Towards Compliance with the OSH Act of Trinidad and Tobago:
Gap Analysis of a Food and Beverage Manufacturing Enterprise

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(Received 11 January 2011; Revised 29 March 2011; Accepted 30 April 2011)

Abstract: The Occupational Safety and Health (OSH) Act of Trinidad and Tobago (2004), as amended, charges local enterprises with the duty to protect the safety, health, and welfare of employees and others who may be affected by company operations. In October 2010, the new Chairman of the Board of Directors of the OSH Authority put companies on notice that enforcement of the OSH Act will now be a priority. This places the onus on companies to map their current state – in terms of strengths, compliance, and shortcomings – against the requirements of the OSH Act, in order to develop and implement a plan to achieve full compliance. This paper presents the findings of an OSH Act gap analysis of the systems and practices of a local food and beverage manufacturing company. While findings would vary from firm to firm, this paper would be useful to local companies as it notes several common areas of concern for their managers and employees. Also, the paper’s recommendations may be adoptable or adaptable by those local companies and may help to improve their OSH management systems, in compliance with the OSH Act. Additionally, where codes of practice and guidelines have been developed to supplement and support the legal OSH requirements in many first world nations, it is recognised that local safety practitioners and company leaders bemoan the shortage of materials outlining how to achieve compliance with many of the stipulations of the OSH Act. This paper underscores the need for the development of additional materials to chart the route to compliance and its recommendations may point the way to compliance to some extent.

Keywords: Occupational Safety and Health, Gap Analysis, OSH Act, Trinidad and Tobago

1. Introduction

First assented to on January 30, 2004 and amended on January 31, 2006, the OSH Act of Trinidad and Tobago (2004) as amended (referred to in this paper as ‘the OSH Act’) focuses on promoting the safety, health, and welfare of employees at industrial establishments (GORTT, 2004; GORTT, 2006). Established to support the OSH Act, the Trinidad and Tobago OSH Authority and Agency (OSHA) has been perceived by many as focusing its primary efforts on encouraging the Construction sector’s compliance with the OSH Act. As a result, since the proclamation of the OSH Act, manufacturing enterprises may not have placed as high a priority on meeting its stipulations. When the current OSHA Chairperson received her appointment instrument, she promptly sent a warning to industries, regardless of their sector: OSHA would begin an enforcement drive (Parasram, 2010) instead of relying on employers to comply voluntarily. A good starting point for employers who want to evaluate their current position and chart a course to establishing a compliant OSH Management System is the performance of a gap analysis that compares current performance and systems to the requirements stated in an OSH Standard (British Standards Institution, 2007).

This paper gives some insight into the findings and recommendations arising from a gap analysis done in a local food and beverage company, against the requirements of the OSH Act. It is hoped that this case study (aligned with several key sections of the OSH Act) would assist managers and other industry practitioners to direct their own companies’ self-assessments against the stipulations of the OSH Act so that they can recognise shortcomings and opportunities, and act to become fully compliant in as short a time as possible.

2. Approach

The OSH gap analysis focused on several of the requirements of the OSH Act, by evaluating conditions that were inherent in the facility or environment, as well as acts or behaviours evidenced by personnel during the performance of the exercises. In the absence of a designated Safety Officer at the company, an opening session was held with the management representative who had assumed a leadership role for OSH. The scope of the audit was agreed, and the reporting format was agreed.

The gap analysis exercise began with a presentation from the leading Manager, a review of the company’s
safety policy, safety organisational structure, and discussions with available members of the management team. The management team agreed to provide access to any other pertinent documentation, upon request.

