



Silfab Response to the TRC- Chemical Systems and Leak Prevention and Response

Methods and Procedures Evaluation Report, dated September 30, 2026

Executive Summary

Silfab Solar, LLC (Silfab) retained TRC Engineers, Inc. (TRC) to provide a third-party professional engineering evaluation of the leak prevention and response methods and procedures for the Manufacturing Processes involving the use of silane, anhydrous ammonia, hydrochloric acid (HCl), potassium hydroxide (KOH), and hydrofluoric acid (HF) ("Evaluation"), as well as a third-party review of the facility's emergency response procedures ("Review"). TRC's Evaluation and Review was performed from April 2026 through August 2026 and was based upon documents provided by Silfab and information obtained during on-site visits involving personnel interviews, records reviews, and field observations. Throughout the evaluation and review process, Silfab provided additional and updated documentation to be considered by TRC. This report represents the results of the Evaluation and Review as of the date of the report issuance in response to requests from South Carolina Department of Environmental Services (March 16, 2026) ("DES Document")

Silfab Response to TRC Report

Silfab has reviewed the Chemical Systems Leak Prevention and Response

Methods and Procedures Evaluation Report ("Evaluation") prepared by TRC for the review and evaluation of receipt, storage, and use of:

- Hydrogen Flouride (HF)
- Hydrochloric Acid (HCL)
- Potassium Hydroxide (KOH)
- Anhydrous Ammonia (NH3)
- Silane (SiH4)

TRC serves as an independent third-party Professional Engineer (PE) with expertise in chemical process evaluation and emergency response programs to conduct assessments of facility operations and procedures. This Silfab Response to the TRC- Chemical Systems and Leak Prevention and Response Methods and

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Procedures Evaluation Report, dated 9/30/2026 ("Silfab Response") addresses recommendations presented in the Evaluation.

Item #4 requests Silfab to retain a third-party PE with expertise in evaluating chemical processes to assess Silfab's leak prevention and response methods and procedures with the aforementioned chemicals and gases. Silfab contracted with TRC, which completed the evaluation and submitted its report to on 9/25/2026.

Item #5 requests Silfab to have reviewed its Emergency Response Program by a third-party PE or other qualified professional with expertise in emergency response protocols. The review included an evaluation of emergency response training, coordination with local emergency responders, emergency drills and exercises, and notification procedures. Silfab elected to contract TRC, which completed this evaluation subsequently submitting its report to DES on 9/25/2026.

The DES Document further requests Silfab to prepare and submit a written plan to DES describing how the company will address and implement the recommendations provided by the independent evaluator (TRC). Silfab appreciates the thorough evaluation done by TRC of its facility and operations. The assessment identified opportunities for improvement related to building systems, life safety programs, while considering OSHA guidelines, and operational best practices.

Silfab has carefully reviewed each recommendation and developed a structured implementation plan that includes corrective actions, execution strategies, responsible parties, and target completion dates where applicable. Through implementation of these actions, Silfab will continue to strengthen the facility's leak prevention, leak response, emergency preparedness, and overall operational excellence programs.

Silfab will notify SCDES upon completion of Recommendations 6, 7, 8, 9, 10, 11, and 13 and will provide documentation demonstrating completion of those actions, as appropriate.

The Silfab commissioning schedule reflects that the restart of commissioning activities involving gases and chemicals no earlier than October 19, 2026. The schedule below (ref Table A) integrates and aligns the following elements:

- Project Milestones and Internal Gate Reviews
- Implementation timing for applicable TRC recommendations and corresponding SCDES notifications.
- Compliance Agreement Item No. 6, including the required 72-hour notification to SCDES prior to receipt of gases/chemicals and/or restart of commissioning activities involving gases/chemicals.
- Planned receipt of gases/chemicals and commissioning restart activities.

