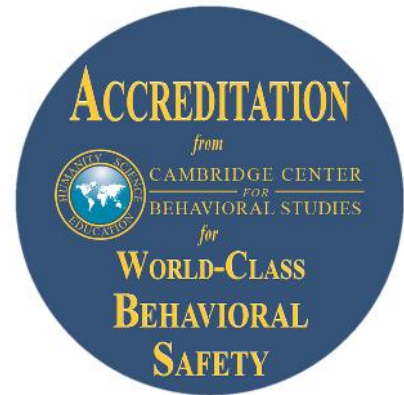


# Cambridge Center for Behavioral Studies Accreditation Site Visit Report

To:  
Diego Vaccarotto  
Via Stura 98  
I-10075  
Mathi, Turin  
Italy



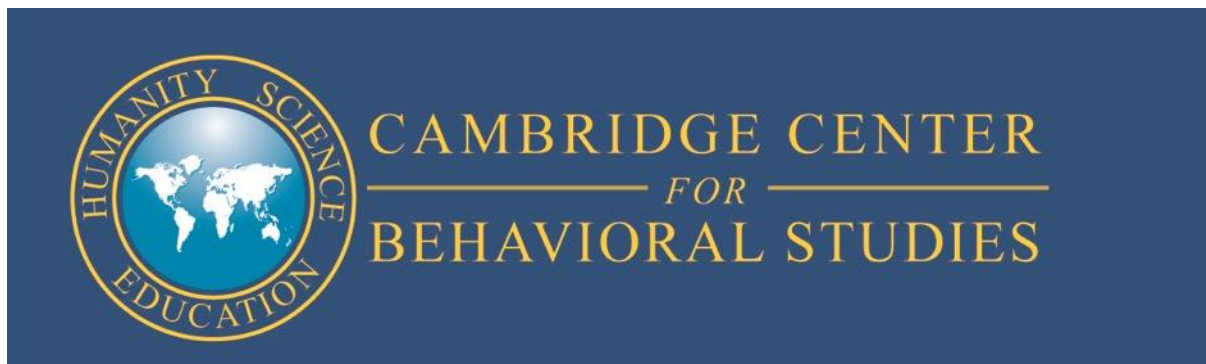
December 21, 2018

Commission on Behavioral Safety Accreditation  
Cambridge Center for Behavioral Studies (CBBS)  
P.O. Box 7067  
Cummings Center Suite 340F  
Beverly, MA 01915

Reviewers: Sigurdur Oli Sigurdsson, Ph.D. (Review Chairperson)  
Alan Cheung (Review Commissioner)

## Cambridge Center for Behavioral Studies (CBBS) Mission

*To advance the scientific study of behavior and its humane application to the solution of practical problems, including the prevention and relief of human suffering.*



## ACCREDITATION DECISION

The Cambridge Center for Behavioral Studies' Commission on Behavioral Safety Accreditation reviewed the Ahlstrom-Munksjo Italia S. p. A. application for Accreditation and performed a site visits at their Mathi and Sassoferrato plants. Based on data reflecting exemplary safety performance and supported by observations during our visit, Dr. Sigurdsson and Mr. Cheung found that the Ahlstrom-Munksjo Italia S. p. A. Behavior Based Safety Program (BBS) program meets the 3 basic criteria of the Commission on Behavioral Applications for Behavioral Safety Accreditation to be reviewed: 1) it is a behavioral process, 2) the process has had a visible positive impact on safety performance, and 3) the process has produced sustained positive performance over 3 or more years. The Commission site visitors recommended to the Commission that that the Ahlstrom-Munksjo Italia S. p. A. Behavior Based Safety Program at their Mathi and Sassoferrato plants be Accredited at the **Gold Level** for a period of three years. This recommendation is based on an overall evaluation of Ahlstrom-Munksjo Italia S. p. A.'s compliance with the Commission's review standards. This motion was approved by the Commission unanimously on December 17, 2018.

**The Cambridge Center for Behavioral Studies Accredits Ahlstrom-Munksjo Italia S. p. A.'s Behavior Based Safety Process for the period of three years (December 21, 2018 – January 31, 2022).**

## Table of Contents

<i>ACCREDITATION DECISION</i> .....	2
COMPANY OVERVIEW .....	3
<i>Sampling methodology:</i> .....	3
<i>Strengths:</i> .....	4
<i>General Recommendations:</i> .....	5
<i>Safety Performance</i> .....	6
AHLSTROM MUNKSJO'S BEHAVIOR BASED SAFETY (BBS) PROCESS .....	8
<i>ACCREDITATION STANDARDS REVIEW</i> .....	14
STANDARD 1: SAFETY TEAM .....	14
STANDARD 2: MANAGEMENT SUPPORT AND ENGAGEMENT.....	15
STANDARD 3: WORKER KNOWLEDGE, SKILLS, AND INVOLVEMENT.....	16
STANDARD 4: RISK ANALYSIS, PINPOINTING, AND BEHAVIORAL OBSERVATIONS.....	17
STANDARD 5: GOAL SETTING AND INCENTIVES .....	19
STANDARD 6: EFFECTIVE COMMUNICATION AND PERFORMANCE FEEDBACK.....	20
STANDARD 7: EVIDENCE OF PROGRAM EFFECTIVENESS.....	21
STANDARD 8: CONTINUOUS IMPROVEMENT (CI) AND SUCCESSION PLANS .....	22
STANDARD 9: EXTENDED APPLICATIONS OF BEHAVIORAL TECHNOLOGIES .....	23
STANDARD 10: CORPORATE RESPONSIBILITY AND OUTREACH.....	24
<i>Review Itinerary</i> .....	25

## COMPANY OVERVIEW

Ahlstrom-Munksjö Group is a global company that provides fiber-based products and solutions. The Group employs 6,200 employees and has 41 production sites in 14 different countries. Annual net sales are approximately 2.2 billion Euros. The Ahlstrom-Munksjö Group has two production facilities in Italy: Mathi and Sassoferrato. Both plants run 365 days a year on three shifts, with regularly scheduled maintenance shutdowns. The Mathi facility has 516 employees, as well as 39 workers from temporary employment agencies that receive the same training and orientation as employees. The corresponding numbers at the Sassoferrato facility are 49 employees and 12 temporary workers. External contractors are rarely on site, but do come to the plant for maintenance shutdowns.

The two facilities produce for two business areas of the Ahlstrom-Munksjö Group: Industrial Solutions, and Filtration and Performance. More specifically, they produce specialty paper for release liner applications, and filtration media for automotive and liquid technologies. The facilities are both certified for Health and Safety (OHSAS 18001), Environment (IOS 14001), Quality (ISO 9001 and IATF 16949), Forestry Management Chain of Custody (FSC and PEFC) and Energy (ISO 50001). It is worth noting that the Mathi plant was split up into two organizational entities in 2013, but those were re-merged in 2017. As a result, it is difficult to compare incident rates for 2013-2017 as the incident rates from those years come only from the larger of the two entities. The total number of Lost Time Accidents (LTAs) is however comparable for the whole Mathi plant for this period.

The process was started in 2015, when management had identified some at-risk behaviors that persisted even though injury rates were very low. Ahlstrom Munksjö formed startup groups that had some input into the training and design of the process, but the methodology was predominantly rooted in a model proffered by the consulting company. Ahlstrom Munksjö's BBS process is owned by management, HSE, and workers. A Steering Committee of managers makes strategic decisions for the BBS process, as it would for other operational aspects of running the facilities, and is ultimately responsible for all aspects of the BBS implementation. Both facilities also have representatives on the Project Group for the BBS process (10 team members in Mathi and 2 team members in Sassoferrato). The Project Group has members from HSE, HR, Production, and Management. The Project Group meet quarterly and discusses challenges and barriers, celebrations, training needs, updates of action plans, meetings plans with safety leaders, etc.

A number of safety management systems make up Ahlstrom Munksjö's larger SHE program, in addition to the BBS process. These include Near Miss Reports, First-Aid reporting, safety audits, corporate safety alerts and industry safety alerts. All of these systems feed into the BBS process, and forms for Near Misses, for example, contain a check-box to indicate that the near-miss may have a behavioral component that should be addressed through the BBS process.

