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1. PURPOSE

To provide direction to all stakeholders (e.g., employees, managers, supervisors) on understanding, recognizing, and managing fatigue risk in the workplace. The Fatigue Risk Management Requirement set forth below serves as the framework of the Company's Fatigue Risk Management Program. This policy is intended to clearly communicate the Company's position on fatigue risk: that it is an occupational and safety hazard that should be measured and mitigated.

On-site contractors shall continue to follow the current fatigue risk management systems they have in place and therefore contractors will not be addressed in this specific requirement.

2. DEFINITIONS

2.1. Callout

Requesting or summoning an employee to come to the worksite to perform work when they are not scheduled to work.

2.2. Extended Shifts

Work periods greater than 14 hours regardless of the scheduled shift length.

2.3. Fatigue

For the purposes of this Requirement, Fatigue is defined as a reduced mental and physical functioning caused by sleep deprivation and/or being awake during normal sleep hours. This may result from extended work hours, insufficient opportunities for quality sleep, failure to use available sleep opportunities, or the effects of sleep disorders, medical conditions or pharmaceuticals which reduce sleep or increase sleepiness.

2.4. FRMS

Fatigue Risk Management Systems

2.5. HoS

Hours of Service

2.6. Indoor environment

- Indoor defined as requiring temperature control
- Control rooms
- Offices
- Conference rooms
- Break rooms
- Cool down rooms/stations
- Exclusions

- Warehouses
- Storage buildings
- Enclosed operating units

2.7. Normal Operations
Operations that are not during outages.

2.8. Open Shifts
Foreseeable or planned vacancies on a scheduled shift where overtime will be required to fill the vacancy (non-emergency). Examples include leaves of absence, special assignment, open positions, or vacation.

2.9. Outages
Planned or unplanned significant interruption in the normal operations of a unit or plant, including mobilizing and de-mobilizing. Outages include, but are not limited to, turnarounds and unit shutdowns.

2.10. SchedulePro
Scheduling and tracking software used by the operations teams, to proactively manage fatigue management through work scheduling compliance and reporting.

2.11. Shift
Four or more consecutive hours worked, regardless of the nature of work.

2.12. Shift Work
An organization of work where workers succeed each other at the same workplace while performing similar operations at different times of the day thus allowing longer hours of operation than recommended for a single worker.

2.13. Shall
Denotes a minimum requirement to conform to this FRMS Requirement Document.

2.14. Should
Denotes a recommendation or that which is advised but not required to conform to this FRMS Requirement Document.

2.15. Work Sets
Work that takes place between minimum required rest periods.

3. SCOPE

All Management-Represented Employees working at the BASF Beaumont Site. This is specific to the workforce that typically works on site and therefore commuting daily to the Beaumont. These requirements shall apply to all employees involved in process safety sensitive actions who are working either night shifts, rotating shifts, extended shifts, extended work sets or call outs. They shall also be considered for others making process safety-sensitive decisions. On-site contractors involved in process safety sensitive actions shall have FRMS consistent with the criteria outlined in this document.

4. REQUIREMENT

Recognizing that excess workplace cognitive fatigue is a risk to safe operations, prescriptive HoS rules are necessary to mitigate the risk. Thus, fatigue risk mitigation shall be addressed through a comprehensive fatigue risk management system (FRMS) that is integrated with other safety management systems.

Implementation of the recommendations and requirements in this document is intended to produce a step- change in fatigue management.

4.1. Components of a Comprehensive FRMS

The BASF systematic approach to fatigue management will include these seven components described below:

- Employee – Workload Balance
- Safety Promotion – Training, Education, and Communication
- Work Environment
- Individual Risk Assessment and Mitigation
- Incident/Near Miss Investigation
- Core Schedule Requirements and HoS Limits
- Periodic Review of the FRMS to Achieve Continuous Improvement.

