

## TEACHING NOTES

# **Technological Risks Prevention at Aceros Argentinos. Management of change options for an improvement in safety management.**

**Keywords:** safety management, management of change, teaching case

**Track:** management education and teaching cases

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## Introduction

This case helps to address the main issue of how to accomplish a change in safety management in a wire production plant. The problem appears after a series of changes of company ownership until its final acquisition by a multinational group which, in a context of strong demand growth, imposed a new logic based on a production and productivity increment and, at the same time, stricter safety requirements.

The case is also good to discuss issues such as:

- Pros and cons of different approaches to management of change: the hierarchical model, which privileges strengthening the authority of the supervision and implementing effective sanction systems, and the collaborative model, which privileges collaboration among managers and reports, and their union representatives, to define procedures and how to implement them.
- The role and influence of the different parties involved in this change process (headquarters, subsidiary management, safety management, line managers and supervisors, production and maintenance operators).
- The role of contextual influences in decision making related to the choice of one model or the other and the available degrees of freedom to escape the restrictions that emerge.

An important issue this case sets forth is the difficulty to match the production increment to the improvement in work safety. In fact, the case reveals that after the company sale and the safety requirements certification, the frequency of severe accidents was incremented instead of reduced, while production and productivity grew significantly higher.

Another important fact that is observed in this case is how the high management members perceive this issue: according to them, accidents are caused by the operators' lack of respect for certified procedures. This view derives in a corporate guideline: the gap between what the standard says and the way operators actually carry out their work must be reduced. The

implementation of this guideline is strengthened by headquarters pressure to reduce the frequency and severity of the accidents, given their human consequences and taking into account the strong negative impact on a company that had just settled in the country (the last accident received national media coverage).

How could the gap between the enacted procedures and the way they were actually implemented be explained? Was it possible to act in some way to reduce this gap?

The case presents actual data from a specialized consultant hired to prepare a diagnose about the view of Alambres Plant operators, supervisors and managers on safety management problems. Assessing these data is key to analyze this situation, identify problem areas and propose alternative solutions.

## **Case Summary**

The case starts with the decision Carlos Fagundez, Corporate Manager of the Integrated Management System (Health, Safety and Environment) of Aceros Argentinos, and his right hand, Fernando Arregui, Manager of the Corporate Industrial Safety Area, need to make about how to design and deploy an action plan to support a change in the safety management of the company. To do this, they need to review the results of a diagnostic report on the safety system provided by a consulting company in the Alambres Plant, in Villa Ángela. Within one week they need to meet Gustavo Álvarez, Plant Manager, and his Workshop Managers, to start drafting an action plan.

The first section of the case describes Aceros Argentinos main characteristics, its origins and recent evolution. General data about the company is presented, and the challenges the subsidiary faces after ownership changes and the technological and organizational changes brought about by them are discussed, including suppression of workshops, relocation of plants and production processes and certification under international safety standards.

The second section describes the distinctive features and characteristics of the plant chosen by the company safety officers for their pilot experience. The main reason to choose this plant was the good relationship among managers, supervisors and operators, and the subsequent good

predisposition to work jointly to improve the safety system. The plant had already achieved some progress in the matter through the implementation of four basic components: a Mixed Safety Committee, Safety Multipliers, Floor Audits and Prevention Delegates.

The third section presents the main results from the diagnosis of the plant safety system. The report presents data about how managers, supervisors and operators perceived safety management and their individual role in it. This information was available for Fagundez, Arregui and the Alambres Plant managers to examine critical areas to consider when designing an action plan and alternative ways to understand and implement actions.

The fourth section deals with the main dilemma, which is choosing between alternative courses of action to change safety management, each one with its pros and cons, each one supported by different actors within the organization. The case presents information to assess at least two options. On the one side, a hierarchical intervention aimed at controlling compliance with safety standards and procedures, with good chances of obtaining concrete results in the short term and satisfying the headquarters' expectations, but raising concerns about its ability to create consensus and durable change of behaviors. On the other side, a collaborative intervention, based on patiently reaching agreements with operators and their representatives, and improving the skills and behaviors of managers and supervisors with respect to safety. Even if this approach was recommendable from the theoretical point of view and based on international experience, besides not allowing short-term results, it required a series of conditions that were difficult to meet in order to ensure success. These positions are laid out to spark debate and look for alternative approaches, eventually converging.