### Sampling methodology:

In the site visit, the review team worked with the managers and staff responsible for the operational aspects of the BBS process (HSE manager, HR manager and BBS coordinator from the Mathi plant) to sample multiple facets of its safety programs at both the Mathi and Sassoferrato plants in order to evaluate the behavioral integrity and ongoing impact of the BBS process on safe performance and the reduction of injuries. This was accomplished through: a) review of the written application for accreditation, b) safety performance data review, c) interviews with accountable parties, and d) witnessing BBS processes in action. The Application for Accreditation was submitted to the CCBS on August 21, 2018 for purposes of reviewing the BBS process. The site visit itinerary allowed the reviewers to interview stakeholders including leaders, safety coordinators, and employees.

## Strengths:

- Ahlstrom-Munksjo Italia S. p. A.'s BBS process is owned by all stakeholders; management, HSE, and workers alike. These groups take on active roles in the process and are committed to its success. This is evidenced by the large number of behavioral safety observations, the resources dedicated to maintaining and ensuring the integrity of the process, the inclusion of BBS updates in regular operational communications, the continuous improvement mechanisms embedded in the process, and the positive experiences of the process reported by all those interviewed. It is particularly noteworthy that the unions of both plants are complimentary and wholly supportive of the process.
- Action planning around the BBS process is exemplary. As part of their general project management accounting, members of the plants' management teams have specific BBS action items that they are individually responsible for. For each action item there are also specifications of deadlines, progress (indicated by green, yellow and red status indicators), and criteria for closing the items.
- Ahlstrom Munksjö's BBS observation system is grounded in good practice in behavioral science and has been tailor-made to suit the two facilities. To illustrate, there are 15 checklists in operation in the Mathi plant and 5 in the Sassoferrato plant; the checklists in the Mathi plant, in particular, undergo regular revisions; observers are trained extensively; and observation quality is constantly monitored through analysis of the content of submitted checklists and through regular coaching by the BBS coordinator. Recently, a general push towards higher quality observations has resulted in a lower number of completed checklists, but quality indices have increased as a result. In addition, the BBS coordinator continuously monitors the number of observations coming from the different areas of the Mathi plant and engages the observers if observation numbers are low. It is also commendable that many observers reported that being a BBS observer had led to personal growth in some fashion.
- Ahlstrom Munksjö invests heavily in training safety leaders that lead monthly safety meetings and provide and receive feedback from their teams. As part of their training, safety leaders learn how to communicate information and data from the BBS process, and how to engage their teams in a troubleshooting conversation to mitigate emerging risks.
- A view that was frequently expressed in interviews (by workers and supervisors on both sites), without prompting was that communication within the ranks of workers, and between workers and supervisors had improved considerably since the introduction of BBS. Although this was in particular related to safety conversations, there was a general opinion that better communication styles also applied to other issues, such as production and quality. On a related note, all interviewees felt that both plants were very safe, and that safety was managed far better by Ahlstrom-Munksjo Italia S. p. A. than in other companies they worked for. When prompted, all stated that they would be happy for their children to work in a plant run by Ahlstrom-Munksjo Italia S. p. A..
- Ahlstrom-Munksjo Italia S. p. A.'s injury rates, as detailed in the written application, show a sustained decrease, and are well below the industry average in Italy. This decrease corresponds to an increase in the number of reports of near misses, and apparent reductions in at-risk behaviors, as indicated by employee observations. Ahlstrom-Munksjo Italia S. p. A.'s focus has also turned away from purely results-driven (lagging indicator) safety management to an increased emphasis on behavior-based (leading indicator) management of safety, which is to be applauded.
- The Sassoferrato plant has extended the BBS process beyond its production areas to office safety. This is an indicator of the plant's commitment to a behavioral approach to injury prevention. The Sassoferrato plant has also emphasized the rotation of observers, to prevent observation fatigue.

- In summary, the Ahlstrom Munksjö BBS process is relatively new, but is supported by upper management, supervisors, unions, and workers alike. It is primarily operated through the HSE department. The HSE Manager and BBS coordinator are competent and dedicated, and are particularly effective at disseminating BBS data, information, and updates to generate safety conversations in daily, weekly and monthly meetings. The BBS process is continuously evaluated, and there is ample evidence of continuous improvement efforts.

### General Recommendations:

- Ahlstrom-Munksjo Italia S. p. A. should seek ways to increase knowledge of behavioral science within a core team of key employees driving the BBS process. This can be achieved by taking training courses in the principles of behavior and behavioral problem-solving; going to international conferences; and/or seeking benchmark learning opportunities from other organizations, be they national or international.
- Incidents, near misses, first aids, and risks noted in safety audits are extensively analyzed using standard analytic tools, such as the 5 whys. These analyses should ideally be complemented by analyses of the antecedents and consequences of the behaviors involved in these events (A-B-C analyses).
- The BBS process generates a wealth of data, which is to be commended. Ahlstrom-Munksjo Italia S. p. A. should consider how these data can be used to their full potential by analyzing them in a more nuanced manner for unique variability and trends. As a result, opportunities may be identified to focus data collection strategically on emerging risks, high potential risks, or other behaviors that are in focus for some reason (for example, during maintenance shutdowns). Additional analyses may also reveal that some items occur so infrequently, or are so frequently observed as safe, that they can be deleted from the checklist – at least temporarily.
- Ahlstrom-Munksjo Italia S. p. A. is urged to explore ways of using BBS to improve the identification of risks during maintenance shutdowns. This could be done, for example, by setting higher goals for observations and feedback and using dedicated BBS observers. An additional strategy may be to create dedicated checklists for behaviors and conditions that are unique to shut down operations. In cases where maintenance shutdowns only last for 12 hours, observers could collect observational data and provide immediate verbal feedback during those 12 hours. The data could be collated and then fed back to workers at a later time, ideally right before the next shutdown. Ahlstrom-Munksjo Italia S. p. A. may also consider creating dedicated checklists for other identified high-risk activities.
- Coaching of observers is mostly done when quality checks of comments or some other aspect of a completed checklist indicate problems. Such an approach can be augmented through regular scheduled coaching of all observers to ensure accuracy in observations.
- In order to ensure adequate numbers of observations for monthly goal behaviors, Ahlstrom-Munksjo Italia S. p. A. may consider tracking supervisor support behaviors, such as building time in a work schedule to conduct observations.
- The BBS process results in a number of successes, which should be celebrated and advertised as a matter of course. These successes may include equipment changes or purchases based on BBS observations, closing of BBS action items, reaching milestones in terms of number of observations or number of active observers, etc.

- In order to spread good practice across the two plants, Ahlstrom-Munksjo Italia S. p. A. should consider creating a community around BBS. This could involve, for example, identifying safety champions from the ranks of dedicated observers that can communicate challenges and successes across the plants in electronic conference meetings or during mutual site visits. The same could be done with plant management teams and front-line supervisors.

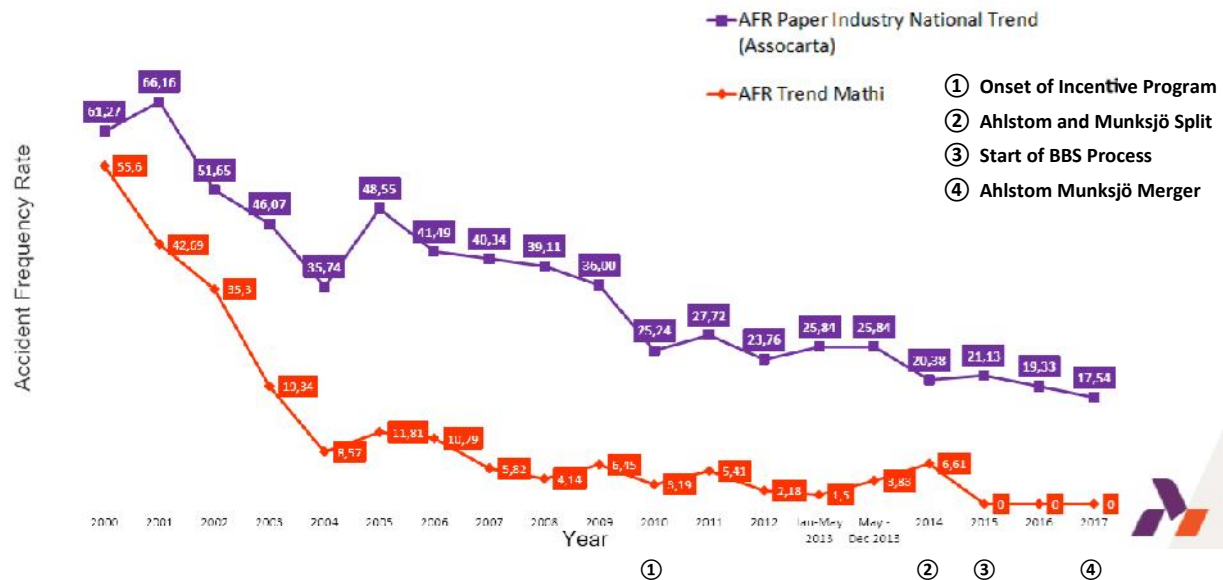
- Increased knowledge of behavioral science also opens up opportunities to expand the behavioral approach to other areas, such as production and quality management. There may also be benefits in terms of rolling out BBS initiatives in a behaviorally sound manner.