Table A

Silfab Schedule	Pre-Commissioning Activities								Commissioning Activities							
	CW 36 week of 8/31	CW 37 week of 9/7	CW 38 week of 9/14	CW 39 week of 9/21	CW 40 week of 9/28	CW 41 week of 10/5	CW 42 week of 10/12	CW 43 week of 10/19	CW 44 week of 10/26	CW 45 week of 11/2	CW 46 week of 11/9	CW 47 week of 11/16	CW 48 week of 11/23			
Phase Zero																
TRC Recommendations 1,2,3,4,5,12,14																
Utilities (compressed air, process cooling water, HVAC)																
DES Compliance Agreement No. 4,5																
Phase One - Ready To Receive																
Back-Up Generator Validation					14											
Site Security Reinforcement						19										
Abatement (WWT, Scrubber)					12,15											
Site Emergency Announcement System Upgrade							17									
BMS / Safety Interlocks							16									
Notify DES 72 hour re-start notice, Compliance Agreement No. 6																
Receive Chemicals/Gases, Commissioning Re-Start																
Phase Two - Ready to Dispense																
Process Tool hot air handling system					*											
Gas and Chemical distribution systems (CDU, DVB)								*								
BMS / Safety Interlocks									16							
Phase Three- Ready for Production																
Laplace Process Tool 3-way valve verification									13							
Process Tool Chemical and Gas Utilization										*						
BMS / Safety Interlocks											16					

Complete

In Process

Phase Gate Review

72 Hr Re-start Notice

Chem/ Gas Receipt

TRC Recommendation #

Std System Validation

* Recommendation 7,8,9,10,11,18, 20 were completed prior to CW37

* Re-start of commissioning will not occur earlier than Oct 19, 2026

Implementation Plans for TRC Recommendations

Recommendation No. 1	
Report Section	3.7- ISO Certification
TRC Finding	Silfab indicated they are voluntarily pursuing the best practice of an ISO Integrated Management System (IMS) Certification for ISO 9001 (Quality), 14001 (Environmental) and 45001 (Occupational Health and Safety). They were in the process of developing a companywide system for certification across their three facilities.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Continue the process of obtaining an Integrated Management System Certification.
Responsible Party	Director of Operations, Director of Environmental, Health, Safety
Completion Date	November 30, 2026
Status	In process – requires full operation

Recommendation No. 2	
Report Section	3.5- Velocity EHS
TRC Finding	Silfab selected Velocity EHS as enterprise-wide integrated EHS Management tool to help facilitate completion and documentation of EHS obligations including those applicable to prevention and response to a potential release of Chemicals of Interest.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Continue to expand the use of Velocity EHS to capture the applicable EHS requirements and actions that must be completed to maintain compliance, as well as environmental obligations and risks.
Responsible Party	Director of Environmental, Health, Safety
Completion Date	October 15, 2026
Status	In process

Recommendation No. 3	
Report Section	3.4 - Environmental Policy
TRC Finding	Silfab developed an Environmental Policy (Appendix A) which describes its environmental commitment and was signed by the President and CEO as well as the Chief Operating Officer. It was most recently revised in January 2026. As it pertains to leak prevention and response, it identified the company's commitments.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Conduct review and update the corporate Environmental Policy to ensure it reflects the corporation's commitments to prevent and respond to leaks of Chemicals of Interest.
Responsible Party	Director of Environmental, Health, Safety
Completion Date	October 15, 2026
Status	In process

Recommendation No. 4	
Report Section	3.6 – New Employee Orientation
TRC Finding	Silfab indicated they use a Learning Management System (LMS) to manage EHS Training programs. The LMS is a computer-based training system that covers approximately 24 general EHS topics that are important for employees to understand. The training includes a test at the end of each module, and a passing grade of 80 percent is required for each module before the employee can move to the next module. The system is intended to generate management reports that will provide updates on the status of training for each employee. Silfab indicated the LMS modules are required for new employees and must be renewed annually, staggered throughout the year.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Update the New Employee Orientation modules to include all the chemicals used in the manufacturing process, including the Chemicals of Interest.
Responsible Party	Director of Environmental, Health, Safety
Completion Date	October 15, 2026
Status	In process

