and should include line supervision.
- 6.3.3 Review past incident investigation reports of similar incidents for similarities and previous action item recommendations and resolutions.
- 6.3.4 The investigation team should determine the root cause(s) of the incident and develop action item recommendations. The team leader can delegate tasks to team members as part of the fact finding exercise. Using the team's findings, the team leader will prepare an investigation report using the electronic reporting system. The team will determine and assign recommended action items(s) to the respective department(s) and department head(s). Recommended action item completion dates will be assigned by the team. A draft of the report and action items will be submitted to either the Manager, Safety and Health, the Manager, Process Safety, or the Manager, Environmental for review'.
- 6.3.5 Each report must include a recommendation that the Safety and Health Manager confirm that the report has been distributed for review by LCCC employees and contract employees.
- 6.3.6 Investigations of environmental spills must include a description of the cleanup activity and how it was determined that the spill was fully remediated.
- 6.3.7 Apollo (Root Cause Analysis for Incidents) method of investigation problem solving should be used to guide teams in their investigation of the incident. An Apollo Cause

and Effects Chart must be attached to the investigation report. Only personnel trained in this technique may use it as part of the investigation process.

- 6.3.8 An Apollo Cause and Effect diagram must be attached showing how the primary cause(s) and any contributing cause(s) were identified. The diagram must define the evidence for each cause block (i.e. operator interview, PIMS data, equipment inspection, logbook, field survey etc.) Any primary or contributing cause listed should be on the cause and effect diagram.

7.0 Final Report Review and Distribution

Investigation reports shall include the following minimum elements:

- Date and time of the incident
- Date investigation began
- Names and job titles of the investigation team leader and team members
- Description of the incident and the background, sequence of events and/or circumstances leading up to the event. Visual aids should be included, as appropriate. Also a brief description of the extent of injuries and any treatment provided, magnitude of chemical exposures incurred or potentially incurred, equipment or property damage sustained, magnitude of chemical release or spill, and/or the impact on the community.
- Team findings during the investigation
- Factors that contributed to or caused the incident (Root cause(s)).
- Team conclusions and recommendations for correcting and/or preventing a recurrence.

Note: RMP incident reports shall include the required data specified in 40 CFR 68.42 of the RMP regulation.

7.1 The Investigation and Final Report

The investigation and final report with all final signatures should be completed within 45 business work days (Monday-Friday excluding company recognized holidays) following the incident or near-miss incident. An extension may be requested by submitting a letter or e-mail to the Manager, Responsible Care[®] stating the reason for the request.

7.2 Draft Completion

After the team has completed the initial written draft report, the team leader will forward an electronic copy to the affected Department Head for his/her review. This review is for factual content only. If no comments are received within 5 working days, the team leader will electronically forward the draft report to the appropriate SHE Department Manager. Once the initial review is completed, the report will forward the draft report to the Manager, Responsible Care[®] for his review and comments. Once questions and comments from the above named managers are resolved, the team leader and team member(s) will review any changes or comments and agree to the changes/comments for the report. The team members will then sign the final report electronically. The Manager, Responsible Care[®], or designee, shall approve all incident investigations.

7.3 Safety and Health Department

The Safety and Health Department will be responsible for tracking all recommended action items to completion (See Section 8.0).

7.4 (Reserved For Future Use)

7.5 Department Heads

Department Heads shall ensure the investigation report is reviewed with all affected personnel and provided to contract employees whose job tasks are relevant to the incident findings. The completed incident investigation reports can be found on the LCCC computer network in DMS.

- 7.5.1 Employees can view/print completed investigation reports from the location indicated in Section 7.5.
- 7.5.2 Contractors can request a copy of the completed investigation reports from their Sasol North America Contact.

8.0 Final Report Retention and Tracking of Recommendation Items

8.1 Final Investigation Reports

The final investigation reports shall be retained by the Safety Department for at least 6 years. After this time period, the investigation reports shall then be deleted unless it is a process safety incident. Process safety incidents will be maintained for the life of the process plus 6 years.

8.2 Responsibility

Individuals assigned responsibility for investigation report recommended action items shall complete the Recommendation Action Item Completion Documentation, describing the resolutions and corrective actions taken to address each of his/her assigned items. The completed closure form and any additional information deemed necessary to confirm action item completion shall be submitted to the appropriate SH&E Manager. No item will be considered complete until the form has been completed and approved by the appropriate SH&E Manager.

8.3 Designated Safety Department Personnel

Designated Safety Department personnel will monitor the list of all investigation report recommended action items and their status. Access to the list of recommended action items and the status is available to all employees.

PB Energy Storage Service made these changes to our IMP on 10-30-2010 and believes that these provisions should meet the approval of PHMSA. As of December 31, 2010 PB Energy no longer operates this liquid pipeline for Sasol.

Sincerely,



Tim Reichwein
Vice President

cc: Tim Reichwein
Chuck Fontenot
Rodney Begnaud