Company facilities, conditions, plant operations and employee practices were evaluated through first-hand observation, interviews and review of records. Several dozen questions and checks were administered to look at elements such as OSH leadership and policy, risk assessments, safe systems of work, confined spaces, equipment safety, provision of information, instruction, training, and supervision, employee competence, personal protective equipment (PPE), workplace inspections and audits, employee health and welfare, emergency response planning and training, fire safety, hazardous chemical control, safety of non-employees, housekeeping, medical surveillance, accident reporting and investigation, safety data collection and performance analysis, signage, protection of at-risk groups, and availability of the OSH Act within the company. Where the OSH Act stated a requirement, but did not outline how conformity was to be achieved, the audit looked at what enabling systems and arrangements were in place.

At a closing meeting with the management team and selected employee representatives, the final report presented the detailed findings and judgements of conformity and nonconformity, as well as opportunities for improvement and concluding statements. While photographs constituted a significant part of the report, these were not included in this paper in order to ensure that sufficient confidentiality was maintained for the food and beverage manufacturing company. Active discussion was encouraged and this led to the establishment of a corrective action plan intended to bring the company into compliance with the stipulations of the OSH Act. Although establishment of priorities, timelines and a budget for each action set out in the plan was not a part of the scope of the gap analysis exercise, the company determined that these would be addressed in a follow-up meeting. Figure 1 illustrates the gap analysis approach that was used.

3. Findings

The findings of the gap analysis are presented under several of the major areas considered within the OSH Act. Each heading contains the OSH Act section numbers (in parentheses) that may be cross-referenced for further information (GORTT, 2004; GORTT, 2006).

3.1 General

OSH Policy, Organisation and Arrangements (S6(7), 25F)

The company’s OSH policy was signed by its Managing Director and was being reviewed at least once per year through the company’s ISO 9001:2008 Management Review exercises. A Safety Committee had not yet been formed, nor had the roles of committee members been documented. There was no Safety Officer post, and employee representation was not yet being facilitated. For example, employees were not involved in developing the safety policy, which had been informally discussed in orientation sessions but had not been posted up. Generally, safety responsibilities had not been documented in existing procedures, job descriptions, or objectives and targets. However a general safety handbook, maintenance safety handbook, and general terms and rules handbook were seen.

The company made efforts to understand the statutory requirements related to the food and beverage sector. Standards and regulation documents were held by the various department heads in accordance with the ISO 9001:2000 standard.

A budgetary sum was set aside each year for training and PPE, and this budget was typically disbursed based on employee requests rather than a formal OSH plan aligned with established company OSH priorities.

Provision of Information, Instruction, Training and Supervision (S 6(2)(d))

The company had a training and performance management operating procedure within the ISO 9001:2008 quality management system (QMS), but the focus was largely on quality and process improvement rather than on safety and health competence. Therefore, when employees received orientation and induction training in operations or maintenance procedures, little formal OSH content was shared with trainees. Furthermore, training itineraries did not address different categories of workers, e.g. office worker, maintenance technician, forklift driver or salesman. The general safety handbook and maintenance safety handbook did, however, provide some basic safety guidelines for new and existing employees.

Although a basic accident reporting and investigation system had been in use in the operations departments for several years, the company did not provide formal training or guidance to support companywide use of the system. Risk assessments and mitigation actions had not yet been documented, although some verbal information was being conferred during new employee orientation. A number of supervisors and senior staff had been trained in first aid and CPR, and there was always a first-aider in attendance during hours of operation.

Management’s OSH awareness had been promoted through discussions at management meetings and reading by a few managers but, other than a risk assessment session attended by the Quality Manager years earlier, there had been no formal training sessions pertaining to the OSH Act. A small group of internal quality auditors and a single certified Lead Auditor were the only persons qualified to perform audits.
Management of Hazardous Chemicals (S 6(3) to 6(6))
Chemical Safety Data Sheets were not consistently held, made available, or used to train staff who would use, store, or handle hazardous chemicals. Further, there was no chemical inventory listing. The identification and specification of mandatory precautions had been overlooked for many hazardous chemicals; for example, industrial chemicals seemed to have been considered more important than what was referred to as ‘household chemicals’.