## **Learning Goals**

Students will be able to identify:

- 1) The role and perspective of the main stakeholders in Aceros Argentinos and Grupo Camargo with respect to safety
- 2) The strengths and weaknesses of safety management systems in industrial plants

- 3) Alternative management of change strategies, bottom-up and top-down, to develop a safety culture in the Alambres Plant
- 4) How to combine both strategies, taking into account their respective contributions and limitations

If this case is used in a graduate course or an introductory postgraduate course, we recommend the teacher to present the basic contents necessary to understand it in previous lectures and then use it to spark a discussion that can serve as an example of the theory explained.

If it is used in a postgraduate course in Human Resources Management, or an executive training course for managers specialized in Safety and Hygiene, this case can be a starting point to discuss current practices in safety management, including previous readings or lectures about the concepts used. The participants may be asked to draw a proposal about the most convenient way to proceed taking into account their professional experience, the theoretical tools offered by the course, the evolution of safety management tools and the requirements and restrictions set forth by the case.

## **Guidelines for Participant Preparation and Required Reading**

We recommend the following guiding questions for a preliminary reading of this case:

- a. What evidence can you identify of a conflict between the priority assigned to productivity and the priority attributed to safety by the management, and between certified rules and those actually applied by operators?
- b. What were the main problems identified in the perception survey? Try to order them by relevance and relate each other to explain unsuccessful results in the area of safety.

- c. Think about the pros and cons of alternative courses of action to solve these problems taking into account the data given by the survey and the requirements, restrictions and opportunities that affect the people who will have to implement them.

## **Required Reading**

Petersen Dan, "Safety policy, leadership and culture". International Encyclopedia of Health and Safety. ILO, Geneva, 2003.

Simard Marcel, 59.2 "Safety Culture and Management". International Encyclopedia of Health and Safety. ILO, Geneva, 2003.

## **Recommended Reading for the Teacher:**

Dekker, Sidney. *Just Culture: Balancing Safety and Accountability*. Ashgate, 2007.

Oliveira J. C., "Aspectos culturais influenciam a prevenção". Revista *CIPA*, Year XXVIII, no. 327, São Paulo, 2007.

Reason, James. *Human Error*. Cambridge University Press, 1990.

## **Discussion Plan**

The discussion plan considers a 90-minute class, organized in the following main sections:

1. Introduction: recent changes and general characteristics of the Alambres Plant (10')
2. Problems at the starting point (10')
3. The defenses of the safety system in Aceros Argentinos: strengths and weaknesses (25')
4. From diagnosis to action: creation and presentation of a proposal (25')
5. Towards an integrating alternative: the development of a "just culture" (10')

6. Closure: What do we expect to learn from this case? (10')

## **Guidelines for Case Analysis**

1. Introduction (10'): recent changes and general characteristics of the Alambres Plant

The teacher will take some minutes to establish the basic characteristics of the case and the problem introduced by it with the students. At this stage, no analysis must be done.

Firstly, a list of changes of ownership and certification processes will be carried out; then, some of the technical characteristics and staff composition of the Alambres Plant that are relevant to their approach to safety problems will be detailed. Lastly, a general definition of the safety problem that emerged in this context will be agreed.

### **BOARD 1**

2. Problems at the starting point (10 minutes):

The purpose of the Introduction is to outline very generally the main terms of the debate about safety within the company.

What was the problem? Which positions did the main institutional actors take in relation to it? How can we interpret this after confronting their points of view?

The participants will identify and describe the point of view of the main actors involved using a chart like the following, which should be prepared in advance indicating the titles.