4.2. Employee – Workload Balance

The FRMS shall include an initial and periodic assessment of the staffing levels and workload balance, such that the implementation of the HoS requirements discussed below are feasible and fatigue risk is adequately managed. The FRMS shall recognize the workload variability across shifts, weeks and months considering start-ups, shut-downs, unplanned events (e.g., hurricane recovery) and emergency management situations. These assessments should also assess current and anticipated employee attrition and absentee issues. A template will be provided to support departments and units in this exercise if needed.

The employee-workload balance assessment shall be conducted on a unit by unit or department basis and should include metrics that influence overtime and the ability to achieve HoS compliance such as the following. Periodic reviews may be necessary based on changes in the organization.

- Total vacation eligibility hours of all unit employees
- Historical absenteeism hours for the unit employees
- Full time off unit positions (i.e., unit trainers, procedure writers, coordinators, etc.)
- Expected and/or historical hours spent out of the unit performing special projects (out of the shift rotation) (i.e., non-fulltime like TA planning, PHA team, etc.)
- Expected or historical hours spent upgrading to cover supervisor vacancies
- Known and anticipated attrition
- Operators trained up for relief at a higher position by unit
- Expected or historical hours of training by unit
- Expected or historical open shifts by unit
- Exceptions since the last review

4.3. Safety Promotion: Training, Education, and Communication

The FRMS shall include a process for educating all stakeholders on the causes, risks, and potential consequences of fatigue. This education (Fatigue Awareness Training) shall acquaint all stakeholders with the basic scientific principles of sleep, sleep disorders, alertness, circadian and fatigue physiology so that they can make informed decisions to help reduce the fatigue risk for themselves, their colleagues, and the people they may supervise or manage. This education shall also provide information designed to increase family member awareness of how they can help the stakeholder keep alert, safe and healthy.

4.4. Initial Training

All new employees shall receive initial FRM training in conjunction with the training they normally

receive as part of the onboarding process. As part of this initial training, new personnel shall become acquainted with the Company's commitment to fatigue risk management and the risk controls that are in place to mitigate fatigue risk and promote safety in operations.

All new and existing employees in covered positions shall receive initial and periodic training with the following Learning Objectives:

- the scientific basis, the structure, and the management of this corporate FRMS Requirement Document, and how it is integrated within the corporate safety management system;
- basic sleep, circadian and fatigue physiology;
- strategies for achieving good quality, restorative sleep;
- recognizing the symptoms of sleep disorders and how to obtain appropriate medical advice and treatment;
- managing an alert and healthy lifestyle;
- understanding the specific risks of fatigue impairment in their own work environment and work duties;
- recognizing the signs of fatigue impairment and knowledge on the healthy and effective ways of mitigating them;
- knowledge verification.

In addition, those who approve exceptions, supervise, or manage other employees in covered positions shall receive initial and periodic training that shall include the following:

- the influence of staffing levels on employee fatigue;
- the effects of work and rest scheduling on employee fatigue, and how to schedule work to minimize the risk;
- how to manage a team of employees to minimize fatigue risk within the group;
- how to detect when employees are excessively fatigued;
- understanding company policies and procedures for times when employees should be removed from duty due to fatigue;
- the continuous improvement process for assessing, updating, and increasing the effectiveness of the FRMS through a data-driven process.

Recurring Training
Existing employees in covered positions shall receive recurring fatigue risk education and training on an annual basis. In addition, existing employees shall receive appropriate training when:

- Their work functions are affected by a material change in FRM policies and procedures.
- They assume a new position or work responsibilities with unique FRM procedures.

In each of these cases, the training should be provided within 60 days of the applicable event.

4.5. Work Environment

To promote alertness, indoor workspaces occupied by personnel covered by this document should be well lit using lighting sources positioned to avoid glare and eye strain.
During the day, full visible spectrum lighting can be used. During the night, exposure to bioactive blue light should be limited to mitigate circadian disruptions.
Indoor temperature should be controlled at the lower end of the comfortable range. Humidity should also be controlled within a comfortable range.