Storage areas were not secured, specifically designated or identified. For example, drums of oil, etc. were stored just outside the storeroom, but no signs were posted to advise what was being kept there. Chemicals were being stored in several places; at various points throughout the company, gas cylinders, oil drums, chemical drums and bottles were seen that bore no identification as to their contents, guidelines for PPE
and/or methods of use, etc. One such occurrence that could have had severe negative consequences was a bottle bearing its original Coca Cola label that was serving as a secondary container for an unidentified black chemical in the garage. Emergency Response procedures for handling spills/releases had not been established.

**Safety of Female Employees (S6(9) to 6(13))**
There were no documented procedures, forms, or training to guide employees in how to go about advising the employer of their pregnancy, or advise them of what their rights are under the OSH Act, should they be pregnant or nursing.

**Safety of Non-Employees Including the Public (S7, 9)**
While the names of persons or service companies entering the compound were logged at the guard booth before the guard allowed entry to visitors, contractors were not always met at the gate or accompanied while on the compound (e.g. the management representative indicated that air-conditioning servicemen may be left alone during the course of their work). There was no documented contractor management programme, and there was no contractor orientation or prequalification requirement before entry to the compound was allowed.

The company had not established measures for safeguarding of the public from effluent or other discharges from the operations. Loud exhaust noises and steam were being discharged near the perimeter of the compound that could potentially cause damage to persons nearby.

**General Duties of Employees at Work (S10)**
According to the management representative, employees were in the habit of complying with employer mandates but, since the employer had not organized company OSH efforts by conducting targeted OSH training, communication of OSH mandates and individual responsibilities would not have been as effective as they wished to be. Employees typically communicated OSH concerns via their supervisors and infrequently used operator logs to report safety concerns to the employer. Also, as mentioned before, a Safety Committee and formally established employee consultation channels had not yet been established, so that many employees were unaware of their duties under the OSH Act.

Some employees were properly using PPE, such as back braces and safety shoes. However, in noisy areas, no hearing protection was observed in use. The management representative indicated that there had not been any cases of employees misusing or destroying company-supplied OSH items.

**Annual Risk Assessment (S13A)**
The management representative indicated that an undocumented risk assessment considering the production process steps had been done, but it had not considered hazards inherent in other aspects of work, such as maintenance duties, materials handling and disposal processes, and facility layout and structure. Furthermore, consideration had not been given to how risks changed depending on factors such as operator age, gender, or experience, and updates were not being done annually.

### 3.2 Safety (Part IV)

**Employment of young persons (Part IV, S22 and Part IX)**
There were no employees who fit into the category “young persons” as defined in the OSH Act. Apprentice-type trainees who are hired sometimes fit into this category, but the company had not considered them as requiring special attention as an at-risk group in the past.

**Protective Clothing and Devices (Part IV, S23 and Part VI, S32)**
Few notices were displayed to indicate the PPE required at various areas. PPE such as dust masks, respirators, and hearing protection devices were not observed being worn by employees, even though the management representative indicated noise was at about 85 dB(A) in certain areas. Uniforms and safety shoes were consistently worn at the company. No documents were seen that outlined the process for evaluation and selection of PPE.

**Confined Spaces (Part IV, S25)**
The company’s confined spaces were not identified on schematics or through the posting of signs or notices. Confined space controls and safe practices had not been established, through documentation of, and training in, safe systems of work.

**Safety of Equipment and Safeguarding (Part IV, S25A to 25D, S6(2)(a) and 6(2)b)**
There was no formal or documented system to identify and safeguard dangerous machinery. An informal system applied to some extent, and while some safeguards were well-made, some shafts, wheels, gears and sprockets were unguarded or improperly guarded (e.g. guards too small or worn). Several guards were not interlocked on the plant equipment, likely due to the age of the machinery (between 10 and 20 years old). Therefore, when some of the guard doors on the equipment were opened or removed, certain machines kept working.

Chain hoist lifting hooks and chains were seen in use, although these had not been certified and were not on a routine inspection/load testing/certification schedule. Notices had not been posted limiting conditions for safe use. Similarly, routine inspection/testing/certification was being not done on lifting eyes and chains, as well as wire ropes, slings and jacks.