### **BOARD 2**

With respect to the point of view of the different actors (see below Board 2, containing phrases that summarize each perspective), the headquarters, which had decided to certify safety standards in every subsidiary in order to achieve international excellence standards, considered accidents unacceptable (for obvious reasons related to

their impact on people and their severe consequences on the image of a company that had just arrived to the country). Therefore, the subsidiary indicators needed to improve quickly and significantly<sup>1</sup>.

As to the subsidiary, the Management Committee attributed the safety problem to lack of compliance with safety rules on the operators' side, which gave way to a corporate guideline. However, what was the reason why they did not respect the certified safety rules?

Managers and workshop supervisors (the operational "line") thought that operators did not respect safety rules because they were protected by a powerful and confronting union that prevented the application of sanctions whenever these rules were broken. On the opposite side, the operators' representatives considered that the problem was that, even though supervisors and managers said the opposite in theory, in practice—when things heated up—they prioritized production and productivity instead of safety<sup>2</sup>. The operators, in turn, indicated their observations and point of view about safety were not taken into account by the workshops management.

In turn, safety officers did not support any of these positions and, aware of the existence of these types of disagreements (the problem was not going to be solved by choosing one of them), they decided to order a perception survey that could make them explicit to address them in the organization.

### 3. The defenses of the safety system in Aceros Argentinos: strengths and weaknesses (25')

In this section, the main components of a safety system will be discussed with the participants using Reason's swiss cheese model (see bibliography). After agreeing on the analytical scheme to be used, the strengths and weaknesses of the system components in Aceros Argentinos will be analyzed.

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1 In an advanced course, or a course intended for safety specialists, it is possible to discuss here safety indicators, their relevance and quality, and their eventual manipulation, impossible in case of fatal accidents. A typical form of manipulation consists in reducing the incidence of lost time accidents by assigning alternative tasks to the affected persons who have no difficulty to attend work throughout their recovery period.

2 From a conceptual perspective, beneath these two opposing interpretations of the problem lay, on the one side, the notion of "sacrificing decisions" coined by resilience engineering; and on the other, the distinction made by ergonomists between the "prescribed work" and "real work" carried out by the operators (the terms between quotation marks are defined in an attached glossary).



According to Reason, the defenses of a safety system are at the same time technical (equipment design, safety devices, machine remodeling and maintenance, signaling, barriers, personal protective items, etc.), regulatory (certifications, safe work procedures, sanction and award systems, communication means and channels, etc.), related to competencies (knowledge, skills and behaviors of the members of the organization in relation to safety) and to the hierarchical system (distribution of safety responsibilities, priority given to safety in the organizational structure and in decision making). The list may include defenses and defense components that were not provided by Reason or not contemplated in the case analysis.

With respect to the activity to be performed, firstly the teacher will draw a chart on the board (Board 3), where they will indicate the **defenses** in each row header (technical, regulatory, competencies, reporting system), and agree with the students on which components to include under each one of them (classifying). An empty column will be inserted on the right, with the header "Problems". Preparing the chart on the board will take 5 minutes.

### **BOARD 3**

Below is a draft of the chart that is to be drawn on the board, while the Annex presents a version of this board with defense categories and types of problems that arise completed by us as an example.

<b>Defenses</b>	<b>Components and responsible parties</b>	<b>Problems</b>
Defense 1	Component 1	
Defense 2	Component 2	
Defense 3	Component 3	

The teacher will list, during 20 minutes, the problems indicated by the participants, identifying the responsible parties for each defense, and discussing with the participants (on Board 3, presented below, is a detailed description of problems and responsible people only for teachers' use).

Participants will be able to identify additional issues or problems that were not mentioned in the case and may be important. In doing so, the teacher will be able to take into account and eventually capitalize the participants' knowledge and experience.

#### 4. From diagnosis to action: creation and presentation of a proposal (25')

- a. Taking the general list on Board 3 as a reference, students will be divided into groups of 4 or 5 persons and do the following exercise: each group will select the three main problems, classifying them by order of importance, and will provide specific solutions to solve them, creating general guidelines for an **Action Plan**. This task will take 15 minutes.