4.6. Individual Risk Assessment and Mitigation

Management shall encourage individuals to be continuously aware of their level of fatigue and take appropriate steps to enhance their alertness while on duty. If and when individuals determine that they are too fatigued to work safely, they shall report this to their supervisor. Individuals shall also be alert to evidence that others in the workplace may be fatigued and bring their concerns to the employee and their supervisor. To encourage fatigue awareness, a culture of fatigue risk management shall be created. This culture shall instill confidence in workers and contractors to disclose their personal sleep or fatigue status and seek assistance consistent with the company protections afforded to reporting other safety concerns.

Each unit shall consider the type of work that is being done. Adequate opportunity for work breaks should be made available, based in part on the nature of the work. Individuals working shift work and others who may be involved in working extended hours/days shall be encouraged to use their time off the job to get appropriate sleep and maintain their alertness and fitness for duty.

Factors that may affect alertness and fitness for work include restricted sleep, stress, medical conditions, and the use of certain medications. A fitness for duty assessment may be used to detect fatigue-related impairment regardless of the underlying cause.

Supervisors shall be alert to signs of excessive fatigue in employees and contractors. Supervisors shall be given the responsibility and the authority to take appropriate steps to ensure employees are alert enough to safely perform their work. Individuals who experience repeated bouts of excessive fatigue shall be referred to their health professional or medical department for further evaluation and advice regarding actions they can and shall take to maximize their alertness. Continued repeated bouts of excessive fatigue may also lead to further investigation to ensure abuse is not occurring. Cases where abuse is validated may lead to discipline.

4.7. Fatigue Countermeasures:

When operational demands or other fatigue stressors cause personnel to exhibit symptoms of fatigue, the immediate priority is to identify the most appropriate countermeasures to activate to mitigate fatigue risk and log the fatigue occurrence. All units will be required to maintain a Fatigue Log.

Note: If at any time an employee feels unfit for work, he or she will be relieved of duty and given an opportunity to rest or to go home. If the decision is made to relieve the employee of duty, the Company shall cover the cost of suitable ground transportation for the employee to return home safely.

In consultation with Management and EHS, the Supervisor will recommend short term corrective actions for preventing similar events.

If the employee is experiencing low or moderate levels of fatigue and elects to continue duty, several strategies can be used to reduce the consequences of increased fatigue. Countermeasures should be appropriate to address the exact source of fatigue and should also be appropriate for the employee and the work environment. Applying countermeasures in combination may also be more effective than one countermeasure strategy alone.

Countermeasures can include:

- Additional breaks
- Strategic use of caffeine in moderation, caffeine from a cup of coffee can help

boost alertness levels
- Task rotation and reallocation
- Supervisor and co-worker monitoring
- Proper hydration and nutrition
-

Each of these fatigue countermeasures is described below:

Additional Breaks and Strategic Use of Caffeine

Employees are responsible for monitoring themselves for requesting or taking breaks when they feel their alertness levels are impaired. During breaks, employees must follow best practices for countering fatigue effects which may include mild exercise, high protein snack and consuming caffeine.

Employees that choose to consume caffeine should do in a strategic manner with attention to quantity and timing. Consuming one 8oz cup of coffee per 24-hour period has a positive impact on alertness but consuming additional caffeine has limited affect. The Company does not promote the regular use of caffeine. However, the Company acknowledges that caffeine can be useful in contingency situations to help increase alertness when required.

Task Rotation and Task Re-Allocation

Spending an extended period on one task, or performing a monotonous task, are known fatigue stressors. Changing tasks can contribute to a boost in alertness. Any new assignment should be within the competencies of the employee. Supervisors will rotate work in consultation with concerned employees to ensure that all tasks resignments meet this requirement.