Further recommendations relating to the 10 Accreditation Standards are to be found below.

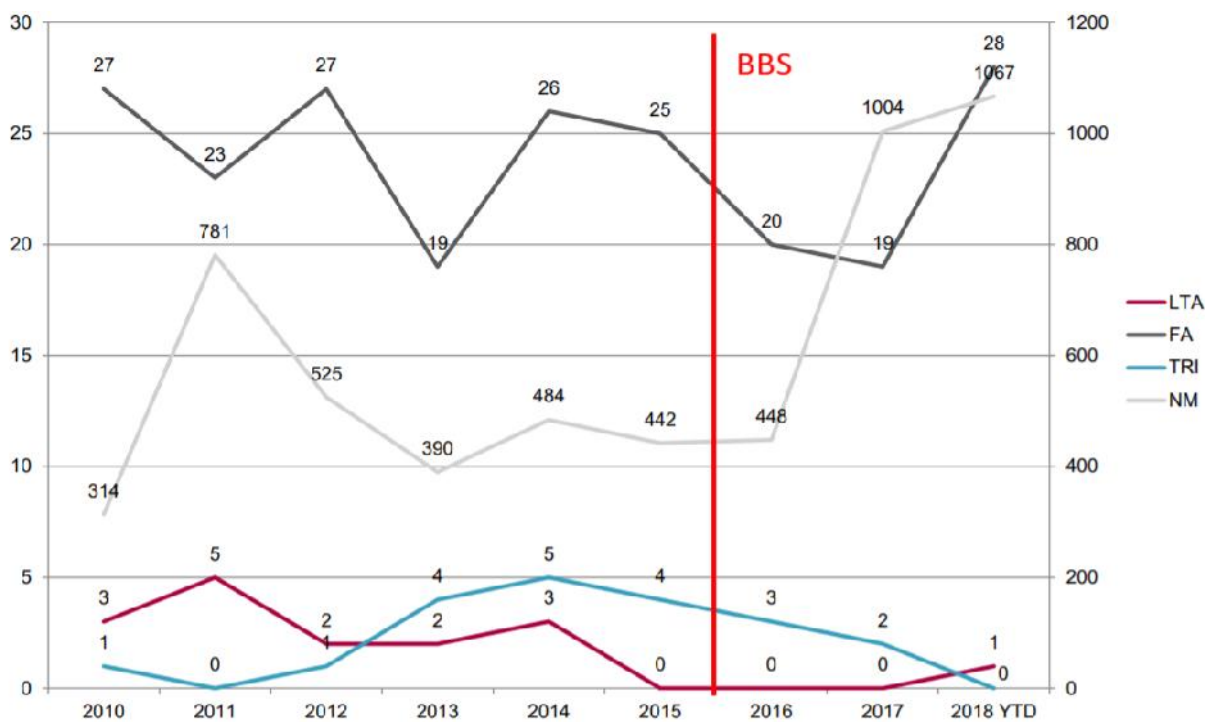
### Safety Performance

This section reviews the safety performance of Ahlstrom-Munksjo Italia S. p. A.. Italy’s government requires the reporting of an Accident Frequency Rate (AFR) with is calculated as the number of incidents x 1,000,000 labor hours, the product of which is divided by the total number of hours worked in the reporting period. In Italy, an incident is recorded if the individual is off work for 3 days or more.

Ahlstrom Munksjö’s historical AFR for the Mathi plant shows a substantial and sustained decrease over the past 17 years (see Figure 1, below), and the data in the Sassoferrato show a similar trend, although not pictured. Ahlstrom-Munksjo Italia S. p. A. has maintained an AFR that is well below the national average for the paper industry, and has had zero AFR in 2015, 2016 and 2017, during which time the national average has averaged 19.3.



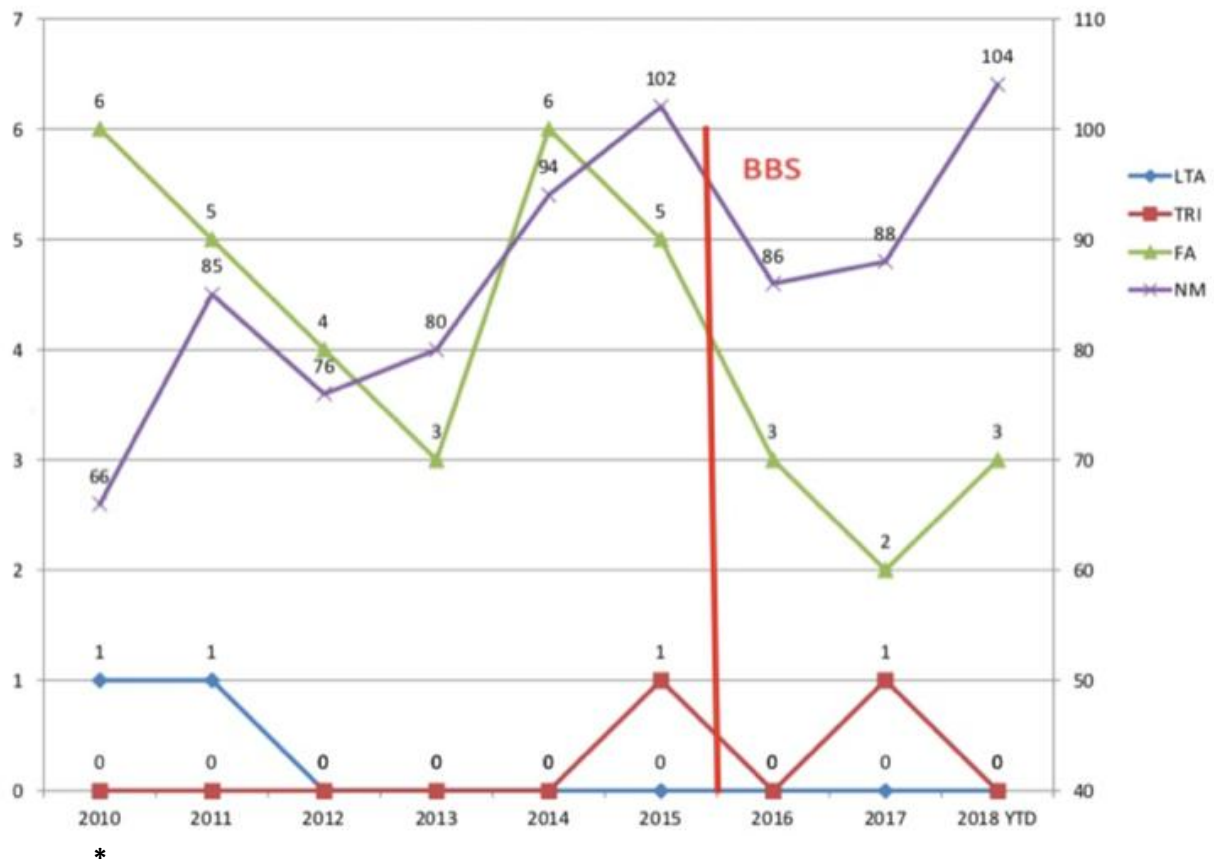
**Figure 1. Accident Frequency Rates for Mathi Plant and Italian Paper Industry: 2000-2017, and some key organizational events.**



**Figure 2. Lost-Time Accidents (LTA), Total Recordable Incidents (TRI), First-Aids (FA) and Near Misses (NM) for Mathi Plant: 2010-2017.**

Figure 2 (above) depicts a number of safety indicators tracked by the Mathi plant for years 2010-2018 YTD, with a line indicating the onset of the BBS process. LTA indicates Lost Time Accidents, FA indicated First Aids, TRI indicates Total Recordable Incident Rate (restricted duty, occupational diseases and other recordable incidents) and NM indicates Near miss. A sustained decrease in LTA and TRI is evident, and maintained following the onset of BBS. It is also noteworthy that Near Miss reporting has more than doubled since the onset of the BBS process. It is worth noting that the Mathi plant was split up into two organizational entities in 2013, and that those entities were then remerged in 2017. As a result, it is difficult to compare incident rates for 2013-2017 as the incident rates from those years come only from the larger of the two entities.

