

## **Heavy Equipment Attachments and a Train Crash in the Section between Oimachi and Omori Stations on the JR Keihin-Tohoku Line**

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### **Introduction**

At the East Japan Railway Workers' Union (JREU) we have learnt a number of lessons from train crashes and other accidents that occurred soon after the company's inception. As a result of the crash, and in order to prevent a recurrence of these kinds of grievous accidents, we have been carrying out a diverse range of safety activities, such as lectures by experts and debates. These have been designed to ascertain the facts from the workers' point of view.



In the course of these activities, we have become aware that we cannot avoid accidents simply by punishing the workers who have caused them. In other words, simply casting the blame on someone does not clarify the reason for the accident, nor does it clear up the underlying cause that led to the worker's mistakes.

Focusing attention on this point, we devised a safety philosophy of "Investigate the cause before attacking someone for being responsible". In reality, however, we have often chosen the easy way out by putting the blame on someone. There were some who maintained that if you tried to find the cause, you would not be able to call somebody to account.

Since then, on various occasions, we have engaged in energetic debate on this issue. We have reported on these at this conference. In either event, creating a safe working environment or climate requires us to define the specific cause through straightforward discussion and then take appropriate action to eliminate the cause of the accident. This must be a common understanding

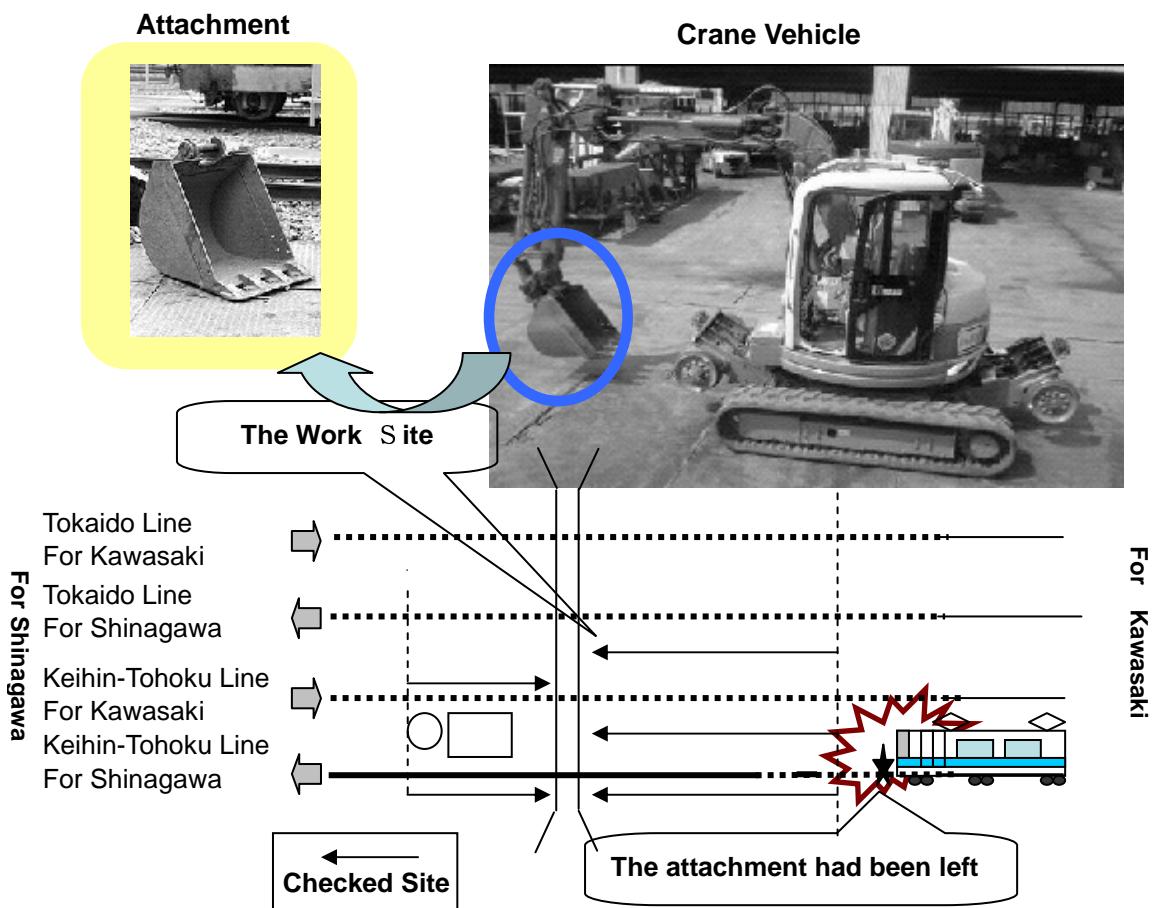
shared by all members of the organization.