Supervisors were relying largely on their experience to monitor workers, but they had not been equipped to monitor the safety of processes or practices, and the company had no Safety Officer in its employ. The
company had not determined which tasks required additional safe systems of work e.g. permits to work, work in confined spaces, lockout-tagout, etc. Safe systems of work and arrangements for ensuring safety and absence of risks to health related to the use, handling, storage, or transport of items had not been fully documented, with operating procedures reflecting snippets of safety information culled from equipment manuals. Systems monitoring was done only to a limited extent, through daily operator logs.

A functional maintenance system was in place. A detailed maintenance/calibration schedule for plant, equipment, and surroundings was maintained and work orders were being used to document the maintenance work performed. However, maintenance schedules focused more on operability than optimal safety of equipment. The maintenance department was in the practice of performing internal design or modification works, but it did not follow up to update drawings and specifications to reflect changes made to materials or structures.

Legal requirements of the old Factories Inspectorate Act were still being met. For example, boiler certification was current and done annually by an external certifying agent.

Health Surveillance, Medical Examination, Medical Supervision (Part IV, S25K, and Part VI, S37, 38)
Health surveillance and monitoring were minimal. Medicals were not done prior to hiring, but they were being done prior to employees’ entrance into the company’s medical programme, as well as annually so that food workers could renew their food badges. However, the company did not use risk assessments to determine categories of workers for whom pre-employment and routine medicals should be done, in order to monitor declining health in at-risk groups.

3.3 Fire Safety (Part V)
The company was in the practice of requesting visits from the fire services, and maintained internal summary reports based on the visits. Although it had been advised of proper access/egress requirements, there was only a single entry/exit point at the Administration Area. With the exception of two exits in the Warehouse and one in the Plant, all exits were free of obstruction and easily accessible. While there were large fire exit signs, their colour did not conform to those required in the OSH Act, and there were no pointers to exits.

The company had an automatic fire alarm system and fire extinguishers that were kept in serviced state. There was a consistent method of ensuring fire extinguishers were properly serviced or in good repair, as all extinguishers had labels stating their last and next service dates. Although fire exit alarm pushbars had been placed on several of the fire doors, it took a few hours to track down some of the Production and Warehouse keys and to test the alarms. Fire hoses were housed on reels, but there was no fixed inspection and testing schedule for the fire hoses. Employees were not trained in areas related to fire safety and a regular fire drill schedule had not been established. Several employees were certified first aiders, and there were also several first aid kits, an eye wash station, a stretcher and a blanket available. No schematics/maps had been developed or posted up to show emergency evacuation routes or the locations of emergency equipment throughout the company.

3.4 Health (Part VI)

Housekeeping and Cleanliness
Housekeeping needed some improvement, particularly due to clutter and spillage in the workshop and plant. Inside the plant, there was heavy buildup of dust and cobwebs on ledges, on the equipment, and at heights. Many sections of the floors were uneven or damaged. Floors were largely covered in water inside the plant, which was the most highly trafficked area of the company. In the packaging area, the dust on floors could also cause pedestrians to slide while walking. There was a high risk of slips and falls as a result. Additional trip and fall hazards were present in the plant since pedestrian and vehicle routes were not designated and marked, there were gaps between some drain covers, and several incidences of hoses and tangled electrical cords strewn on floors were noted. In open air spaces, metal and lengths of wood were piled behind buildings.

Especially good storage was noted in the garage, where the storeroom was well organized, neat and clean, and a shadow board was used to keep track of tools. The maintenance workshop was very cluttered and disorganized. The warehouses were in acceptable condition, although large finished product cases were poorly taped and the flaps were opening up so that there was the possibility of falling product or spillage.