Figure 3 (below) depicts the same set of safety indicators for the Sassoferrato plant for years 2010-2018 YTD, also with a line indicating the onset of the BBS process. LTAs and TRI are very low for that entire period, and a general uptrend in near misses is evident as well. There is limited evidence of a reduction in first aid injuries around the onset of BBS, but that must be tempered by the fact that the base rate was already low, and that these are not rate data.



**Figure 3. Lost-Time Accidents (LTA), Total Recordable Incidents (TRI), First-Aids (FA) and Near Misses (NM) for SassoFerrato Plant: 2010-2017. The asterisk (\*) indicates the beginning of the incentive system for zero-LTAs.**

### AHLSTROM MUNKSJO'S BEHAVIOR BASED SAFETY (BBS) PROCESS

The Ahlstrom-Munksjo Italia S. p. A. BBS process was rolled out in both the Mathi and SassoFerrato plants in 2015. The process was based on a model created by a behavioral safety consultancy. A consultant from this consultancy provided all the subject-matter expertise in terms of developing the process. The consultant also trained key staff in managing the process and assisted in developing organizational processes to support the process, and provided all observer training (and still delivers training to new observers, as needed). The training now involves 4 hours of training in a classroom setting, and 4 hours of training on the plant floor. There is currently a meeting with the designated BBS consultant twice a year to discuss progress and troubleshoot. The Mathi plant has 220 trained observers in the workforce. Some of those have retired from observations, so that 135 are now designated as observers. In the SassoFerrato plant, 20 observers have been trained and 10 are designated as observers. Of those that are currently defined as observers, 2/3 on average earn a token for meeting their observation goal of 8 observations per month.



The BBS process is owned by management, HSE, and workers. A Steering Committee of managers makes strategic decisions for the BBS process, as it would for other operational aspects of running the facilities, and is ultimately responsible for all aspects of the BBS implementation. Both facilities then have members on the Project Group for the BBS process (10 team members in Mathi and 2 team members in Sassoferrato). The Project Group has members from HSE, HR, Production, and Management. The Project Group meets quarterly and discusses challenges and barriers, celebrations, training needs, updates of action plans, meetings plans with safety leaders, etc. The daily operation of the process is overseen by a BBS coordinator, who is a member of staff in the HSE department. The HR manager also provides support to the BBS coordinator and HSE manager in managing the BBS process.

Currently the process has approximately 135 workers designated as active observers in Mathi, and 20 in Sassoferrato. Approximately 2/3 of those conduct 8 observations per month, which is the criterion for earning a token for meeting the monthly observation goal. These tokens can be exchanged for goods and services from an extensive menu. Safety Leaders receive a token when they reach their monthly personal target based on the management of the monthly safety meeting and doing 4 observations, Observers receive their token when they reach their monthly target of completing 8 observation checklist and workers receive their token for if their departments monthly target is reached – this is usually achieving the % compliance of the identified key behavior.

In the beginning, any Munksjö Ahlstrom Italy could volunteer to be trained and then act as an observer. Now the persons responsible for managing the process identify workers who are then approached for interest in serving as observers. For example, there are now nine union representatives that are active observers. The goal is to rotate observers on an annual basis, but allow those that volunteer to continue across years the opportunity to do so.

The observation process involves asking an employee or temporary worker for permission to observe their work and then completing an extensive behavioral checklist. Some recent changes in the observation process involve cross-department observations and extended quality checks of the comments made on completed checklists. The checklists are tailor made to different areas in the two plants, and currently there are 15 checklists in operation in the Mathi plant and 5 checklists in the Sassoferrato plant. In deciding whether to introduce new behaviors or conditions to a checklist, a Checklist Building Tool is used, that is based on recent near miss reports, corporate or industry safety alerts, or some other source of leading indicator data. Below is an actual Checklist Building Tool, provided as a sample.

Injury or accident	UNIT	OPERATION	FREQUENCY OF OPERATION	UNSAFE BEHAVIOUR	SAFE BEHAVIOUR
<b>Cut to hand</b>	Munksjö - Reel preparation	Strip picking, pooling, splicing with a cutter	Hourly	Poked, peeled and sliced the strips with a cutter without wearing gloves	Uses cut proof gloves
<b>Swarf in eyes</b>	Munksjö - Reel preparation	Core cutting	Hourly	Cuts the cores without protective glasses	Uses protective glasses
<b>Contusion</b>	Munksjö - Reel preparation	Reel handling	Hourly	Steps in the reel unloading area during reel unloading	Waits for coil unloading -landing to be -idle
<b>Back sprain</b>	Munksjö - Reel preparation	Reel handling	Hourly	Pushed the reel manually	Uses the roll pusher
<b>Crushing</b>	Munksjö - Reel preparation	Core positioning in reeling machine	Hourly	Put his hands between core and mandrel	Keeps hands on core instead of on hips
<b>Cut to hand</b>	Munksjö - Reel preparation	Knife replacement	Weekly	Did not wear cut proof gloves during blade replacement	Uses cut proof gloves
<b>Crushing</b>	Munksjö - Reel preparation	Roll handling with a bridge crane	Hourly	<ul style="list-style-type: none"> <li>&gt; Stopped roller oscillation with hands</li> <li>&gt; Stood inside roll storage area</li> <li>&gt; Stood under moving roll</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Dampens oscillation with bridge crane</li> <li>&gt; During handling process remains outside the roll storage area</li> </ul>
<b>Burns to upper limbs</b>	Munksjö - finishing department (calender)	Drill case, roller changeover, cleaning the calender roller pack, securing the steam valve	Daily		
<b>Crushing of upper limbs</b>	Munksjö - finishing department (calender)	Drill case, roller changeover	Daily		

**Figure 4. Checklist Building Tool**

The checklist items are frequently updated in the Mathi plans, but have not been updated in the Sassoferrato plant since the roll-out of the process. The picture below is a sample checklist from the Mathi plant.



Rev. 2

**Logistics: yards and Finish Goods warehouses**

Observer: _____	Date: __/__/201__	Time: __:__:__
Areas observed: <input type="checkbox"/> Lower Mill Yard <input type="checkbox"/> Upper Mill Yard <input type="checkbox"/> Upper Mill FG Warehouse <input type="checkbox"/> Lower Mill FG Warehouse		

Number of persons observed: \_\_

Number of persons I spoke with: \_\_

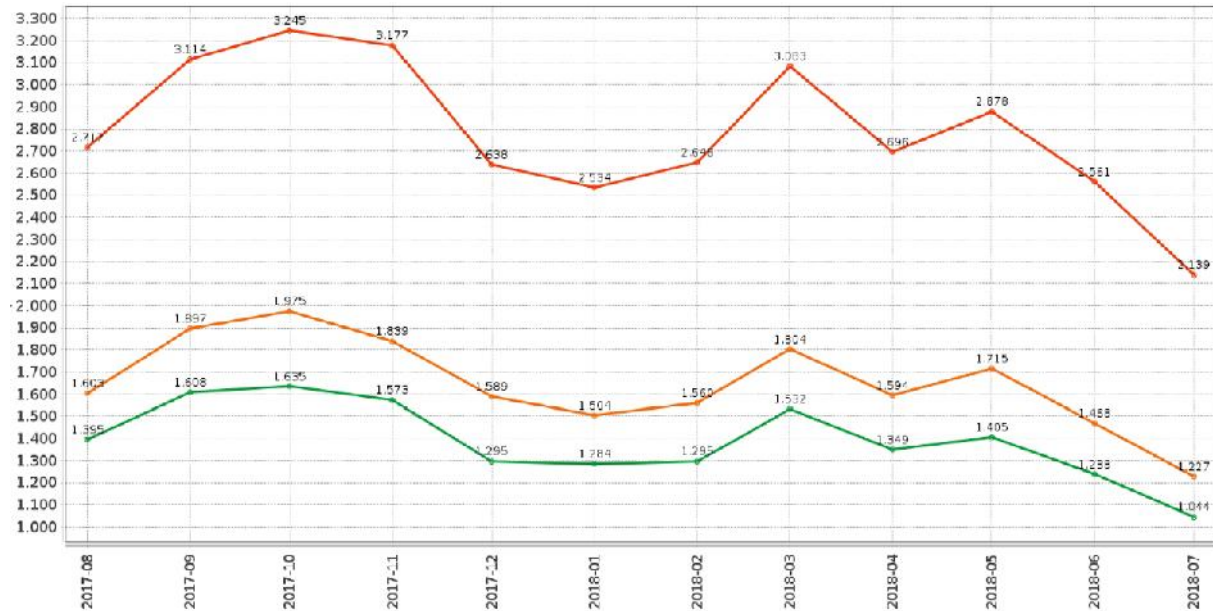
How many people wear...	Safe	At risk	Definitions
1. Earplugs			<i>In all departments save for IMP3, in all the yards, warehouses and workshops.</i>
2. Gloves			<b>Full grain leather</b> to move materials; <b>Cut-proof</b> gloves when using a cutter and when cutting wire/straps; <b>Anti-acid</b> when unloading chemicals.
3. Safety glasses or goggles			<b>Safety glasses</b> when using the cutter, unloading non hazardous chemicals, using compressed air; <b>Face shield:</b> sulphuric acid, hydrochloric acid, phosphoric acid, caustic soda, methanol, resins; <b>Face shield or safety glasses</b> when cutting wire and straps, and when workmate is connecting/ disconnecting tanker truck system hose.
4. Mask			<b>With filters:</b> when unloading phosphoric acid, ammonia and methanol; in the event of a resin spill; filter date not to have expired more than a month before.
5. High visibility vest			Operator on the ground.