Supervisor and Co-worker Monitoring

In instances where operational demands require extended hours of work that may result in employees working through higher levels of fatigue than normal, employees and supervisors will be proactive in observing and acting on fatigue-related symptoms that may be manifested. In cases where fatigue symptoms are repeatedly observed in an employee, the supervisor shall be informed and measures will be taken to allow the employee to take a break or use other strategies to improve alertness (such as mild exercise, additional breaks, and/or caffeine). In some instances, more attentive supervision may not sufficient, and the employee shall be required to activate additional fatigue countermeasures as required to achieve fitness for duty.

Proper hydration and nutrition

Proper hydration and high-protein snacks can be useful ways to alleviate drowsiness, especially because nutrition is directly tied to our alertness and cognition. Without fuel in the form of nutrition and hydration, the brain and body are more susceptible to fatigue. Foods high in fat and sugar should be avoided, while high-protein and nutritious snacks like nuts, dried fruit, jerky, and granola can boost alertness levels. Plus, because fatigue symptoms can be caused or worsened by environmental factors, the importance of staying cool and hydrated while working in hot conditions is clear

4.8. Incident/Near Miss Investigation

The investigation of incidents shall be conducted in a manner that facilitates the determination of the role, if any, of fatigue as a root cause or contributing cause. Information collected should include the time of the incident, the shift pattern, including the number of consecutive shifts worked, the number of hours awake, the number of hours of sleep in the past 24 hours, 48 hours, and 72 hours by the individuals involved; the shift duration (and any overtime worked); whether the incident occurred under normal operations or an extended shift; whether an outage was occurring; and other fatigue factors. It should be noted that for specific incidents, often no

definitive conclusion regarding the role of fatigue may be possible. However, aggregate analysis of incidents may reveal patterns suggestive of the role of fatigue that is not apparent by evaluating incidents individually.

4.9. Core Schedule Requirements and Hours of Service (HoS) Limits

The facility FRMS shall specify core schedule requirements and HoS limits that shall not exceed those in this section, considering the exception process discussed below.

The core schedule is the base schedule pattern of work and rest days, without shift-to-shift handovers that extend the shift time, overtime, Personal time off (PTO), or other non-base schedule considerations.
The Hours-of-Service limits sets forth the maximum work hours and minimum rest periods per day, work set, and during outages.

All employees are accountable for their hours of work and ensuring the fatigue requirements are met. Employees and supervisors shall work together and make every effort for the employee to work their normal work schedule and that the employee's normal work schedule is priority over working overtime, extended shifts, callouts, or any work that would prevent an employee from working their normal work schedule.

4.10. Hours of Service (HoS) Requirements

These limits have been developed in the context of the existence of a comprehensive FRMS. Consistently working at these HoS limits over multiple consecutive work sets may lead to chronic sleep deficit.

The overall FRMS shall be designed to prevent employees from frequently working at or near these HoS limits over the long term. The objective of these limits is to establish triggers at which additional fatigue risk evaluations shall be performed prior to exceeding these HoS limits.

The objective of these limits is to ensure adequate rest opportunities to prevent fatigue risk. Exceeding these HoS limits may be approved after a documented risk analysis has been completed, documented, and approved.

The core schedule shall provide the opportunity for at least an 8-hour sleep opportunity from the time an employee leaves the facility at the conclusion of one shift to the beginning of the next shift, however the actual amount of time off between one shift and the next to obtain eight (8) hours of sleep is typically around 10 hours and provides for employee commutes of up to 30 minutes to and from the site as well as general hygiene requirements such as showers, meals, and social time.