Pest control was done according to a schedule and contractor reports were managed closely. The clutter and overgrown grass noted outside the plant were a pest harbourage concern. The company did not have a schematic showing the locations of traps or baiting stations, and visual trend reports were not shared with employees to promote awareness.

With regard to environmental concerns, the company disposed of oil and batteries safely via acceptable disposal companies. Coolant and transmission fluid were leaking from a warehouse forklift during the course of the exercise. Environmental surveillance/measurement records, sanitation records, pest control records and microbiological records were some of the records kept by the company.

Respiratory Protection and Ventilation
Diesel forklifts were operating in the plant, and the fumes would have been potential respiratory hazards to employees. Dust and fumes monitoring had not been done
as the company did not think it was exposed in this respect. Otherwise, the air was clean and never seemed stale.

**Lighting**
Lighting levels appeared adequate for the functions performed in most areas. The only concern arose in certain dark warehouse sections, where inadequate light posed slip, trip and fall hazards. The company had not done any measurement for comparison against approved standards.

**Heat and Radiation**
In some areas of the plant, temperature and humidity were quite high. The Plant Manager indicated that the company was looking into the provision of additional exhaust fans to address this concern.

Heat radiation, ionising radiation and UV radiation sources had not been identified, listed, monitored or controlled in the company, e.g. at welding areas, from electrical or other heat and light sources.

**Noise and Vibration**
Noise monitoring was being done from time to time, but additional work environment monitoring (e.g. vibration, temperature, humidity) was not being done as yet. The company recognized areas where noise levels may have been borderline, but it had not yet sought to control noise in these areas. The noise monitoring arranged by the company also looked at perimeter noise levels. The company had not documented any noise-related risks to the public, and had not documented any actions taken to mitigate against those risks. During the diagnostic, heavy vibration was not evident.

**Overcrowding**
During the exercise, overcrowding was not immediately apparent in any of the areas reviewed, but there was no documented procedure guiding the company’s control to prevent overcrowding. No calculations of cubic space or limitations on numbers of employees per room had yet been done. No notices had been posted advising of the maximum number of persons to be employed in each room.

**Ergonomics**
The management representative advised that there were several comfortable chairs and glare protectors in use at computer workstations, but indicated that the company does not design or evaluate any of its workspaces and interfaces with the aim of preventing occupational overuse syndromes.

**3.5 Welfare (Part VII)**
Not all handwash stations were equipped with hot and cold water taps, and taps were not hands-free. A hand sanitizer station was provided at the north and south ends of the plant. Several garbage bins were uncovered or had no covers. Male and female washrooms were provided for office and other workers, and the non-office washrooms had adjoining changerooms outfitted with lockers. In some of the washrooms, there were no paper towels and bar soap was being used, instead of liquid soap from a dispenser (more sanitary). Two lunchrooms with large tables were provided, one for office staff and the other for plant staff. Due to its relatively small number of workers, the OSH Act does not require the company to provide canteen facilities to its workers.

**3.6 Notification and Investigation of Accidents and Industrial Diseases (Part VIII)**
Over the past several years, the company has consistently maintained the practice of submitting accident reports in accordance with legal requirements. The company had not yet submitted annual returns to the Chief Inspector to inform of increases in number of employees, details of occupation, gender, age, and hours worked, however.

The OSH Act, regulations and rules were not posted up for the information of all staff, although the management representative indicated that they would soon be made available to employees upon request.

**Safety Inspections and Audits**
The company had not begun conducting routine OSH inspections and a programme of safety performance monitoring had not been implemented. The company was in the habit, however, of performing an end-of-year analysis of accidents, incidents and near misses.

4. **Recommendations**
The Food and Beverage Company had several positive elements of health and safety practice, but additional action would be necessary in order to better comply with the requirements of the OSH Act of T&T (2004) as amended. Some of the key action areas are addressed in the following twenty-one (21) recommendations.