The trade union needs to shed light on the workers' reality, their working environment and systems, based on accident analyses. The trade union must also engage in exchanging opinions with the company in order to clear up the cause of the accident. At JREU, based on sound labor-management relations with East Japan Railway Co., Ltd. (JR East), we have been carrying out frank discussions in an effort to prevent accidents or avoid a repeat of similar accidents. However, these efforts have not necessarily produced good results. We have adopted certain measures but they have turned out to be inadequate, or our countermeasures have been one step behind and workers have been forced to shoulder a greater burden.

In the final analysis, we cannot ensure safety unless both labor and management focus on the reality of the work place and continually attempt to identify the truth. I would now like to cite an example of an accident which we failed to handle properly.

## Example of Accident

On October 6, 2003, in the early morning, workers were carrying out track maintenance in the section between Oimachi and Ohmori stations in Tokyo. The work required replacing attachments for a crane vehicle used for repairing the tracks. In the process of replacing the attachments, workers decided to move the vehicle to a place slightly away from the site, remove the attachment from the tip of the arm, and fit a different attachment to the arm. The removed attachment was to be placed outside the tracks in order to avoid a collision with a train, but because overhead cables were installed over the place where the removed attachment was to be put, they thought it might touch the cables, so they temporarily placed the attachment between the tracks. The worker who replaced the attachment felt sure that somebody else would remove the attachment placed between the tracks and went on to his next task. As a result, the attachment was left between the tracks.



Leaving something between the tracks, even if temporarily, threatens safety, let alone leaving a heavy article like the attachment for a crane vehicle. Nevertheless, a foreman decided to leave the attachment between the tracks and, after work was over, went to check the site in order to avoid a worse accident. However, because the attachment was placed a little way from the work site, the foreman did not check the attachment afterwards.

Later on, after all work was completed for the night, the workers left the tracks, walking in the opposite direction to where the attachment had been left, consequently nobody noticed the attachment and an accident occurred. The first train on the Keihin-Tohoku Line passed the site and collided head-on with the attachment. Fortunately, the crash resulted in no casualties, but it could have been a major accident, such as a derailment, incurring heavy casualties, depending on how and when the attachment had been left.

A few days before this accident, JR East had caused delays as trains experienced an all-day stoppage due to an error in the connection of signal cables during switching operations, inconveniencing some 180,000 passengers.



**Crashed coach**

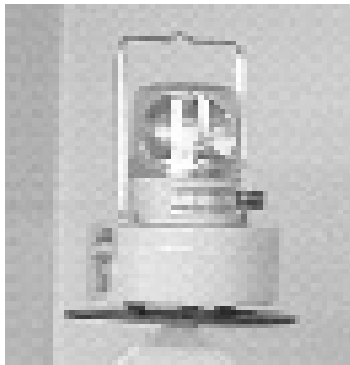
JREU opened discussions on the two accidents and submitted to the company a proposal for the creation of an organization for safe and steady transportation.

The main discussion about factors related to the Keihin-Tohoku Line accident centered around the following issues: (a) Is there a rule governing checkups after work, (b) Is there a rule governing the replacement of attachments, and (c) What role does the foreman play?

During negotiations, we confirmed that (a) the post-checkup and an area to be checked were unclear; (b) where the attachment should be placed was not specified and, to put it bluntly, the temporary placement of the attachment was not a violation of the rules, and (c) the foreman should be encouraged to make a post-checkup within the construction area.

As a result of negotiations, we found it was not surprising that the accident had occurred. So we asked JR East to improve the situation and immediately establish proper accident prevention measures.

In response, JR East, based on analyses of the accident, decided to take the following measures in work sections (including transfer sections): (a) make clear work sections and work procedures; (b) establish a well-defined channel of command governing two or more foremen, and (c) clearly specify where to place articles temporarily. The company also proposed installing rotating flash beacons to clearly indicate work sites.



**Flash beacons**

In reply to the company's proposals, we insisted that: (a) workloads would increase to such an extent that workers would be forced to work much harder, and (b) if the proposed measures are important, existing measures that are similar to the proposed ones or are considered unnecessary should be improved substantially.

We pointed out that installing rotating flash beacons to indicate work sites would impose a greater burden on workers when they are forced to complete work in a limited time. To put it another way, the company works out remedial measures every time an accident occurs, so workers have to spend much time carrying out the measures before starting work. These measures are completely redundant. Not all measures have been unnecessary but supervisors have lost sight of the original objectives of the measures over time and have become fixated on implementing the measures. In the event of an accident, if workers should fail to implement the prescribed measures or fail to comply with the procedures, they would be called to account simply because they did not abide by the rules.

It is no exaggeration to say that the history of accidents is practically the same as the history of countermeasures. In order to carry out a task, workers must complete a lot of paperwork in a

short space of time before implementation. On the day of work, workers must implement numerous prescribed measures before they perform the task. Observing the rules for numerous accident prevention measures consumes much of the workers' time and energy.