Workset Rules	Straight Day Shift	Rotating Days and Night Shifts
Maximum Work Hours in a 24-Hour Period (Normal Operations and Outages)	14 hours *(Extended shifts beyond 14 hours shall occur only when necessary to avoid an unplanned open safety critical position or accomplish an unplanned critical task and shall be treated as an exception.)*	
Minimum Time Off Between Shifts (Normal Operations and Outages)	10 hours	
Normal Operations - Maximums & Minimums in a Work Set		
Maximum Work Hours in a Work Set (Normal Operations)	105 hours	92 hours

Minimum Time Off After a Work Set (Normal Operations)	46 Hours if a work set included 4 or more night shifts 34 Hours if a work set did not include 4 or more night shifts
Outages - Maximums & Minimums in a Work Set	
Maximum Work Hours in a Work Set (Outages)	182 Hours
Minimum Time Off After a Work Set (Outages	34 Hours regardless of night shifts worked within work set
Callouts	
For callouts that result in extended shifts, the minimum time between completion of the extended shift and before returning to work	10 hours (*allows for travel and hygiene requirements*)
Callouts that start or end within eight (8) hours of a scheduled shift shall be included as time worked in the closest scheduled shift and extended shift limits/requirements shall apply. The time between the callout and the adjacent shift shall be included in calculation of the HoS limits.	

Maximum Work Hours in a 24-hour Period:

Total hours worked (including shift turnovers, hold-overs, and overtime) shall not exceed 14 hours.

Extended shifts beyond 14 hours shall occur only when necessary to avoid an unplanned open safety critical position or accomplish an unplanned critical task and shall be treated as an exception.

Maximum Work Hours in a Work Set (Normal Operations):

Total hours worked (including shift turnovers, hold-overs, and overtime) shall not exceed:

- 92 hours for rotating and night shift employees
- 105 hours for straight day assignments

A Work Set shall be considered complete when an employee is off work for at least 34 hours if a Work Set did not include 4+ night shifts. A Work Set shall be considered complete when an employee is off work for at least 46 hours if a Work Set did include 4+ night shifts.

Extended Work Sets beyond those specified above shall occur only when necessary to avoid an unplanned open safety critical position or accomplish an unplanned critical task and shall be treated as an exception.

Maximum Work Hours in a Work Set (Outages):

Total hours worked (including shift turnovers, hold-overs, and overtime) shall not exceed 182 hours.

When transitioning to an outage, the current work set should start with the individual's last rest period (the start of the current work set following the last time off period).

When transitioning back to Normal Operations, the work set for Normal Operations starts after the next minimum rest period.

A Work Set shall be considered complete when an employee is off work for at least 34 hours.
Extended Work Sets beyond 182 hours shall occur only when necessary to avoid an unplanned open safety critical position or accomplish an unplanned critical task and shall be treated as an exception.

Callouts

The nature of callouts involves unpredictable patterns of work and rest, attention shall be given to callout practices to ensure adequate rest prior to returning to work. All callouts shall count towards the HoS limits.

- Callouts that start or end within eight (8) hours of a scheduled shift shall be included as time worked in the closest scheduled shift and extended shift limits/requirements shall apply. The time between the callout and the adjacent shift shall be included in calculation of the HoS limits.
- For callouts that result in extended shifts, a minimum of 10 hours off is required between the completion of the extended shift and before returning to work.
- For situations where an individual is called-out to work multiple times throughout the same 24-hour period, the duration of callouts shall be added. The HoS limits shall apply to the total of those callouts.
- For callouts that result in an employee not being able to make their next normal shift due to not having enough rest according to this requirement, will continue to rest until the hours requirement is met. Once the appropriate rest period is met, the employee must continue their normal shift even if it were to begin after the employee's normal start time for their shift. Exceptions may occur when it makes more sense for the employee not to come into work, however exceptions must be approved by employee's direct supervisor.

4.11. Exception Approval Process

If any of the mandatory requirements (i.e., those indicated in "shall" statements) specified in the HoS limits are expected to be exceeded or an extended shift is contemplated, an established management exception approval process shall be completed prior to the start of the exception. It is anticipated that exceptions to the HoS limits may be required. The exception approval process is an important component of an overall fatigue risk management system and shall involve immediate supervisor and another leadership representative, at least one of whom shall be on-site. Verbal approval is sufficient for the second manager while written/signed approval is required for the on-site supervisor/manager. In the case of a high-risk exception, senior site management shall be notified no later than the following business day.