**Recommendation 1**
As required in the OSH Act, the documented OSH Policy must be made available to employees by posting it in employee common areas. In addition to the existing general statement of policy, it must include an organisation chart, roles, and responsibilities for OSH, and outlines of the arrangements (e.g. objectives and action plans, budgets, training plans, risk assessments, safe systems of work) by which OSH is enabled. While minutes and accident investigation reports provide evidence of discussion related to improving safety performance, there is a need to define safety objectives, action plans, budgets, and training plans related to enhancing safety competence and safety performance.

**Recommendation 2**
An OSH Committee must be established (Rasmussen, 2011). There must be clear statements of member roles, employee representation on the Committee, maintenance of evidence of employee consultation, proof of employee awareness and communication, and enforcement of the company’s OSH rules and mandates. The organization chart must illustrate that the Committee is representative of the various major groups in the company, and must be structured to outline members and their roles. According to Parboteeah and Kapp (2008), employee participation must be actively encouraged. The Committee must ensure that employees are aware of their OSH duties and responsibilities under the OSH Act, and provided with proper information, instruction, training, and supervision to support the performance of their OSH duties and responsibilities. Also, employees should be involved in conducting and documenting risk assessments and documenting and implementing safe systems of work.

**Recommendation 3**

Risk Assessments must be conducted and documented at least once per year, and further updated whenever significant changes are made within the system (Erickson, 1996). When the risk assessment is done, the company should decide on categories of workers for whom pre-employment and routine medicals should be done, as these records will be important in identifying any decline in health of at-risk workers. Risk assessments must be submitted to the relevant authorities and should include facility/workplace hazard analyses, job hazard analyses, task-based hazard analyses, and ergonomic and occupational exposure risks. As a minimum, risk assessments should follow the guidelines provided by the OSH Authority (Trinidad and Tobago Occupational Safety and Health Authority and Agency, 2008).

**Recommendation 4**

Safe Systems of Work must be determined, documented, communicated and enforced. Mandatory systems include the guarding of equipment (a thorough assessment of all guards is necessary for all equipment and tools) and the control of work in confined spaces.

Within this area, there are some specific actions that must be taken by the company:

- Repairs have been done in tanks, cookers, chambers, etc. by lone workers, with no supervision or emergency response arrangements in place. This practice must stop immediately, and proper control of work must include establishment of a buddy system, permits to work and lockout-tagout.

- Many of the larger pieces of equipment are between 15 and 20 years old so that guard design should be updated to allow for routine maintenance to be done without removing guards. Also, there is a need to improve the safety focus of the maintenance staff, who habitually leave guards off after maintenance work has been completed.

- Lifting equipment must be properly inspected and certified according to an inspection schedule and clearly stated specifications, and safe use notices must be posted up in all lifting areas (Bos et al., 2002).

- As a smaller company, while permit-to-work systems may not be an immediate focus, there is a need to strengthen the planning and supervision of high risk operations in order to improve system safety. Lockout-tagout controls should be implemented promptly, even if permit-to-work system implementation is delayed.

- Pedestrian and vehicle routes must be boldly marked and must include all production/warehousing areas and the exterior of the facility.

- Documentation of operating procedures, a focus on selection and recruitment based on certification, and improved training and competency development initiatives in-house would greatly lower risks inherent in the processes.

**Recommendation 5**

Documents to be developed and shared with employees should include OSH procedures, checklists and other forms, rules and guidelines, inclusive of disciplinary codes. Communication with employees is specifically required in the OSH Act. The level of verbal communication between management and staff is good, and the company should use this to share OSH information. Oral information is not sufficient, however, so that the company should develop and regularly update OSH procedures and/or guidelines for all of its operations.

All employees must be briefed on the safety aspects of their jobs, and regular refresher sessions and drills must also be scheduled. Employees must have electronic or other access to information and instructions, including the OSH Act, OSH procedures, guidelines, and Chemical Safety Data Sheets. Further, employees must be made aware that certain reports, such as accident reports must be consistently filled and returned to OSHA in accordance with the stipulations of the OSH Act.