Recommendation No. 5	
Report Section	3.4 – Resources
TRC Finding	Silfab organizational structure and resources
Company Response	Silfab agrees with the recommendation.
Corrective Action	Assess the resource levels required to robustly develop and maintain these management systems, and the other systems identified throughout this evaluation, and provide the resources necessary for these systems to be sustainably successful
Responsible Party	Chief People Officer, Director of Environmental, Health, Safety
Completion Date	Ongoing
Status	Resourcing needs under constant review

Recommendation No. 6	
Report Section	5.3 – Bulk storage tanks, KOH, HCL, HF
TRC Finding	TRC did not review construction documentation for the bulk storage tanks for KOH, HCL, and HF as there was not a mandated construction standard
Company Response	Silfab agrees with the recommendation.
Corrective Action	Silfab should verify and document that the tanks were constructed to the ASTM D-1998 standard and were installed and tested in accordance with manufacturer recommendations before placing them in operation.
Responsible Party	Facilities Director
Completion Date	July 8, 2026
Status	Complete – tanks meet ASTM D-1998, installed and tested per manufacturer specifications

Recommendation No. 7	
Report Section	4.5.2 - Design Documentation / Code Consistency (SCFC 5003.2.7)
TRC Finding	Bulk chemical tanks (HF, HCL, KOH) level control and overfill protection is not clearly identified in P&IDs and design records
Company Response	Silfab agrees with the recommendation.
Corrective Action	Update P&IDs for the bulk liquid chemicals to show overfill protection and details for safety devices (e.g, pressure relief, leak detection monitors, etc.).
Responsible Party	Facility Director, system integrator (OEM)
Completion Date	August 31, 2026
Status	CLOSED - P&IDs updated

Recommendation No. 8	
Report Section	4.5.3 – Design Documentation / Code Consistency (NFPA 55 §7.7.2.6)
TRC Finding	Pressure relief valves serving the bulk storage container must discharge away from covered weather enclosures. The anhydrous ammonia isotainer was located beneath a roof canopy, creating the potential for obstruction of the relief valve discharge path during a pressure relief event.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Sections of the ammonia storage canopy were removed to eliminate any potential obstruction during a pressure relief event. The modified canopy now incorporates an approximately 18 ft x 50 ft opening above the anhydrous ammonia isotainer, providing an unobstructed vertical discharge path for pressure relief valve releases.
Responsible Party	Facility Director
Completion Date	August 28, 2026
Status	CLOSED – canopy modified with 18 ft x 50 ft opening

Recommendation No. 9	
Report Section	4.5.4- Design Documentation / Code Consistency (NFPA 400.21.3.9.3.2.1)
TRC Finding	Ammonia gas distribution box systems (BSGS, DVB, VMB) includes exhaust ventilation ducting that routes to the acid exhaust stream to the scrubber. This exhaust stream should be accompanied with monitoring to detect ammonia in the event there is a leak.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Install, calibrate and integrate TGMS (Toxic I Gas Monitoring System) to detect ammonia in the exhaust stream(s) from the BSGS panel (1), DVB (1) and VMB (2)
Responsible Party	Principal Engineer
Completion Date	August 15, 2026
Status	CLOSED - TGMS integrated for ammonia BSGS, DVB, VMB

Recommendation No. 10	
Report Section	4.5.5- Design Documentation / Code Consistency (CGA G-13 11.1.5.1)
TRC Finding	TGMS gas monitoring may be necessary in the silane BSGS, DVB and VMB exhaust system(s).
Company Response	Silfab agrees with the recommendation.
Corrective Action	Install, calibrate and integrate TGMS (Toxic Gas Monitoring System) to detect silane the exhaust stream(s) from enclosures. TGMS integrated at DVB (1), and VMB (3). There is not a BSGS cabinet for silane.
Responsible Party	Principal Engineer
Completion Date	August 15, 2026
Status	CLOSED – TGMS integrated for Silane DVB, VMB