Procedure: half the groups will be instructed to provide justifications for one of the two opposing positions in the company. On the one side, the position that prioritizes the role of management, respect for the rules and fast achievement of results (which can be defined as **TOP-DOWN PERSPECTIVE**); on the other side, the position that emphasizes operator behavior, their participation and the slowness of cultural changes (which can be defined as **BOTTOM-UP PERSPECTIVE**). Each group will provide Fagundez and Arregui items for examination about the convenience of the position and the precautions to be taken to make it successful, so they can use these items in their presentation for the operational management of the Alambres Plant.

To put it simply, the top-down perspective tends to emphasize solving problems related to bad communication from the top down ("we get things done, the problem is that people don't find out about it"), while the bottom-up perspective tends to highlight problems derived from lack of operator participation ("they are the ones who know best the real conditions to apply safety rules").

Digging a little deeper, in order to be successful, the top-down perspective depends on clearly modifying organizational priorities in favor of safety, establishing a system of manager incentives that includes safety as an important item, clear communication of the new priorities personally by the management (floor audits should contribute to that), developing safety skills in high management, the middle line and supervision, besides safety technicians (for example, to better

perform and take advantage of the REX analysis). Questions like the following may serve as orientation for group work: Which elements of the safety system depend on actions for which the high and middle management of the organization are responsible? What type of elements and actions are they? How do they influence on the lower, operational levels of the organization? What changes should be made for the higher influence to support the development of a safety culture based on respect for the rules?

The bottom-up perspective requires in turn that participation is organized and implemented systematically, for example by allowing operator participation in the design of work procedures, making periodical safety meetings where they can voice their opinions and account for progress, creating groups *ad hoc*-like “safety circles”-to solve specific problems, implement risk warnings and the corresponding system for systematic problem solving; improving analysis and circulation of REX analysis among every operator, etc. Creating a legal Mixed Commission may be a good opportunity to frame these improvements. This group task may be oriented through questions such as: What components of the safety system depend on actions and behaviors that are responsibility of operational management, workshop supervision, safety technicians, and maintenance and production operators? How do they condition safety management? What changes should be made so that work experience is not in conflict with respect for the rules?

- b. The teacher will take notes on the board about general guidelines of the courses of action for both plans (indicating in the first row of Board 4 the problems by order of importance, possible solutions and the responsible parties). If there is more than one group per perspective, and their views are divergent, they will discuss problem hierarchy until they reach an agreement. This task will take another 15 minutes.

#### **BOARD 4**

##### **(First row)**

- 5. Towards an integrating alternative: the development of a “just culture” (10’)

Fagundez cannot present the Operations Manager a conflicting view about alternative paths towards organizational change that will modify the safety culture in Alambres Plant (avoiding conflict involves integrating the workers' culture and the managerial-administrative culture, as the closing section argues based on Simard). The groups will agree on the general guidelines of a master plan that integrates the different perspectives, filling up the second row on Board 4. These guidelines will complete the six main measures to adopt in order to achieve convergence of the bottom-up and top-down initiatives identified in the previous exercise. Questions like the following may help to develop this discussion: Should both plans be carried out sequentially or simultaneously? Marcel Simard's view in his article: "Cultura y gestión de la seguridad" ("Safety culture and management") points clearly in that direction.

#### **BOARD 4**

##### **(Second row)**

Once agreement has been reached on the previous matter (it is advisable to privilege top-down change or, in other terms, show exemplary behavior by the management, but that doesn't mean the bottom-up direction should be neglected, since the operators' initiative is key for them to respect the rules), the discussion will be guided through a concluding question about the need and possibility for the company and the union to agree on a sanction system aimed at breaches of safety rules by managers, supervisors and operators, by means of the Safety and Hygiene Mixed Commission.