**Recommendation 6**

There must be evidence of employee competence and training (specifically required in the OSH Act), which should be maintained through

- enhancement of managers’ and supervisors’ OSH competence, since they must take the lead in rolling out safety throughout the company.

- documentation of enhanced training procedures and forms to bring more focus to safety and health.

- development of a Training Plan for each occupational safety and health position at every level of the organization.

- evaluation of employee awareness and competence specific to health and safety objectives, roles and responsibilities, e.g. by building evaluation of OSH
performance into job descriptions and targets, and performance appraisals (Luskin et al., 1988). A special effort must be made to sensitise maintenance staff to the absolute necessity of focusing on equipment safety, and not just operability by taking measures such as updating equipment drawings to reflect modifications and replacing/properly securing guards.

- maintenance of up-to-date, traceable and complete Training Records that track the delivery and effectiveness of OSH training that includes awareness of the stipulations of the OSH Act, general safety awareness, and the safety practices and precautions related to specific jobs.

**Recommendation 7**

Proper PPE and devices must be provided (specifically required in the OSH Act) and their use ensured (Cheremisinoff and Graffia, 1995). Recordkeeping and documentation should cover considerations leading to eventual selection of the items, purchasing details, including item specifications, proof of issue of all items applicable to employees by specific job or area and for general use, monitoring to ensure that only items in good condition are used, training of employees in proper selection, use and application of the PPE and devices, enforcement of proper use of issued PPE and devices by employees, and maintenance of any disciplinary action records.

**Recommendation 8**

The company must work to fully develop, document and routinely test its Emergency Response Plans (including the development of schematics which map locations of fire exits, extinguishers, evacuation routes and assembly points) including preventive and/or responsive actions in case of Fire Emergencies (specifically required in the OSH Act) and other emergencies such as natural disasters or bomb threats. Drills must be done to ensure all employees are well aware of emergency protocols and are trained in safe egress and during an emergency (specifically required in the OSH Act).

Also, routine inspection and testing of fire safety and other safety equipment must be performed and complete traceable records must be maintained as evidence that checks were done (specifically required in the OSH Act). Collaboration with Fire Authorities is necessary (refer to Part V, Fire, of the OSH Act for details of the requirements). The company has already established relationships with Fire Officers in its district for this purpose, and it should strengthen this relationship.

**Recommendation 9**

Environmental Management is necessary (specifically required in the OSH Act). The company must include environmental considerations when conducting its risk assessment (Gadenne and McKeiver, 2009). It must evaluate all discharges and effluent from the facility (including diesel, steam, solid waste from plant washdowns and spillage, hot water discharges) when performing this assessment.

**Recommendation 10**

The company must ensure proper control of Hazardous Chemicals (Calhoun et al., 2011). As outlined in Section 6 of the OSH Act, this would include

- Holding of unexpired Chemical Safety Data Sheets (CSDS) for all chemicals stored, used or handled on the compound (including but not limited to primers, paints, thinners, inks, adhesives, bleach, sanitizers, degreasers, oils, greases, aerosols, insecticides, and pesticides.
- A full hazardous chemical inventory listing being documented and kept up-to-date at all times. The record must include chemical name, information on the quantities stored, locations, expiry dates, and precautions to be taken when they are being used, stored, handled, or disposed of.
- Submission of CSDS sheets and inventory listings to the Chief Inspector.
- Proper use of signs/notices and labeling of primary and secondary chemical containers and storage areas to promote safe use, storage and handling.
- Instruction, training and hazard communication to employees, with thorough documentation being maintained of these activities.

**Recommendation 11**

Safety of non-employees must be given more attention. Documented contractor and visitor control policies and procedures must be documented and implemented. Also, risk assessments should consider all non-employees, inclusive of the public, who may be negatively affected by company operations.

**Recommendation 12**

Housekeeping (specifically required in the OSH Act), Sanitation and Pest Control must be ensured so as to promote safe and healthy working conditions for employees. The company has well-documented sanitation schedules and maintains comprehensive pest control reports provided by their pest control contractor. However, more attention must be paid to maintaining clean and orderly surroundings so that shortcomings related to Health can be addressed.