Recommendation No. 11	
Report Section	4.5.6- Design Documentation / Code Consistency (ASME B31.3 301.2.2)
TRC Finding	Bulk chemical tanks (HF, HCL, KOH) distribution system design records may not clearly reflect location pressure relief devices nor show how system is inherently safe in the absence of pressure relief device(s).
Company Response	Silfab agrees with the recommendation.
Corrective Action	Update drawings to show the location and setpoints of pressure relief devices in the liquid distribution system or document that the liquid distribution system is inherently safe in the absence of pressure relief.
Responsible Party	Facility Director, system integrator (OEM)
Completion Date	August 12, 2026
Status	CLOSED - drawings updated

Recommendation No. 12	
Report Section	6.1.4- Operations / Abatement and Wastewater Pre-treatment Systems (40 CFR 68.65, 29 CFR 1910.119 (f))
TRC Finding	Process Tool output includes piping that is routed to abatement and waste-water pre-treatment systems. Procedure alignment for start-up, shutdown, and upset conditions should include OEMs of the equipment/process. Procedural refinement of operating parameters, equipment alarms, etc. are assisted by on-site OEM presence during final equipment/process commissioning.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Silfab has developed SOPs for overall system(s) start-up, shutdown, and upset conditions. During final commissioning of abatement and waste-water systems, Silfab will review, align, and enhance procedures based on input from each of the OEMs to include operating parameters, equipment alarms.
Responsible Party	Facility Director, Process Engineer, system provider, and integrator (OEM)
Completion Date	October 10, 2026
Status	In process

Recommendation No. 13	
Report Section	6.1.3- Operations / Silane Abatement (40 CFR 68.77, 29 CFR 1910.119 (i))
TRC Finding	The plasma scrubbers installed for each PECVD tool were provided with interconnectivity in pairs (Scrubbers 1 & 2, 3 & 4, 5 & 6) by 3-way valves and piping for maintenance purposes. Interconnectivity and functionality of the 3-way valves should be reviewed and flow directions confirmed prior to introducing silane to the process to confirm correct flow direction. Validation of the 3-way valve functionality will be completed by the OEM during final equipment/process commissioning.
Company Response	Silfab agrees with the recommendation.
Corrective Action	During process tool commissioning led by OEM system designer/integrator, the functionality of each or the 3-way valves will be validated and confirmed for proper flow direction.
Responsible Party	Principal Engineer, Manufacturing Engineer, process tool provider (OEM)
Completion Date	October 28, 2026
Status	In process

Recommendation No. 14	
Report Section	6.1.5- Operations / Air Pollution Abatement (40 CFR 68.77, 40 CFR Subpart D 68.65 (d)(2), 29 CFR 1910.119 (i), 29 CFR 1910.119 (d)(3)(ii))
TRC Finding	The oxidizer and scrubbers were provided with emergency backup power from a generator onsite should there be a power outage. Continuous operation of the abatement equipment would be critical for the entire wet and hot tool manufacturing processing; a thorough assessment of interlocking functionality should be conducted prior to startup.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Interlock and power feed to abatement will be confirmed during generator commissioning. Functional validation of the overall backup power system will be confirmed and validated during the abatement system commissioning by the OEM, return timing of the OEM (Monroe, Griffith) is depending on satisfying the DES Document
Responsible Party	Facility Director, Facility Manager, system provider and integrator (OEM)
Completion Date	October 3, 2026
Status	In process

Recommendation No. 15	
Report Section	6.1.5- Operations / Air Pollution Abatement (40 CFR 68.71(a)&(c), 29 CFR 1910.119 (g))
TRC Finding	Operator training for the WWTS, air pollution abatement operations, and processes that utilize HF, HCl, silane, and ammonia had been partially completed. The facility should ensure detailed site-specific training to personnel with responsibility for these areas has been documented.
Company Response	Silfab agrees with the recommendation.
Corrective Action	During commission of the WWTS and air pollution abatement systems, the SOP revisions will trigger additional operator and technician training will be documented.
Responsible Party	Facility Director, Process Engineer, system integrator (OEMs)
Completion Date	October 10, 2026
Status	In process