High risk exceptions include:

- Work more than 18 hours in a single shift,
- Return to work prior to having eight (8) hours off, or
- Work more than one extended shift (greater than 14 hours) per work set.

Exception Approval Tool – Link

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Exceptions are counted for each shift worked until the mandatory rest period is satisfied. The exception process shall include a documented risk assessment and mitigation plan such as:

- Reason requiring the additional work hours or days in excess of the HoS limits
- Exception or extended shift being considered
- Details on tasks and work to be completed and the number of individuals and timeframe involved

The risk assessment and mitigation plan shall include:

- Types of hazards
- Task considerations (e.g., complexity, physical exertion, time of day etc.)
- Individual considerations (e.g., consecutive shifts in current work set, day or night shift, consecutive hours in current shift, previous hours off, commute time, etc.)
- Dialogue between employee and supervisor of the assessment of the employee's

current level of fatigue
- Mitigation plan (e.g., increased breaks, double staffing, travel arrangements, local hotel use, etc.).

4.12. Periodic Review of the FRMS to Achieve Continuous Improvement

The FRMS shall be subject to periodic assessments of its effectiveness and opportunities for continuous improvement. Targets shall be set for key parameters of the FRMS and metrics shall be used to determine whether those targets are being met. Examples of targets may include, but are not limited to, percentage overtime (median, mean—top of 10% of employees), number of open shifts, number of extended shifts, length of work sets, and number of and type of exceptions. Targets shall be reviewed with key stakeholders periodically and incorporated into the FRMS. Plans shall be developed to close any gaps between targets and actual FRMS performance. In addition, key outcomes that may be impacted by fatigue (e.g., absenteeism, healthcare costs, safety, and hazard loss data, including aggregate analysis of incident investigation results, etc.) shall be monitored. While these outcomes shall be assessed to aid in the determination of the effectiveness of the FRMS, it should be noted that many factors other than fatigue may cause impact, so judgment will be required in the interpretation of this information.

5. RESPONSIBILITIES

5.1. Site Director

Ensure that the Beaumont Site has its own FRMS policy that is in line with the corporate requirement document and other specific regulatory requirements for a geographic location or operation. Site leaders shall also actively participate in corporate EH&S processes that include features of a FRMS.

5.2. Supervisors

Continuously be aware of the level of fatigue of employees and contractors and take appropriate steps to ensure that employees and contractors are alert enough to safely perform their work. Ensure exceptions are properly approved and documented if necessary.

Supervisors shall partner with employees and make every effort for the employee to work their normal work schedule and that the employee's normal work schedule is priority over working overtime, extended shifts, callouts, or any work that would prevent an employee from working their normal work schedule.

5.3. Employees

Accountable for their hours of work and ensuring this fatigue requirement is met.

Employees shall partner with supervisors and make every effort for the employee to work their normal work schedule and that the employee's normal work schedule is priority over working overtime, extended shifts, callouts, or any work that would prevent an employee from working their normal work schedule.

Continuously be aware of their level of fatigue and take appropriate steps to enhance alertness while on duty. If and when they determine that they are too fatigued to work safely, they shall report this to the supervisor. Employees should use time off the job to get appropriate sleep before their next work set.

Employees shall be alert to others' level of fatigue and bring any concerns to a supervisor.

5.4. EHS

Integrate key components of a Fatigue Risk Management System into existing EH&S processes. Develop and implement training and awareness programs and establish a process to review the effectiveness of BASF requirements and policies on fatigue management such as:

- Incorporate fatigue factors into AIMS reporting and review root cause trends

- Make recommendations on requirement changes

5.5. Human Resources

Govern requirements and provide reporting guidelines. Partner with site to support and provide IT infrastructure (i.e., Schedule Pro) to plan and track HoS as necessary and applicable.

REVISION HISTORY

Date	Revision Number	Initials	Details of Change
07/01/2023	Original	CW	Issued new Fatigue Risk Management System guideline for the site – Replaces BMEHS-002.041