Tipping Floor Safety at American Ref-Fuel

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Introduction

Across the industry the tipping floor is considered to be one of the most hazardous areas of the facility. Just the fact that there may be twenty different waste hauling drivers with their own agenda in one area can lead to potential hazards. Across the industry there have been driver deaths that have occurred due to the drivers wandering away from their trucks or re-entering the floor without notifying the tipping floor attendants.

When coordinating the municipal solid waste (MSW) deliveries, it stands to reason that well-defined procedures must be understood, implemented and enforced to ensure a safe and smooth truck delivery operation. This steady and smooth movement of trucks is needed to help alleviate further congestion during peak delivery hours.

It takes an effort by all parties involved with the tipping floor to minimize the hazards and to help keep the operation running smoothly and efficiently.

Each American Ref-Fuel Company (ARC) facility is required to develop and implement its own site specific tipping floor plan. The company has a document that provides a comprehensive set of guidelines for developing these site-specific tipping floor plans.

The site-specific plan should assist in providing safe, efficient truck traffic to and from the tipping floor, facilitate safe and efficient waste unloading, ensure safe access for personnel entering the tipping floor, and communicate potential hazards associated with tipping floor operations. The plan should also standardize procedures and personal protective equipment (PPE) requirements for working on the tipping floor, protect the physical plant/equipment from accidents, and ensure safe removal of unacceptable/hazardous waste found in the delivered waste.

Tipping Floor Description/Management

American Ref-Fuel operates six waste-to energy facilities utilizing various technologies and design features. Although the tipping floor layouts vary from plant to plant, the activities and associated hazards are very similar.

Factors affecting operation of a tipping floor include throughput capacity of the facility, truck quantity and size, traffic flow, queuing before and after the weight scale, lighting, ventilation, floor drainage, state and local permit requirements and other tipping floor activities.

Another factor that affects the operation on the tipping floor are state permit requirements for the random inspection of MSW truckloads. This process typically requires dumping the MSW on the tipping floor, spreading the MSW by use of the front-end loader and visually inspecting the material. The acceptable MSW is then pushed into the pit, stacked on the floor or fed to the operation's feed system with the front-end loader.

State and local permit requirements also affect tipping floor enclosures, storage, fugitive emissions and unacceptable material to be removed.

Tipping Floor Safety - Potential Hazards

Truck traffic coordination is of the highest priority in order to ensure the safety of all personnel that may be on the tipping floor at any given time. The floor attendant and loader operators must continually monitor the floor for personnel and unauthorized pedestrians. The tipping floor operator(s) must authorize entry by any personnel to ensure the safety of those personnel.

Only trained and certified personnel should operate heavy equipment. All equipment must be inspected each shift and operated in a safe, deliberate
fashion. All heavy equipment should be equipped with a functioning backup alarm to warn others in the area.

Additional hazards associated with the operation of the tipping floor include bodily injury caused by mobile equipment or falling debris, vehicle collisions, slippery conditions, etc. In an effort to minimize potential hazards the tipping floor entrance and exit ramps should be inspected at the beginning of the day before allowing truck traffic to enter. The operator should check for debris, oil, broken pavement, exposed rebar, slippery condition, etc. Any discrepancies must be addressed immediately.

Communication

Effective control of all traffic through clear understandable directions and assistance is a major duty of the tipping floor operator. Communication between all personnel entering the floor is of the utmost importance. Anyone wanting to enter the floor must obtain permission of the floor attendant/operator. Anyone who will be on the floor for an extended period of time should have a radio or be with someone who does.

Personal Protective Equipment

With all of the emphasis that is placed on system safety and correct operating procedures, we must not lose sight of the basic practices that help to make our activities in the work place safer.

One of the more important of these is the wearing of clothing that protects us from the hazards that are common to general industrial settings. The general requirements that are observed by all ARC and contract personnel include hard hats, eye protection, hearing protection, sturdy work boots with hardened toes of steel, fiberglass or other comparable material, long sleeved shirts and long pants with reflective material or a reflective vest. Some facilities may also require strobe lights to be worn by the tipping floor employees to further highlight their location on the floor. Work gloves must be worn when handling waste material.

It is highly suggested that haulers follow the same requirements listed above with a minimum of hard-soled shoes, long pants and shirts.

Traffic Flow - Vehicle Movement

The main entrance and roads used by refuse haulers, ash haulers; contractors, visitors, etc. should be clearly marked to show the direction of flow. Normal operation allows for tipping MSW into the storage pit or onto the floor. A loader is used to keep tipping bays/floors clear of MSW spillage and to stockpile trash as needed. Stockpiling of trash should be conducted in a manner that will minimize the impact on overhaul floor operations.

Tipping Floor Access – Rules

The ARC staffing on each of the tipping floors varies due to the differences in activities, size and arrangement of the floor. The basic staffing includes a floor (or door) attendant and a loader operator. The largest-staffed plant operates with two floor attendants (that direct traffic), one bulldozer operator and up to six loader operators.

These ARC operators are the only employees or contractors routinely allowed to work on the tipping floor. Other ARC employees or contractors are permitted to work within the tipping building to conduct repair and maintenance activities. Before these events, the employees or contractors must be issued a Safety Permit. The loader operator is notified of the type and location of work to be performed before starting the work. The area where the work will be performed will be isolated with safety tape, barrels, or other equivalent high visibility markers. Jersey barriers may also be used to barricade the work area. The tipping floor attendant or the front-end loader operator will perform all traffic directing. The front-end loader operator is to maintain a minimum 10-foot exclusion zone around each delivery vehicle.