The development of a "just culture" (see bibliography) depends on this, by defining common game rules mutually accepted by all parties, which are compulsory but subject to warranties to avoid discretionary application. Questions like the following may guide the final part of this reflection: if the six recommended measures for an action plan are fulfilled,

How can we guarantee the priority assigned to safety is respected by both management and operators?

How can we draw a line between the acceptable and the unacceptable, the voluntary and the involuntary, and determine pertinent sanctions in case of intentional breach?

How to reach an agreement between management and union representatives? Is it realistic to set this goal in this organization's particular case?

5. Closure: What do we expect to learn from this case? (10')

Based on the strengths and weaknesses of the safety system identified by the participants and on their tentative answers to each one of the identified problems, participants will be invited to a final reflection.

What can be learned from this case?

Participants are expected to highlight the need to integrate the operators' safety culture (dominant in Aceros Argentinos until their certification) and the regulatory safety culture (which the company tries to impose after their certification) to allow for a viable solution for a process of change in safety management.

The theoretical issue the teacher needs to highlight based on this case is that, in order to influence on change processes in safety management, it is necessary to take into account the nature of the rules, their contexts of application and how to make operators respect them. According to Simard, respect for the rules does not stimulate participation, but participation does stimulate respect for the rules. The reason for this is that rules cannot be adapted to particular situations. Thus, the operators' initiative to apply them intelligently is necessary, depending on the variations to which equipments, people and work processes are subject daily.

The case shows clearly that respect for the rules is more likely when the operator participates in their creation, and thanks to that knows the justification of the procedure design they are required to apply. Participating in the design enables and motivates them to recreate it and adapt it intelligently depending on the situation. This was particularly necessary in an old plant like Alambres in Villa Ángela, whose equipments had a lower level of reliability and worked generally thanks to implicit knowledge and skills and procedures that were generally not written.

Participants may also recall some of the following issues:

- The transition from a national family company model to a model based on management professionalization (specifically referred to safety) had a great impact in decision making.

- Generational change on the operators' level brought a crisis to the reporting relationships, union practices and safety management procedures in the company.
- The impact of uncontrollable factors, like the macroeconomic context (that affected Aceros Argentinos after the period considered in this case and may have affected the change process), and the conflictive history of work relations in the organization (and in the country) as a factor of distrust.

## Board Plan

### BOARD 1: Introduction

- Review about changes produced in the recent period: changes of ownership and history of certifications. There was a strong productivity increment without previous experience in safety systems. For that reason, it is important to review these changes and draw a first general conclusion about their impact.
- Characteristics of the Alambres Plant and their staff: this is an old plant, with old machinery that depends greatly on the implicit knowledge (about their “tricks”) of maintenance and production operators. But an accelerated generational turnover is taking place, and consequently this implicit knowledge is being lost.
- Problem definition: after safety certification, and to the surprise of the responsible for implementing it, there was an increase in severe accidents.

<u>Recent changes in the Alambres Plant</u>		
<u>Ownership</u>	<u>Certification</u>	<u>Structure, technology and work processes</u>
<ul style="list-style-type: none"> <li>- Talgo Mineira 2003</li> <li>- Camargo 2005</li> <li>- Ferguson 2006</li> </ul>	<ul style="list-style-type: none"> <li>- ISO 9001 (implemented in 1994)</li> <li>- ISO 14000 (1996)</li> <li>- IRAM 3800/98 (2000)</li> <li>- OHSAS 18000/99 (2003)</li> </ul>	<ul style="list-style-type: none"> <li>- Fusion of workshops</li> <li>- Work cells</li> <li>- Suppression of polluting processes</li> <li>- Packaging robot</li> </ul>
<u>Characteristics of the Alambres Plant</u>		
<u>Technical Features</u>	<u>Staff Composition</u>	
<ul style="list-style-type: none"> <li>- <u>Permanent change in machine configuration</u></li> </ul>	<ul style="list-style-type: none"> <li>- <u>Two operator populations with diametrically opposed features (age,</u></li> </ul>	