Work area	Safe	At risk	Definitions
6. Work area is clean and tidy	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<i>Wire removed from ground after loading materials onto the belt, loading bay free from wood &amp; cellulose.</i>
7. Fire doors and escape routes are unencumbered	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
8. Eye wash fountains and emergency showers work			
9. Delimits the work area			<b>Lower yard, with white-red chain:</b> to download phosphoric acid, APTS acid, latex and Madurit; to download resins and methanol, when there is nobody around.
10. Lifts weights by bending knees, with back straight			
11. Area free from personnel			<i>Unloading area is free from Munksjo and Ahlstrom personnel during unloading of chemicals to lower yard.</i>
12. Coordinates with workmate(s)			<b>Movements on the ground:</b> in the warehouse, anybody external to the work area warns the loading platforms operator before walking off the path; <b>Roll peeling:</b> workmate is not in direction of cutting.

Materials in store ...	Safe	At risk	Definitions
13. Within the delimited area or in loading area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Cellulose packs in yards, rolls in warehouse.
14. Below the max extension of the lift truck mast	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Rolls in warehouse < 5 metres.
15. Less that 90 cm from the sprinklers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Rolls in warehouse.
16. Not overlapping the side and rear rows	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Cellulose packs in yards and rolls in warehouse.
17. Respecting the diameters	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Rolls in warehouse
WASTE	18. With the ID tag compiled	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	19. In the storage area (roofed area) or in bins marked by CER	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Figure 5. Sample BBS Checklist

One of the main performance metrics of the BBS process is the number of observations. The BBS process has a goal for each observer to conduct observations every other day, which translates to approximately 11 observations per month. The figure below shows the number of observations conducted over the course of 12 months preceding the application, number of employees observed, and number of people that received feedback.



**Figure 6. Number of observations conducted over the course of 12 months preceding the application (green line), number of employees observed (red line), and number of people that received feedback (middle line, in yellow).**

Employees or temporary workers who work on site can accept (or decline without penalty) the invitation to be observed while they work. After the observation, the observer and observee have a conversation about safe and at-risk behaviors and conditions observed. During the conversation, observers are to identify strengths and opportunities for improvement in a positive, non-confrontational manner and provide praise for checklist items scored as safe. The BBS utilizes a coaching system to calibrate observations, and the BBS coordinator serves as a coach. Coaching is only delivered if the BBS coordinator notices that the quality of comments on checklists is deteriorating for a given observer.

Ahlstrom Munksjö uses proprietary data management software to manage observation data, and the BBS coordinator manually enters all observation data. The software offers an array of options for analyzing the data, and appears for the most part to be a well-designed tool to mine data from the observation data base, with the possible exception that trends graphs cannot be extracted from the database any longer.

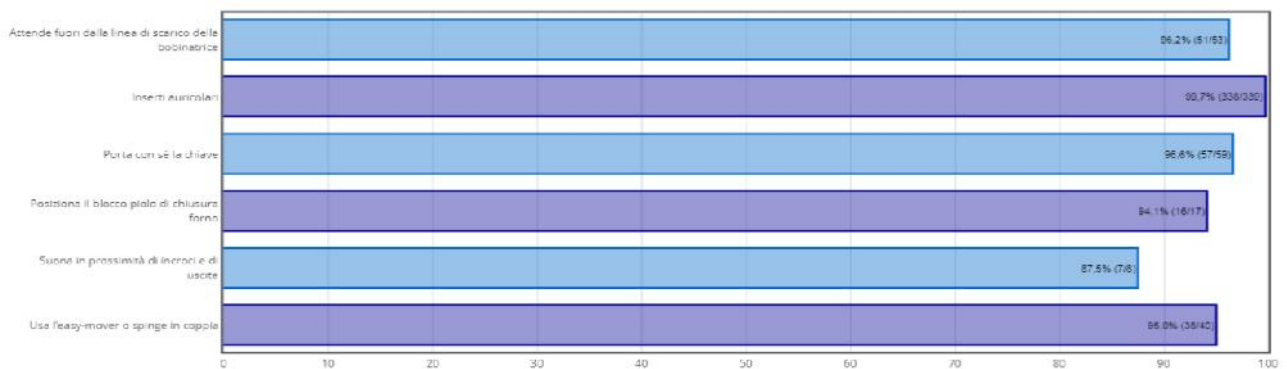
A monthly % safe goal is set for one behavior in each department, and employees of that department receive a token if the goal is met. These goals are decided on in collaboration between management, supervisors, and the BBS coordinator. The figure below shows goals across 10 areas in the Mathi plant across four months.

UNITS	Nov-15	Dec-15	Jan-18	Feb-16
PM 3-4-5	GLOVES 96 %	HARD HAT 86% INCREASE HELMET OBS.	Toile rack blade front cutter 97 %	Lift truck checklist > 95 %
AH_ALL_SUP	PIPES RESTED ON FLOOR 90 %	SAFETY GLOVES 95%	Safety glasses and visor 75 %	Lift truck checklist > 95 %
RAFF, 1-3	SAFETY GLASSES/VISOR 98 %	INCREASE OBS. OF HARD HAT 50 %	Emergency button pressed 95%	Lift truck parked > 95 %
PM 5	SAFETY GLASSES 98 %	HARNES 90%	Safety gloves 99 %	Safety gloves 99 %
RAFF, 4-5-5/CP	SAFETY GLASSES/VISOR 92 %	SAFETY GLASSES/VISOR 95%	Safety glasses and visor 88 %	Safety glasses and visor 88 %
ALL_MUNKSJO	SAFETY GLASSES 80 %	INSERTS 99%	Safety glasses and visor 88 %	Safety glasses and visor > 95%
YARDS	HONKS IN PROX. 85 %	HONKS IN PROX. 96%	HONKS IN PROX. 96%	HONKS IN PROX. 96%
Finished paper warehouse	BELT 100 %	MOVES AT WALKING PACE 70%	Moves at walking pace 90 %	Moves at walking pace > 95 %
MAINTENANCE	HELMET 80 %	HELMET 96%	Harness 98 %	Harness 98 %
Boiler station	INSERTS 95 %	SAFETY GLOVES 97%	Safety gloves 98 %	Safety gloves 98 %

**Figure 7. Sample behaviors selected for monthly % safe goal.**

Front-line supervisors receive monthly updates of observed behaviors, including goal behaviors, in graphed form. . These updates are communicated during monthly meetings and then posted in conspicuous locations in the department. The graphs indicate % safe for observed behaviors, as well as the number of observations per behavior. Below is a sample update report, with percent safe (blue bars and actual %, number of safe observations, and number of total observations). Below that chart is the goal behavior for last month (red ink), as well as the new goal behavior (yellow highlight).

**PM ALLESTIMENTO (PIANO 0-6)**



**OBIETTIVO DI MAGGIO 2018 RAGGIUNTO → INSERTI AURICOLARI ≥ 99 %**

**OBIETTIVO DI GIUGNO 2018 → PORTA CON SE LA CHIAVE ≥ 98 %**

**Figure 8. Sample monthly departmental BBS data summary.**

## ACCREDITATION STANDARDS REVIEW

The CBBS Commission on Behavioral Safety has adopted ten standards as criteria for Accreditation decisions. The review team assesses and reports evidence of progress within each of these standards. In the following material, we assess Ahlstrom Munksjö's BBS process through application of the ten standards.