Recommendation No. 16	
Report Section	6.1.5- Operations- Validation of Alarms/Interlocks (40 CFR 68.73(f)(2) 29 CFR 1910.119(j)(6)(ii))
TRC Finding	The facility should finalize installation and verify functionality of planned leak detection, alarms, and interlocks throughout the process.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Prior to start-up and commissioning of all integral hardware and systems, Silfab will verify the functionality of all controls and monitoring systems (leak detection, alarm, interlocks, etc). These tasks/actions are part of the PSSR (pre- start-up safety reviews) for each system.
Responsible Party	Facility Director, Principal Engineer, Manufacturing Engineer
Completion Date	October 31, 2026
Status	In process

Recommendation No. 17	
Report Section	8.2- Leak Response/ On-Site Evaluation Emergency Action Plan (29 CFR 1910.37(e); 1910.38(d);1910.165 (d)(1))
TRC Finding	The employee alarm system, as described in the FEAP and HAZWOPER plans, consisted of alarms from the Toxic Gas Monitoring System, fire/smoke alarm system, and an intercom system. During the site visit, the intercom system had not yet been fully installed. As a result, communications during the propane evacuation event on 6/3/26 relied on MS Teams® messaging to the management staff and verbal instructions as opposed to the evacuation announcements described in the EAP.
Company Response	Silfab agrees with the recommendation.
Corrective Action	The FEAP has been updated to include use of hand-held radios as alternative communication device for personnel working in remote site area(s). The site Intercom system is installed and functional. Additional speakers are planned and targeted to further enhance site communication coverage.
Responsible Party	Safety Manager, Project Engineer, system provider and integrator
Completion Date	October 16, 2026
Status	In process

Recommendation No. 18	
Report Section	8.2- Leak Response/ On-Site Evaluation Exit Routes (29 CFR 1910.37(b))
TRC Finding	In the portion of the Etching Area that exits between Buildings B and C, no "clearly visible" exit sign had been installed.
Company Response	Silfab agrees with the recommendation.
Corrective Action	A clearly visible "Exit" sign has been installed above door that exits maintenance corridor towards buildings B and C.
Responsible Party	Safety Manager
Completion Date	August 7, 2026
Status	Closed – additional "Exit" sign installed

Recommendation No. 19	
Report Section	8.1- Leak Response/ Document Evaluation PSM/RMP Security Measures (29 CFR 1910.119 (f) (4):1010.119 (h)(2)(iv), 40 CFR 68.87(b)(4); 68.69(d)
TRC Finding	The facility's PSM and RMP programs did not clearly define security measures to prevent outside or employee entry to the PSM process boundary
Company Response	Silfab agrees with the recommendation.
Corrective Action	During operation, the facility will employ Security guards (AS DONE PREVIOUS TO MARCH 2026) to provide 24-hour guard coverage for the entire site. Direct access from offsite to the PSM-covered area is further prevented by the presence of fencing. Internally, identification of personnel qualified for entry into the PSM covered area will be accomplished by a combination of uniquely colored high-visibility vests (Red for ERT members, Orange for non-ERT personnel) and area-specific badging.
Responsible Party	Safety Manager, security provider partner
Completion Date	October 5, 2026
Status	In process

Recommendation No. 20	
Report Section	9.5- Emergency Response/ Notification Procedures (DES Document #7)
TRC Finding	The Compliance Agreement sets a notification threshold of one gallon until March 16, 2027, for releases of EPCRA, CERCLA, or Clean Air Act-regulated chemicals. That threshold has not been addressed in the FEAP Release Reporting procedure.
Company Response	Silfab agrees with the recommendation.
Corrective Action	Revise and enhance the FEAP to accurately reflect the 1-gallon release threshold defined in DES Document #7. Individual chemical response procedures (found in the FEAP Appendices) have been updated to include this provision. The contact information for the SC DES is included in the FEAP.
Responsible Party	Safety Director
Completion Date	August 18, 2026
Status	Closed – FEAP updated