- __ Individual roles	seniority/experience, education)
- __ High frequency of accidents, but low severity (hits and cuts on upper members)	- __ Imminent retirement of the old members, only the young will stay
<b><u>Problem Definition</u></b>	
“Paradoxical increment in fatal accidents after the certification”	

**BOARD 2: Main institutional actors and their perspectives on the problem**

ACTORS	PERSPECTIVE
<b>CAMARGO (headquarters)</b>	“The subsidiary must improve quickly and substantially its safety indicators” (guideline)
Management Committee	“Operators must respect the safety rules, since accidents are caused by their disrespect” (guideline)
<b>Operational Management</b>	Operators do not respect the rule because they are overprotected by the union and sanctions are not applied
<b>Operators and Operators’ Union</b>	Supervision and Operational Management give priority to productivity, not safety. The operators’ perspective in relation to safety is not taken into account.
<b>Safety Management</b>	Does not take a position and orders a perception survey.

**BOARD 3: Strengths and weaknesses of the safety system**



Defenses	<p align="center"><b>Components, problems and responsible parties</b></p> <p align="center"><b>(List them and select the most important three, by order of priority)</b></p>
<p><b>Techniques (equipment, personal protective equipment and safety management system)</b></p>	<ul style="list-style-type: none"> <li>a. <b>Process design:</b> safety, missing in the design process (Technology Management)</li> <li>b. Equipment <b>panels</b> are not homogeneous (Maintenance remodeling)</li> <li>c. Undeclared equipment <b>alterations</b> (Maintenance)</li> <li>d. <b>Rex</b> only about accidents, the operator is always blamed, insufficient feedback (Safety Technicians)</li> <li>e. <b>Safety meetings:</b> do not have continuity</li> </ul>
<p><b>Regulatory (safe work procedures)</b></p>	<ul style="list-style-type: none"> <li>a. <b>Safety and Hygiene Mixed Commission:</b> just started</li> <li>b. <b>Work permits:</b> lack of clear procedures and people responsible of applying them</li> <li>c. Outdated <b>work procedures</b> (Safety Technicians)</li> <li>d. <b>Sanctions:</b> breaches are not sanctioned</li> <li>e. <b>Acknowledgment:</b> The operators' initiative in relation to safety is not acknowledged</li> </ul>
<p><b>Competence availability (knowledge, skills, behaviors)</b></p>	<ul style="list-style-type: none"> <li>a. <b>Level of education:</b> <ul style="list-style-type: none"> <li>a. Some operators have a higher level of education than supervisors.</li> <li>b. Some operators are overqualified</li> </ul> </li> <li>b. <b>Implicit knowledge:</b> <ul style="list-style-type: none"> <li>- Old operators are quickly going into retirement and young ones don't have experience (problem of implicit knowledge transfer)</li> <li>- Operators, young and old, trust their experience more than the rules</li> </ul> </li> <li>c. <b>Safety training:</b> <ul style="list-style-type: none"> <li>a. Boring</li> <li>b. Insufficient (Maintenance)</li> </ul> </li> <li>d. <b>Participation:</b> operators demand to participate</li> </ul>
<p><b>Hierarchical relationships</b></p>	<ul style="list-style-type: none"> <li>a. Invisible <b>High Management</b> (it's not known if they support the safety policy)</li> <li>b. <b>Operational Managers and Supervisors:</b> do not prioritize safety</li> </ul>

	Supervisors themselves take high risks (do not set an example)
<b>Additional or missing items that the survey or this classification did not specify</b>	<b>a. ...</b>