### Standard 1: Safety Team

a. The BBS process is not owned by a single team, but rather is owned, engaged with and supported by management; HR and HSE staff; dedicated safety leaders; and workers

- Ahlstrom Munksjö's BBS process is owned by management, HSE, and workers. A Steering Committee of managers makes strategic decisions for the BBS process, as it would for other operational aspects of running the facilities, and is ultimately responsible for all aspects of the BBS implementation.
- Both facilities have Project Groups for the BBS process (10 team members in Mathi and 2 team members in Sassoferrato). The Project Groups have members from HSE, HR, Production, and Management. The Project Groups meet quarterly and discuss challenges and barriers, celebrations, training needs, updates of action plans, meetings plans with safety leaders, etc.

b. The key personnel charged with driving the BBS process are well trained to manage it, communicate frequently, and functions are readily transferable to other capable colleagues

- The HSE department runs the operational aspects of the process, including the management of data collection and the dissemination of data. The HSE department is also responsible for the quality control of observations and the communication of BBS data. The commissioners found the HSE Manager and BBS coordinator to be dedicated, competent, and very skilled in managing the BBS process. They are also amply supported in these roles by the HR manager.
- Job descriptions include specifications of BBS roles for all staff responsible for managing the process. Leadership roles in the process are shared by organizational leaders, managers, front-line supervisors and safety leaders, although most of the operational duties are shared by the HSE manager and BBS coordinator. It appeared to the commissioners that leadership functions for the BBS process were easily interchangeable, and that no aspect of the BBS process was dependent on one person.

Standard 1 Performance: The review team finds BBS performance on this criterion to be consistent with the standard of SILVER Level.

Standard 1 Recommendations: Progress can be demonstrated by:

- Creating a community of BBS leaders to communicate, troubleshoot, and share challenges and successes related to the BBS process across the two plants. That way, both plants can benefit from learning from each other, and the implementation of the BBS process would be more coherent across the two Italian plants of Ahlstrom Munksjö. On a related note, the Sassoferrato plant may want to consider adding a worker from their operator ranks to the Project Group.

- Advancing understanding and application of behavior-analytic principles to safety through advanced training for key personnel driving the process, benchmark learning from other organizations, or conference/workshop attendance. These activities should ideally result in capacity within Ahlstrom-Munksjo Italia S. p. A. to use behavioral tools, such as A-B-C analyses. To illustrate, a recent change in the procedure for using box cutters dictates that all box cutters in use should have an auto-retracting mechanism. In further support of rolling out that change, the Project Group could have conducted an A-B-C analysis of the behaviors involved to gain insights into possible causes of compliance and non-compliance with that procedure, and possibly used those insights to improve checklists and make environmental changes to support safe behavior.

## Standard 2: Management Support and Engagement

### a. BBS enjoys strong management support and engagement cascades through all levels

- Managers and HSE staff frequently engage workers in dialogue about the observation process. Some concrete outcomes include rotating observers, modifying the checklists, and making cross-departmental observations. All managers have goals linked to the BBS process, including the number of checklists done in their area and participating in BBS update meetings. BBS data are discussed with management at quarterly BBS update meetings. In addition, every single staff member with direct reports (from front-line supervisor to plant manager) is trained as an observer and has goals for number of observations per month.
- There is considerable investment of resources in the BBS process, evidenced for example by the dedicated BBS coordinator position, the amount of continuous refining of the checklists in the Mathi plant, and the goods and services exchangeable for tokens earned through the BBS process.
- All union representatives that were interviewed voiced support and expressed a general positive view of the process, and pointed out that this spoke to the management support of the BBS process. The BBS process is not used as a punitive tool, but rather to foster conversations about safety.

### b. Action planning around BBS is focused and well-managed

- Action planning around the BBS process is exemplary. As part of their general project management accounting, members of the plants' management teams have specific BBS action items that they are individually responsible for. For each action item there are also specifications of deadlines, progress (indicated by green, yellow and red status indicators), and criteria for closing the items.
- Managers and front-line supervisors receive regular BBS reports and updates from the BBS coordinator, that are discussed in management meetings, and at daily, weekly and monthly meetings. Team leaders, department managers, safety professionals, supervisors/middle managers, and executives all have roles as observers in the process. Supervisors/middle managers and department managers also have the added role of being "safety leaders" which involves, among other duties, to communicate BBS information and other safety updates in departmental meetings.

c. Front-line supervisors frequently engage workers in productive dialogue on safety

- Many interviewees expressed that the approach of front-line supervisors had changed following the onset of BBS. Whereas before the consequences for at-risk behavior were uniformly punitive, there is now a more collaborative approach, with a focus on problem solving. Front-line supervisors also clearly communicate to observers that they are fully authorized to stop work if at-risk behavior or conditions are observed.

**Standard 2 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD Level.

**Standard 2 Recommendations:** Progress can be demonstrated by:

- Key leaders acquiring knowledge and training in behavioral science through advanced training or coaching by qualified persons, through attendance at conferences or workshops. This could also lead to generalization of skills to other domains. That is, increased knowledge of behavioral science in the area of safety may lead to behavioral approaches to other operational aspects, such as production, quality and sustainability.

### **Standard 3: Worker Knowledge, Skills, and Involvement**

a. A large percentage of workers has been trained as observers, and are active observers

- The Mathi plant has trained 220 observers. Of those, some have retired from observations, so that 135 are now designated as observers in the Sassoferrato plant, 20 observers have been trained and 10 are designated as observers. . Of those that are currently defined as observers, 2/3 on average earn a token for meeting their observation goal of 8 observations per month. These numbers indicate for the most part healthy engagement in the BBS process.
- Observers undergo extensive observer training, and part of that training is conducted in the production areas of the plants. If a need arises, observers are also coached by the BBS coordinator.

b. All workers interviewed demonstrated extensive knowledge of the BBS process

- All workers interviewed could describe the last time they were observed by a BBS observer, and those that were active observers described their last observation. All workers that were interviewed reported being observed on a regular basis, receiving both corrective and positive feedback (although most of the feedback reported was positive).
- All workers could describe recent trends in BBS data and emerging risks, and could articulate how they felt that the BBS process had become more productive through a focus on the quality of the observation, ascertaining that there were no punitive consequences associated with the process, and through more focused communication of BBS information, and safety information in general.
- When there is shutdown or different activities from usual, workers report that the communication between them has improved. By doing the observations, they have become



more comfortable about communicating concerns, and have become safer themselves. In general, workers reported that BBS has made safety become an everyday conversation. That is achieved through multiple tools, with regular BBS observations being the most common, but also through regular communications of BBS data and comments in daily, weekly and monthly meetings.

**Standard 3 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD Level.

**Standard 3 Recommendations:** Progress can be demonstrated by:

- Ensuring that follow-up of employee suggestions for “safety fixes” or other BBS-related actions items is communicated to workforce. This should be done both if the item can be fixed/closed, or not. If they cannot be closed, the rationale for that could be communicated as well.

#### **Standard 4: Risk Analysis, Pinpointing, and Behavioral Observations**

a. Ahlstrom-Munksjo Italia S. p. A. incorporates multiple tailor-made checklists into the BBS process

- The checklists appear exhaustive, in the sense that they contain a lot of items to observe. The large number of checklists currently in use (15 in Mathi and 5 in Sassoferrato) also suggests that the lists are designed to be fit for purpose in their intended areas.

b. Checklists are updated frequently

- Checklists are updated based on information on multiple leading indicators, including identified risk factors, recorded near misses, at-risk behavior, new or modified procedures, or simply from feedback discussions following an observation. In fact, the visiting commissioners witnessed a Mathi observer making a suggestion on his checklist to the effect that a full face-shield should be worn in place of safety glasses when pumping corrosive liquids.

c. BBS coordinator conducts regular quality checks of submitted checklists that can result in coaching of observers

- A checklist is considered valid if the observer completes the PPE section, the section on conditions of the work area, and at least one specific activity. It is also necessary to complete the section on immediate feedback delivered to the person observed. In cases of repeated incomplete checklists, the BBS coordinator will schedule a coaching session.

d. Data on patterns in observation numbers are used to identify areas of concern

- Low observation numbers for a given area results in specific HSE follow-up actions, including discussions with front-line supervisors and observers.