Recommendation #21:

Section 9, Emergency Response FEAP (Employee Alarm and Communication System) duplicate with # 17

Recommendation #22:

Section 9, Emergency Response- Exit Route Signage, duplicate with # 18

Recommendation #23:

Section 9, Emergency Response- PSM/RMP boundary security, duplicate with # 19

The TRC assessment also identified 23 Best Practices intended to further strengthen leak prevention, emergency response capabilities, and operational excellence at Silfab. Following a comprehensive review, Silfab evaluated each Best Practice and is actively developing implementation plans where appropriate. To date, 15 Best Practices have been fully implemented, 2 are currently in active implementation, and the remaining 6 are undergoing FMEA-based review and prioritization to ensure resources are focused on the highest-value risk reduction and operational improvement opportunities.

Best regards,



Greg Basden

Director of Operations

Silfab Solar Inc. Fort Mill, SC

Appendix A

Best Practice Considerations		Silfab Prioritization, Action Plan, Status	Status												
1	Conduct HAZOP study for each of the Systems critical the handling and use of HF, HCL, KOH, SIN4, NH3, with emphasis on PRV (overpressure prevention/control, and controls * Chemical Receipt and dispense * Gas receipt and dispense * Air pollution abatement systems * Wastewater pre-treatment system * Chemical VMB to process tools * Gas VMB to process tools	Silfab Team(s) are focused on the completion the PSSR (Pre-Startup Safety Review). In additional to PSSR, we are further emphasizing need to re-assess and ensure execution of the actions and controls identified in FMEA. Silfab is assessing and prioritizing need to complete formal HAZOP . Timing is not confirmed.	Under Review												
2	Standardize P &IDs for the chemical storage, chemical distribution systems and wastewater treatment system.	Chemical receiving, dispensing, and wastewater pre-treatment systems are supplied by Prochem. The P&IDs were supported by safety/interlock matrix which further describes system function and logic. The information provided allowed adequate PHA/FMEA. Silfab will further engage with Prochem and facilitate refinement in the P&IDs.	In-Process												
3	The bulk chemical room serves as secondary physical containment for HCL and HF in the event of a spill. While not require by code/regulation, Silfab should consider integrating additional room/area ventilation of fumes in the event of the spill.	In the event of significant spill of HF or HCL, Silfab will respond as defined in the FEAP. This includes notification and engagement of one of three contracted Emergency Response companies who direct and complete spill clean-up. <table><tr><th colspan="3">Private Emergency Response Companies</th></tr><tr><td>Scott Lucas</td><td>CERT (Carolina Emergency Response Team)</td><td>silcas@cert-usa.com 877-505-6799</td></tr><tr><td>Reza Treadway</td><td>Haz Mat</td><td>reza@hazmat.com 704-332-5600</td></tr><tr><td>Dorothy Evans</td><td>HEPACO</td><td>Evans.dorothy@safekleen.com 800-645-8265</td></tr></table> This is topic is under further review.	Private Emergency Response Companies			Scott Lucas	CERT (Carolina Emergency Response Team)	silcas@cert-usa.com 877-505-6799	Reza Treadway	Haz Mat	reza@hazmat.com 704-332-5600	Dorothy Evans	HEPACO	Evans.dorothy@safekleen.com 800-645-8265	Under Review
Private Emergency Response Companies															
Scott Lucas	CERT (Carolina Emergency Response Team)	silcas@cert-usa.com 877-505-6799													
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Dorothy Evans	HEPACO	Evans.dorothy@safekleen.com 800-645-8265													
4	Perform functional testing of the secondary containment piping for deliver piping to very it is not leaking (HF, HF, HCL).	System design and construction makes hydro-testing outer containment piping not feasible without disrupting sealed connection(s) Silfab evaluating both the need and method(s) to perform via alternative methods.	Under Review												