**BOARD 4**

<b>HIERARCHICAL OPTION</b>	<b>PARTICIPATIVE OPTION</b>
<ul style="list-style-type: none"> <li>- Establishing safety as a priority</li> <li>- Establishing managerial bonuses that promote safety</li> <li>- Implementing a system of communication and actions on site that support the priority given to safety (floor audits should contribute to it)</li> <li>- Developing and implementing an integrated model of safety, managerial and supervision skills</li> <li>- The same, in relation to Safety Technicians (REX analysis)</li> </ul>	<ul style="list-style-type: none"> <li>- Allowing the operators to participate in writing work procedures</li> <li>- Making periodical safety meetings where the operators can voice their opinions and account for progress</li> <li>- Creating groups ad hoc-like "safety circles"-to solve specific problems</li> <li>- Implementing risk warnings and a system for systematic follow-up</li> <li>- Improving REX analysis and circulation of their results</li> </ul>
<p><b>SYNTHETIC OPTION?</b></p> <p>(convergence of Top-down / Bottom-up)</p>	

- Bottom-up and top-down measures should be adjusted in such a way that they reinforce each other in time.
- Since the example of Management is a determining factor, moving forward in the top-down direction first is a priority. If progress is faster in the bottom-up direction, the effort will cause frustration and will significantly delay cultural change in safety practices.
- Top-down progress is, however, not sufficient on itself, **because respect for the rules depends on the operators' initiative.**
- Support both bottom-up and top-down of the safety system works as a base for the development of a "just culture", through the creation of a sanction system for cases of breach or intentional sabotage.

## Brief Guide of Tasks and Questions for Case Analysis

### A. Introduction:

- a. List changes of ownership and certification processes
- b. List technical features of the Alambres Plant and their staff composition
- c. Agree on a general definition of the safety problem that emerged in this context.

### B. Problems at the starting point:

- What was the problem?
- What positions did the main institutional actors take in relation to this?
- What interpretation can be drawn from confronting their perspectives?

### C. The defenses of the safety system: strengths and weaknesses (25')

According to Reason, defenses are:

- a. Technical, equipment design, protective devices, machine remodeling and maintenance, signaling, barriers, personal protective items, etc.
- b. Regulatory: certifications, safe work procedures, sanction and award systems, communication means and channels, etc.
- c. Human (competencies): knowledge, skills and behaviors of members of the organization in relation to safety
- d. Hierarchical: distribution of safety responsibilities, priority given to safety in the organizational structure and in decision making
- e. Among others identifiable by participants.

The teacher will take 20 minutes to list the problems provided by the participants, identifying the responsible parties, defense by defense.

#### D. From diagnosis to action: creation and presentation of a proposal

People are divided in groups of 4 to 5. Each one selects the three main problems on the board, sorting them by order of importance and proposing a specific solution to solve them. Half the groups are instructed to provide justifications for one of the two opposing positions in the company (top-down and bottom-up).

Questions like the following may serve as orientation for the “top-down” group work:

- Which elements of the safety system depend on actions that are under the responsibility of the high and middle management of the organization?
- What kind of elements and actions are they?
- How do these impact on the operation of the lower, operative levels in the organization?
- What changes should be produced for the influence of higher levels to encourage the development of a safety culture based on respect for the rules?

The “bottom-up” group task may, in turn, be oriented through questions like the following:

- What components of the safety system depend on actions and behaviors that are under the responsibility of the operational management, workshop supervision, safety technicians and maintenance and production operators?
- How do they condition safety management?
- What changes should be made so that work experience is not in conflict with respect for the rules?

The teacher will take note of general guidelines for both courses of action on the board (Board 4).

#### E. Towards an integrating alternative: the development of a “just culture”

The groups need to agree on the general guidelines of a master plan that integrates the different perspectives.

Questions like the following may help to develop this discussion:

- Should both plans be carried out sequentially or simultaneously?

- How can we guarantee the priority assigned to safety is respected by both management and operators?
- How can we draw a line between the acceptable and the unacceptable, the voluntary and the involuntary, and determine pertinent sanctions in case of intentional breach?
- Is the Safety and Hygiene Mixed Commission an appropriate framework for the company and the union to agree on a common sanction system for breaches of safety standards?
- How to reach an agreement between management and union representatives? Is it realistic to set this goal in this organization's particular case?

5. Closure: What do we expect to learn from this case?

Participants will be invited to a final reflection using the following question:

- What can be learned from this case?