- When the data management interface allowed for trending of behavioral data, HSE and management routinely looked at trends in the data to identify variability and possible emerging risks.
- e. Based on our questioning of workers, supervisors and managers, we found no evidence of any punitive actions following BBS observations, and employees overall appear to welcome observations
- Although small pockets of resistance to the BBS process still exist, there is no evidence of any punitive actions surrounding the process.
  - All employees that were interviewed stated that they welcomed observations, and that the overwhelming majority of workers were receptive to observations. These sentiments were echoed by the union representatives that the visiting commissioner interviewed, and they also confirmed that no formal complaints ever had been made to the union about the BBS process.

**Standard 4 Performance:** The review team finds BBS performance in this criterion to be consistent with the standard of GOLD Level.

**Standard 4 Recommendations:** Progress can be demonstrated by:

- Conducting data analyses to see if behaviors can be removed from the checklists. As noted above, the checklists are exhaustive, and items are added as needed. There may also be value in conducting analyses of past observations in the database to explore if some behaviors can be retired, permanently or temporarily. Behaviors could be retired on the basis of them being very rarely observed, or a very long history of 100% safe observation. This would make the checklists easier to comprehend and complete, but would have to be balanced by the severity of the risk associated with the at-risk behavior to be retired.
- Regularly trending data from BBS observations. The data management interface provided by the external consultant used to have an option to trend observation data, but that option is no longer available. As there is evidence of the appropriate use of trending when this option was available, we urge Ahlstrom Munksjö to seek alternative methods to provide HSE and management the opportunity to look at trends in observational data.
- Exploring whether behaviors that can result in cumulative trauma, such as MSDs, receive less of a focus in the BBS process than behaviors that can lead to injury following one instance of an at-risk behavior. All the percentage goals for safety behavior that were indicated to the commissioners involved such “one-shot” behaviors. The commissioners saw no examples of goal setting for behaviors such as lifting, twisting, and body mechanics, for example, even though summaries of observations indicated some variability in these behaviors.
- Matching observations to high-risk/emerging risk areas. The BBS data should be analyzed in a fashion that makes it possible to gauge whether enough observations are made around high-risk activities/areas or around emerging risks. For example, forklifts were identified it as an emerging risk in one area through near miss reports and discussions in monthly meetings. However, an *ad hoc* analysis during the accreditation visit revealed that only 30 out of 220 observations during a subsequent month involved an observation of forklift driving, which translates to 14% of all observations in that month in that production area. This

example illustrates that some BBS tool should ideally be developed to track in (relatively) real time whether a sufficient number of BBS observations are focused on behaviors or conditions that have been identified as emerging risks.

- Conducting coaching sessions with each observer at least 1-2 per year, and conduct inter-observer agreement analyses of these coaching sessions. Inter-observer agreement analyses can provide information on the degree to which there is agreement (or correlation) between the two observers (BBS observer and coach). If there are disagreements across the two observers, refresher training would be needed for checklist items that are frequently missed.
- Formally assessing the effectiveness of training conducted by Ahlstrom Munksjö HSE staff following training. This could be done through regular competency checks (coaching) and possibly through analyses of the safety feedback and discussions delivered by observers,

## Standard 5: Goal Setting and Incentives

### a. Goals for safety behavior and corresponding number of observations are frequently updated

- Monthly goals are set for one behavior at a time, and these goals are expressed as a percentage. For example, a goal could be set for PPE so that it would have to be observed as 98% safe for the goal to be reached. The goals are based on consideration of all BBS observations for the past month, near miss reports, and safety alerts from Ahlstrom Munksjö's corporate office.

### b. Ahlstrom Munksjö's token system for conducting observations appears to be viewed positively.

- All employees interviewed liked the fact that they could earn tokens for conducting observations and for their department reaching its goal for a given behavior being observed a certain % safe. However, they differed in the extent to which they believed the tokens were the sole motivation for conducting observations. Some were of the opinion that observations would cease if the token incentive was removed, whereas others felt that the opportunity to look after your peers would maintain observations in the absence of a token incentive.
- Observers get weekly feedback on their progress towards the monthly observation goal, which they appreciate. This also prevents them from having to scramble to do a large number of observations at the end of the month.

### c. Ahlstrom Munksjö's incentive system for zero accidents may open the process to criticism.

- All workers receive an annual bonus of approximately 300 Euros if there are no lost-time incidents in the plant that year, 150 Euros if there is a 60% reduction in injuries from the previous year, and 50 Euros if there is a 40% reduction. All those that the commissioners interviewed were clear that this incentive was unlikely to motivate underreporting of injuries, including union representatives. The reason is that employees who fail to report workplace injuries miss out on associated state benefits that are guaranteed for people injured in the course of work. The risk of foregoing the benefits of receiving adequate free state-provided medical care, and receiving workers compensation while away from work, would most likely strongly outweigh any motivation to fail to report an incident.

**Standard 5 Performance:** The review team finds CSA performance in this criterion to be consistent with the standard of BRONZE Level.

**Standard 5 Recommendations:** Progress can be demonstrated by the following recommendations:

- Ensuring adequate observation numbers of the behavior that is selected for a monthly goal, and exploring sources of variability in these behaviors. The commissioners saw evidence of cases in which a low number of observations meant that the percentage could be severely affected by one or two at-risk observations, and the goal not being attained. In addition, variability in these goal behaviors should be explored to identify possible characteristics of at-risk observations. For example, are they occurring on night shifts? Are they occurring during maintenance shutdowns? These sorts of analyses could result in the identification of events that increase the risk of at-risk behavior, and those events could in turn be targeted for more frequent observation and risk analysis.
- Exploring, for example via anonymous surveys, whether the annual bonus linked to zero incidents is contributing to underreporting of incidents, and Evaluating whether indicators of the success of the BBS process, such as number of observations, are independent of the incentive. Direct compensation for zero injuries is a concern in the sense that it may lead to underreporting. We therefore recommend that Ahlstrom-Munksjo Italia S. p. A. keep the option for workers to earn 300 Euros through safety incentives, but awarding them for behaviors or other outcomes related to the BBS process rather than reductions in or absence of injuries.

## Standard 6: Effective Communication and Performance Feedback

a. BBS information is disseminated systematically to front-line supervisors and managers, who in turn communicate those to workers.

- All operators and their supervisors meet at the start of every shift to review safety issues, in addition to BBS and general safety updates at weekly production meetings with workers. In addition, there is a monthly meeting dedicated to sharing BBS results and trends. Graphs that are developed for these meetings are then publicly posted.
- Every week there is summary from HSE to managers on the number of observations, percentage of safe behaviors and feedback comments. These reports are then discussed, as appropriate, at daily shifts start, and weekly and monthly meetings
- Checklists and training were developed by the behavioral safety consultant for effective communication of BBS information, and other safety-related information during monthly meetings. This has resulted in effective communication of BBS-related information, as the commissioners observed in one monthly meeting. All interviewees across both sites could report highlights from these meetings, and were very positive towards them. The Project Groups meet quarterly and discuss challenges and barriers, celebrations, training needs, updates of action plans, meetings plans with safety leaders, etc.

b. Graphs of BBS data are posted in prominent locations.

- The visiting commissioners observed graphs associated with the BBS process displayed in control rooms, meeting rooms and in operational areas of the plants.

**Standard 6 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD Level.

**Standard 6 Recommendations:** Progress can be demonstrated by:

- Creating a community of BBS champions to communicate, troubleshoot, and share challenges and successes within and across the two plants. These BBS champions could be selected from a group of dedicated observers, and encouraged to meet in person or communicate via distance meeting technology. There is currently little sharing of good practice between the Mathi and Sassoferrato plants, and this arrangement could begin to address that concern.

## Standard 7: Evidence of Program Effectiveness

a. Incident indicators are well below industry average in Italy for both plants.

- Ahlstrom Munksjö's historical AFR for the both plants shows a substantial and sustained decrease over the past 17 years. Ahlstrom-Munksjo Italia S. p. A. has maintained an AFR that is well below the national average for the paper industry, and has had zero AFR in 2015, 2016 and 2017, during which time the national average has averaged 19.3.

b. Near Miss reporting has doubled since the inception of the BBS process in the Mathi plant, and processes are well-developed and based on trust.

- An increase in Near Miss reporting, by itself, is not a cause for concern, as an increase may be reflective of more reporting of these events rather than an actual increase in these events. All those that the visiting commissioners met with at both plants agreed that Near Miss reporting was encouraged more after the onset of the BBS process, that no punitive actions followed near miss reporting, and that management routinely followed up on Near Miss reports, for example by putting speed governors and blinking lights on forklifts and adding barriers to machinery.