If the rules designed to ensure the safety of workers are taken to the extreme, workers will be forced to spend so much time observing the rules that they will inadvertently fail to make a critical check, thus compromising safety.

When we consider taking some countermeasures, of course we should investigate the causes of an accident and, based on analyses of the causes, take appropriate remedial steps. This is crucial. However, when we actually try to find the causes, we often tend to focus on the direct causes of accidents and, without clearing up the true cause, implement direct measures only.

Speaking of the recent accident, we should answer the following questions: (a) Why did the worker, who replaced the attachments, fail to take the trouble to place the removed attachment outside the tracks; (b) Why did he feel sure that somebody would remove it; (c) Why did the foreman fail to notice the attachment between the tracks; (d) Were workers given enough time to do the job, and (e) Was there an appropriate schedule? While solving these questions, we should clarify the truth, remove the causes including underlying factors, and then implement necessary measures immediately.

We pointed out that the measures proposed by the company were inadequate and impose too heavy a burden on workers and, consequently, should be alleviated; otherwise, critical measures would not be taken.

### **New matter**

In the end, the proposed measures were implemented, imposing a heavier burden on workers. The measures were based on the prerequisite that at JR East, the tracks would be closed in order to carry out maintenance and inspections. If circumstances preclude the tracks from being closed, safety would be ensured by alarms for approaching trains and special signaling systems. In either case, installations and procedures would not be carried out before the final train passes. In this sense, unless the intervals at which trains pass are expanded, working hours will be reduced if workers have to shoulder a greater workload.

However, workers are forced to finish the task within a limited time and the time from the end

of the task to the release of a safety system appears to be short. I would like to cite an example that demonstrates this.

- (1) On November 6, 2003, at around 5:35 a.m., on notice from the control office, a foreman rushed to the site and removed a number of rotating flash beacons that had been left behind.
- (2) On January 28, 2004, at around 18:30 p.m., workers failed to remove one of the rotating flash beacons installed for the work carried out during the day and a train was stopped because of this beacon.
- (3) On May 19, 2004, at around 3:45 a.m., the rotating flash beacons left behind stopped freight trains and the trains, as a result, ran approximately 30 minutes behind schedule.

These incidents seem to have occurred primarily because workers had to carry out more tasks as a result of the new measures. In short, a measure of installing rotating flash beacons for indicating a work section was added. In addition, workers were now required to conduct a post-checkup not only in work sections but in transfer sections as well. Naturally enough, depending on how far away a work section is located, workers are now required to spend more time carrying out their assigned chores before and after work. However, because the work volume and period are specified in a contract, workers cannot reduce the workload they have to carry out on the day, and so are forced to finish the work within a very limited time.

### **Implementing Drastic Measures**

We must take note of the fact that an accumulation of measures is more likely to cause other problems. It is therefore essential to clear up the true cause, including underlying factors, instead of making a superficial analysis of an incident.

We must draw a clear line between immediate measures and drastic measures. Immediate measures should be carried out until drastic measures are implemented. When drastic measures are taken, we must conduct a follow-up – that is, discontinue the immediate measures. In this way, we will be able to alleviate the burden of redundant measures on workers. Apparently, we tend to delay removing redundant measures because we have a “better late than never” mentality. We should draw up measures designed to ensure safety from the workers’ point of view.

If measures taken impose any constraints on workers, the party who awarded the contract should assume the risk. In other words, a contract price must be increased to allow a contractor

to implement the measures properly, or the contract term should be extended. In this way, the contractor will be prevented from neglecting safety measures or from spending more time carrying out safety measures than performing the contracted work.

Simply eliminating accidents is not enough when enacting effective safety measures. We must also solve the problems that have led to the accident. We must analyze these problems from the perspective of the following factors: (a) humans: workers; (b) machines (systems): heavy equipment; (c) the environment: the work site in general, and the place where attachments were replaced in particular; (d) a mission: workers' sense of mission toward the task to be performed on the day; and (e) management: management of people, money and goods.

In other words, we need to evaluate the accident from many angles such as: (a) the extent to which workers are aware of the danger of leaving an article in the tracks; (b) development of a mechanical system to prevent workers from attaching and removing components in the tracks; (c) installation of devices to allow workers to check places where work is being carried out, such as lamps installed where attachments are replaced; (d) workers' sense of responsibility toward carrying out the assigned task; and (e) the management's efforts to train workers, provide systems and equipment, understand the working environment, and provide instructions and guidance to workers.

In this way, analyses not only clear up the cause or simply put the blame on workers, but also shed light on the general drawbacks of the organization.

At JREU, we will promote this safety policy of investigating the cause before attacking someone's reputation, in order to prevent the same or similar accidents, continue to engage in earnest discussions with the company from the workers' point of view, and strive to create a safe working environment.