**Recommendation 13**

Safety Audits, Inspections, Testing, and/or Certification must be done as appropriate. Proper records must be maintained, and the development of standard forms including checklists which are specific to certain departments or work areas will enable effective administration, since supervisors can then share inspection and testing duties. At the company, a stronger focus on
safety evaluation and reporting is needed through OSH audits and management reviews along with more thorough safety data collection and analysis of metrics such as true costs of accidents, total lost time, etc. Some discussion of how inspections may be addressed is provided by Ko et al. (2010).

**Recommendation 14**
As specifically required in the OSH Act, the company should begin monitoring, documenting and responding to risks to employee health and welfare posed by noise, light, vibration, dust, ventilation, and other factors. With respect to noise hazards, the focus of the company should be on noise evaluation (Achutan and Tubbs, 2007), reduction and control (via engineering and administrative controls) as a means of protecting employees. This should be the first line of action, with provision of PPE being only a final extra measure. The company also needs to investigate possible risks posed by the forklift’s diesel fume emissions in the plant. In cases where welding fumes pose a risk, however, the company must control this, possibly through proper venting coupled with the use of respiratory protective devices (Graveling et al., 2011).

**Recommendation 15**
The company’s medical surveillance policy must be documented for every category of worker and role performed in the company. Because the OSH Act focuses heavily on occupational injuries and diseases, medical surveillance may be considered necessary where there is a risk of causing illness to employees on account of the type of work or the workstation at which the employee works (specifically stated in Sections 31 – 38 and Schedule 1 of the OSH Act). Ergonomics must therefore also be a part of the company’s considerations in conducting its risk assessments. (See Kennedy et al., 2010.)

**Recommendation 16**
Employee welfare must be facilitated according to the OSH Act. Some improvement should be made to the toilets and change rooms of the company.

**Recommendation 17**
While Accident Reporting and Analysis (specifically required in the OSH Act) is done at the company, improvements are needed to make all staff aware of the company policy and practice in this regard, enhance notification and recording of accidents, occupational injuries, and potential health hazards, and enable improved analysis and sharing of performance results with management and employees (Gyekye, 2010).

**Recommendation 18**
Additional Safety Data collection, analysis and reporting are also specifically required in the OSH Act to keep all employees and managers aware of the company’s performance against objectives and in comparison to past performance. The company should enhance its efforts in this regard, and use the data to drive continual OSH improvements.

**Recommendation 19**
Signs and Notices (specifically required in the OSH Act) must be conspicuously posted in languages that employees understand, to:
- advise of what PPE is to be worn and where
- advise of the maximum number of persons to be employed in each room
- advise of all hazardous materials identified and precautions to be taken
- identify chemical storage areas and point out all confined spaces.

**Recommendation 20**
Protection of young persons and pregnant/nursing women (specifically required in the OSH Act) must be ensured by registering all at-risk persons, monitoring their wellbeing, and making special arrangements for their instruction, supervision, or relocation to perform work of a different type, where risks are too high or cannot be adequately controlled.

**Recommendation 21**
A copy of the OSH Act and abstract of the OSH Act must be made available to all persons at the facility (specifically required in the OSH Act).

5. Conclusion
This paper reviewed several of the findings of a gap analysis conducted against the OSH Act of Trinidad and Tobago (2004) as amended, and proposed several recommendations intended to help the company to become compliant with the mandates and intent of the OSH Act. The next steps for the company would be to utilize the recommendations to establish an action plan (outlining activities to be undertaken, completion timelines, and persons responsible for completion of each task), and implement the activities listed in order to move the OSH management system closer to compliance with the OSH Act. Further insight into compliance within OSH management systems may be obtained from Arocena and Núñez (2010), Khan et al. (2010), and Burstyn et al. (2010).

**References:**


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