Appendix A, cont

Leak Response - Operations	5	A HAZOP study should be considered to identify control systems and safeguards and assure the safety interlocks provide the intended protections.	PHA requires a formal risk assessment. Silfab executed FMEA analysis which is one of the allowed tools. Control systems and safeguards have been identified and will be re-affirmed during complete of the PSRR process. All Safety Interlocks will be confirmed during equipment and process tool commissioning and SAT sign-offs. Silfab is will re-evaluate need to re-visit the PHA and execute HAZOP study.	Under Review
	6	The facility should consider incorporating into its unloading SOPs restrictions on delivery volumes (due to the containment size) and delaying unloading due to weather events.	Chemical receiving SOPs will be revised to include restrictions for: * restrict delivery volumes due to containment size * restrict and delay receiving and/or off-loading due to weather events	Complete
	7	The HMI at the truck unloading pad was difficult to view due to its location relative to sunlight. The facility should consider providing shade/protection for the HMI screen, relocating it, or adding a duplicate HMI screen in another location that does not receive direct sunlight. Local HMIs are currently the only way to monitor specific components of the process. Remote, central process monitoring and controls should be considered to shut down equipment during upset conditions.	Unloading HMI is replicated to HMI is duplicated in both the HF/HCL room and the KOH room. Remote monitoring is deemed not necessary. SOP requires on-site personnel to direct the unloading process. They are qualified to execute SOP shutdown during upset related condition.	Complete
	8	VMB panels drained to unsealed carboys in which a slow leak may not trigger a TGMS alarm and cause harmful vapors in the process area. The connections between the VMBs and carboys should be secured, but any secured connection between VMBs and carboys should allow for vapor space connectivity.	Chemical VMB space is exhausted to the scrubber. The drain pipe into the carboy as been sealed.	Complete
	9	No HF, HCl, silane, or ammonia area monitors were installed in the maintenance corridor near the DVBS. The facility should consider installing TGMS monitors in this area prior to startup.	TGMS area monitors have been added to the Maintenance corridor. 3 TGMS units have been added near DVBS to detect ammonia, silane and BCL3. HCL and HF TGMS in corridor not necessary there are no distribution box for chemical in the corridor. Chemical piping is routed directly to clean room for use where TGMS units are installed.	Complete
	10	The facility should consider installing passive secondary containment for the venturi and packed bed scrubbers to prevent a potential discharge of scrubbing solution if a leak were to develop. The facility should also winterize the piping and reservoirs associated with the scrubbers to prevent potential damage during cold weather conditions.	A 2 inch berm has been added to the surrounding the scrubber system to prevent any future spills from entering the storm drains.	Complete
	11	In its SOPs, the facility should consider updating procedures for consistency. Consider providing guidance on assessing spill volumes, provide exact procedures and when to notify the ERT for spill response and cleanup.	SOPs will be enhanced to ensure consistency on assessing spill volumes, and more precise procedures for when to notify the ERT for spill response and cleanup.	Complete
	12	It is recommended to confirm with vendors weather limitations such as unloading during rain, lightning, and extreme weather events such as wintry precipitation and tropical weather. Also confirm suitability during extreme weather situations such as summer maximum temperatures, and winter minimum temperatures in relation to outside storage in vendor provided tube trailers and isotherms.	Silfab will coordinate with material providers (HF, HCL, KOH, SiH4, NH3) and defined limitation in off-loading during extreme weather conditions. Silfab will confirm with tank system supplier the suitability of storage system/tank in extreme conditions	Complete
	13	The facility should consider modifying the tank systems to allow for each tank to be completely emptied to the extent practicable for future inspections and maintenance activities. Any future tank installations should consider use of slope bottom or other designs to allow for the tanks to be completely drained. The facility should also consider providing a method for safely offloading material from the tanks to a tanker truck while controlling emissions (e.g., vapor balance), if needed.	Silfab will investigate and consider altering tank(s) to allow the ability to empty tank completely for maintenance. Current design allows the heel to not be easily removed. Silfab will develop method/SOP to allow safe off-loading material form a bulk tank to a tanker truck which controlling the fumes, in the a tank must be emptied for maintenance or repair.	Under Review
	14	Silane will be fed to the furnace tubes during the reaction step at pressures from ~45-65 psig according to the SOP; however, design documentation indicated the maximum pressure will be 60 psig. The hot tool SOPs should be reviewed for accuracy against existing hot tool design documentation.	Silfab will review and correct discrepancies in the SOP and design documentation.	Complete