Tipping Floor Roles and Responsibilities

All tipping floor personnel are responsible for enforcing all safety rules that pertain to tipping floor operations. They must be able to identify safety hazards and unsafe acts in order to coordinate the tipping floor operation in a safe and efficient manner. The operators must also ensure that all equipment is operated in a safe, deliberate fashion. The loader operator must drive defensively at all times while concentrating on all movement and related activities on the floor. The loader operator must assume that loader actions may not be observed by personnel in the immediate area and to always let his/her driving intentions be known.

Driver Guidelines

All new drivers should be given a truck driver safety guide when entering the facility notifying them of the work rules for drivers on site. This guide identifies requirements for disposing of waste at our
facilities as well as traffic patterns that will be used to control vehicle movement.

The following are examples of what ARC requires for MSW haulers:

No alcoholic beverages, illegal substances or firearms are permitted on site. If a driver is presumed under the influence of drugs or alcohol, the driver's company will be called and the driver will be asked to remain until the company contact provides direction. No Smoking or open flames are allowed in or near the tipping floor at any time and children under 17 are not allowed on the premises.

Directions issued verbally by the facility's tipping floor attendant or loader operator must be followed. Truck drivers must obey all posted speed limits, speed bumps, traffic direction, and truck instruction signs. Upon entry to the facility all drivers/helpers are to remain in the cab of the vehicle. No one can ride on the back of a vehicle or walk along side when the vehicle is moving. All trucks are required to have their headlights on when they are on the floor. After entering the tipping floor, only one person may exit the cab to unlatch the tailgate and must stay within 6 feet of their vehicle when in the tipping building. The drivers must ensure that tailgate doors are secured to the side of containers/trailers, before dumping. Vehicles may not be left unattended and the truck driver/operator must close the tailgate and/or lower the body before exiting the tipping floor. After leaving the floor via the exit door, the truck driver/operator must not attempt to re-enter the tipping floor.

Drivers that do not observe these rules are subject to ejection from the site, up to and including being banned from the facility along with their company.

Tipping Floor General Integrity

Lighting on the tipping floor should be adequate for all activities with the minimum of 20-foot candles or 220 lux. It is also suggested that the fixtures and lenses be cleaned periodically to help maintain the proper lighting conditions.

Tipping Floor Ventilation – All of our Waste to Energy facilities pull combustion air for the boilers from the tipping floor to maintain a slightly negative pressure on the floor as part of odor control. Roof fans should also be considered to control truck exhaust during periods of boiler downtime. It should be noted that this might require an operating permit approval due to odor control requirements. The air quality (carbon monoxide, sulfur dioxide, lead, cadmium, arsenic, and nuisance particulate) on the floor should be monitored annually during heavy traffic periods.

Signs (Bilingual) - The most viable means of communicating with persons entering the facility is with signs indicating a required action. (I.e. speed limit, direction, parking, etc.) The same principal is applied to actions we require of truck drivers. Pictorial and bilingual signs should be used where appropriate.

Fire Protection – Due to the nature of the tipping floor and the material (MSW) stored there, fire protection is a vital part of the tipping floor operation. The systems used at ARC facilities include dry sprinkler systems with fusible sprinkler heads, water cannons, fire hoses and fire extinguishers. It is important to have these systems available at all times. Repairs to the fire systems must be a top priority when they are out of service. The systems must also be visually inspected each week. All personnel should be trained on the types of systems available at the facility.

Housekeeping – The tipping floor surface should be scraped as necessary to minimize slippery conditions on the floor. It is also suggested that the floor be cleaned using a street sweeper at the end of the day shift. Once the floor is cleaned, an inspection of the tipping floor should be performed due to the destructive potential of transfer and curbside delivery trucks along with the moving, piling and sorting function of the loaders. Items to be inspected include building structure and supports, the floor condition, fire protection, electric heat tracing, ventilation systems and safety equipment.

Pit Rescue

Each facility should also have the necessary equipment available to perform emergency rescues in case someone were to fall into the pit. The rescue equipment must be stored in a way that it is easily accessible and must be inspected on a routine basis. The employees performing the rescue must be trained and familiar with the equipment to be used.

Heavy Equipment Inspections

All heavy equipment operators must be fully trained and certified on the equipment to be operated and the activities to be performed within the tipping floor. Personnel being trained on equipment should operate that equipment under direction and during low traffic hours until the tipping floor supervisor is comfortable with their driving skills. Equipment inspections must be conducted (each shift) on mobile equipment and logged noting any deficiencies. Repairs
must be immediately made to any safety-related deficiencies (back-up alarms in particular).

Vehicle Incidents/Accident Investigations

All vehicle collisions and near misses, injuries or property damage should be investigated and documented. Results of the investigation should be forwarded to all affected parties. In the event the parties involved in an accident cannot resolve the issue of fault, it is their responsibility to contact the local law enforcement department.

Enforcement of Traffic Violations

At our facilities visitors, customers, contract and delivery personnel violating traffic will receive a courteous reminder of the infraction and this reminder will be documented (hauling company name, license plate or other truck identifier, the date and time of the violation) on a Near Miss form. Repeat violations will result in a review with the company’s management team. Depending on the severity or frequency of the incident, the management of the affected company will be contacted to discuss the issue and resolution.

Training

At our facilities all employees working on the tipping floor must be trained and complete tipping floor and special waste job task instructions (JTI’s). Employees driving heavy equipment must be trained on the safe and efficient use of that equipment and must complete the associated JTI’s. The tipping floor operators may also be trained on procedures for bale cutting, refuse inspection for lost items, truck back door closing using front end loader, bulky transportation, fire in the refuse bunker, etc. All employees are also trained on the company and site specific Tipping Floor Safety Plans and Contingency Plans. All Contract drivers must attend an ARC Safety Orientation.