**Standard 7 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD Level.

**Standard 7 Recommendations:** Progress can be demonstrated by:

- Analyzing whether the increase in near misses in the Mathi plant is due to increased manpower in the plant, or is reflecting emerging risk(s). If the conclusion is that emerging risk(s) may be present, an action plan involving BBS elements, as well as other injury prevention mechanisms, should be enacted.
- Breaking down Near Misses by Severity or Potential, e.g. High Potential Events, Close Calls, Hazards and Safety Observations. High levels of Hazards and Safety Observation reporting is clearly a good thing and demonstrates worker engagement. Whereas high levels /increasing levels of High Potential Events is clearly not desirable.

## Standard 8: Continuous Improvement (CI) and Succession Plans

a. Technology for electronic BBS observations is being explored.

- Management has carefully considered the pros and cons of abandoning paper checklists in favor of electronic checklists with networked devices. The benefits would be that observation data would be uploaded automatically to a database, there would be no risk of errors in data entry from paper checklists, and the BBS coordinator (who currently enters all checklists data manually into the system) would have more time to explore the data for trends in emerging risks, trends in quality of observations, and whether observations are sampling the appropriate at-risk behaviors and conditions. However, this is expensive technology, and would most likely involve the use of company-owned tablets rather than employees' own phones. For now, there are plans to roll out machine observations on tablets, but those could be extended to BBS if they are deemed to be a success.

b. Roles of management team and HSE team in relation to the BBS process are clear and well supported by HR processes

- As the Ahlstrom Munksjö BBS process is not primarily operated by a safety team with representatives from the management level, HSE and workers, there are no stated term periods for the operational roles of the process. To illustrate, the BBS coordinator is a full-time HSE employee, and is supported in her role mainly by the HSE and HR managers.
- Continuity of the process is secured through clear specification of BBS tasks in the job descriptions of these employees, as well as in the job descriptions of managers and supervisors responsible for supporting the process and communicating important data and information to their direct reports. By assuring that these employees have the requisite knowledge, skills and abilities to perform these tasks, and by providing them with training, coaching and opportunities for continuing education and development, the and resilience of the process can be strengthened. Based on the evidence provided in the application and during the site visits to the two plants, there is every reason to believe that the BBS process is not dependent on one or few persons, and that it is resilient to outside interference.

c. There is evidence of continuous improvement actions around the BBS process

- The review application contained examples of continuous improvement actions around the BBS process that were confirmed during interviews with the BBS coordinator and HSE Manager. These included a push for higher quality observations, frequent revisions of checklist items at the Mathi plant.

**Standard 8 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD level.

**Standard 8 Recommendations:** Progress can be demonstrated by the following recommendations:

- Piloting electronic BBS data collection. As explained above, the benefits of electronic BBS data collection could be extensive. The most important of these would probably be that the BBS

coordinator could focus on analyzing the BBS data strategically to glean valuable insights into patterns of safety behavior, and identify gaps in the sampling of emerging risks.

- Incorporating data analysis and strategic data-mining skills into the BBS coordinator's professional development plan. Given that the BBS coordinator is a dedicated full-time appointment and that the BBS coordinator currently has extensive knowledge of the workings of the BBS database, there may be considerable added value in providing the BBS coordinator with the tools to conduct strategic mining of the BBS data (see also recommendation above), and to correlate near miss data with behaviors that are frequently observed as at-risk in BBS observations. Such a strategy would complement the capacity building in behavioral science recommended for the BBS coordinator and other key actors in the BBS process, as described above.
- Creating a review plan for BBS checklists in the Sassoferrato plant. There have been no updates since the start of the process in 2015 in this plant. A careful review of the checklists with input from management, supervisors, HSE staff and workers is therefore recommended.
- Writing an executive summary of this report, with commendations and recommendations, in Italian. This report should then be made available to relevant staff and operators.
- Using anonymous surveys to gauge employee satisfaction with the BBS process. Any results from such surveys should be solely used to facilitate conversations about the pros and cons of the process, and reveal possible reasons for resistance

## Standard 9: Extended Applications of Behavioral Technologies

- a. Applications of behavioral science to Quality have been explored, under the working title of "BBQ"
- Management has discussed extending the behavioral approach to quality, in light of the success of the BBS process. In addition, some managers and front-line supervisors report that they already have changed the manner in which they talk about and graphically display production and quality data.

Standard 9 Performance: The review team finds BBS performance on these criteria to be consistent with the standard of SILVER Level.

Standard 9 Recommendations: Progress can be demonstrated by:

- Developing and implementing an action plan around the application of behavioral science to either production or quality. Ideally, this action plan would involve a) training of relevant leaders, managers and front-line supervisors in the principles of behavior, b) development of behavioral plans to address important behaviors and/or results, c) guidance and coaching from an expert in behavioral science in implementing the behavior plans, d) evaluation of the impact of the behavior plans, and e) development of a continuous improvement plan. As mentioned above, training in the use of A-B-C analyses and other behavioral tools would aid in the execution of these action plans. This would apply regardless of whether the action plans are on the topics of safety, production or quality.

## Standard 10: Corporate Responsibility and Outreach

- a. Ahlstrom-Munksjo Italia S. p. A. shares successes and failures with its corporate partners on a regular basis
  - Ahlstrom Munksjö Group awarded the Ahlstrom Munksjö plant in Mathi the 2016 award for best practice in safety. Ahlstrom-Munksjo Italia S. p. A. shares best BBS practice via the corporate intranet on a regular basis, and shares BBS data, checklists, and other BBS tools with other HSE managers in the group. A number of HSE staff from paper mills in the Ahlstrom Munksjö Group have visited the Mathi plant for the sole purpose of learning about the BBS process.
- b. Ahlstrom-Munksjo Italia S. p. A. extends BBS observations to temporary workers
  - Both the Mathi and Sassoferrato plants treat their workers from temporary employment agencies as any other employee and they receive the same safety training, with the exception that they cannot be trained as BBS observers. They are, however, educated about the process, and are observed and receive safety feedback in the same manner as any other Ahlstrom-Munksjo Italia S. p. A. worker would be.

**Standard 10 Performance:** The review team finds BBS performance on this criterion to be consistent with the standard of GOLD level.

**Standard 10 Recommendations:** Progress can be demonstrated by the following recommendations:

- Sharing BBS learnings and good practice with the paper industry, nationally and internationally. Ahlstrom-Munksjo Italia S. p. A. has already presented once at a national BBS conference, which is to be applauded, and it is recommended that opportunities for further dissemination be explored.
- This could be in the form of, for example, writing articles for industry newsletters or speaking at paper industry conferences. If Ahlstrom-Munksjo Italia S. p. A. builds up a core of key staff with considerable knowledge of behavioral science (see Standard 1, above), it can explore the possibility of hosting BBS conferences for the paper industry on a national level.



## Review Itinerary

### Mathi plant (Dec. 3-4)

Date	Time	Topic	Room
3.des	09:00 - 10:15	Opening	Sala Rosa
3.des	10:15 - 10:30	Coffee Break	
3.des	10:30-12:30	HSE + HR	Sala Rosa
3.des	12:30-13:30	Lunch	
3.des	13:30-14:30	Meeting with Design team	Sala Rosa
3.des	14:30-15:30	Safety workers representatives	Sala Rosa
3.des	15:30 - 17:30	Plant tour	
3.des	17:30	Closing	Sala Rosa
4.des	09:00-09:30	Daily meeting PM 8	PM 8
4.des	9:30 - 10:00	Checklist at Finishing Dept. PM 8	Allestimento PM 8
4.des	10:30-11:00	Checklis at Logistics	Logistica
4.des	11:30 -12:00	Checklist at Packaging Lower Plant	
4.des	12:30-14:00	Lunch	
4.des	14:00-15:15	Meeting with workers	Sala Rosa
4.des	15:15-15:30	Coffee break	
4.des	15:30-16:30	Meeting with Plant Leadership Team	Sala Rosa
4.des	16:30-17:00	Auditors - report	
4.des	17:30	Closing	Sala Rosa

### Sassoferrato plant (Dec. 5-6)

Date	Time	Topic
5.des	14:00 - 15:00	Opening
5.des	15:00-17:30	Plant tour
6.des	09:00-10:00	Meeting with Steering team
6.des	10:00-11:00	Meeting with Design team
6.des	11:00 -11:30	Safety workers representatives
6.des	11:30 - 12:00	Auditors briefing
6.des	12:30	Closing
6.des	12:45	Lunch