Appendix A, cont

Maintenance Program	15	PIMs for mechanical integrity inspections and testing need to be updated for the HCl, KOH, and HF storage tanks. An equipment replacement plan should be developed and implemented for equipment that fails and cannot be repaired.	PIMs for mechanical integrity inspections have been updated, and enhanced to specify equipment replacement in the event of failure that cannot be repaired.	Complete
	16	It is recommended that Silfab develop a plan for what to do in case of "failed" inspection results.	PM and Mechanical Integrity SOP(s) updated and include reaction plan in the event of a failed inspection	Complete
	17	It is recommended to develop internal capabilities for performing tests and calibrations on the TGMS versus relying on a third party contractor every 3 months. The facility should consider increasing the frequency of bump tests and calibrations to verify proper operation of the TGMS.	Silfab has utilized 2 different contracted vendors to support the quarterly calibration and performance testing. We are investigating both benefit of in-house calibrations and frequency adjustments.	Under Review
	18	Continue development and implementation of maintenance procedures and critical spare parts inventories.	This is an ongoing process and part of the job function of Manufacturing	Complete
Emergency Response	19	FEAP - Unknown Spills - guidance for operators to involve ERT for characterization when encountering an unknown spill was not included. The facility should consider how operators and ERT members will address unknown spills or mixtures (e.g., acids versus bases)	FEAP has been updated to include protocol(s) for addressing unknown spills (e.g. acids vs base)	Complete
	20	Exit Routes- The graphite boat furnace room had a single emergency exit that led back into the deposition area of the cleanroom. One roll-down door was present that led into the panel assembly area. No second pedestrian exit door had been installed at the time of the evaluation.	Life Safety plans have been released an approved, inclusive of the access and exit door(s) in the graphite boat room. Cell Assy and Graphite Boat room is Group F-1, Exit route North through existing door(s) satisfies travel distance. South Exit would exceed the max 400 travel distance. Doors are inward swing which is allowed in SC Fire Code due to less than 50 people in the Graphite boat area. No action to be taken.	Complete
	21	The FEAP appeared to be prepared to address the requirements of 29 CFR 1910.39 (Fire Prevention Plan). This should be clearly stated in the plan introduction, as well as stating it addresses the requirements of 29 CFR 1910.38.	FEAP has been updated to explicitly reflect meeting 29 CFR 1910.39.	Complete
	22	Exit Routes- The pedestrian gate in the security fencing outside Building B had been removed and covered with fencing. Personnel evacuating from the main plant and Buildings B and C towards Assembly Area A-4 would have to re-enter the main building if the truck gate was locked.	PSM/RMP area fencing to modified to include pedestrian exits at East and West sides.	In Process
	23	Community Response Coordination While the Compliance Agreement and the Emergency Management Ordinance provide notifications requirements with minimal release thresholds, the School District has requested notifications with a different, community-based focus. They reported that the facility initially agreed to report events that could be interpreted by neighbors as a reason to pick up their children from school. Social media reporting may create confusion and panic for parents, impacting the schools.	The FEAP defines three levels of a spill/release (levels 1, 2 and 3, 3 being the worst). Each of the individual chemical spill response procedures includes guidance on how to respond to a Level 1, 2, or 3 spill of the specific material. In the event of a Level 3 incident, Fort Mill Schools will be notified. 5.4 Incident Level Three A Level Three incident is any incident that may require a widespread evacuation of a facility and/or the community. This level usually is reached by a hazardous materials incident which may adversely affect the local community, the environment, and/or property Fort Mill School.....	Complete