

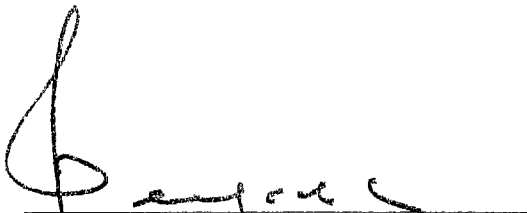
4. 2000年3月（R/D修正時）合同調整委員会ミニッツ

MINUTES OF JOINT COORDINATING COMMITTEE
ON
THE SAFETY TRAINING CENTER PROJECT
IN
THE UNITED MEXICAN STATES

The Joint Coordinating Committee on The Safety Training Center Project (hereinafter referred to as "Project") was held on March 27, 2000 at the PEMEX – REFINACION and had a series of discussions between the Mexican side and the Japanese side for the smooth and successful implementation of the Project.

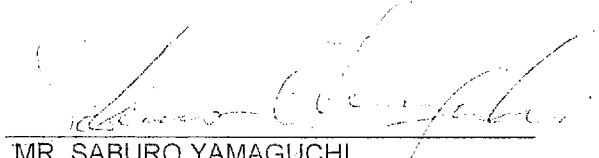
As a result of discussions, both sides agreed upon the matters referred to in the documents attached hereto.

México, D.F., March 27, 2000


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Witnessed by


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IN MEXICO
JAPAN INTERNATIONAL COOPERATION
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THE ATTACHED DOCUMENTS

1. Project Design Matrix (PDM)

The revised PDM whose contents were jointly reviewed by the Japanese Experts and the Mexican Counterparts was presented at the Committee, and both sides reached a mutual understanding on the contents of the revised PDM as shown in ANNEX 1.

2. Plan of Operations (PO) and Annual Plan of Operations (APO)

The Plan of Operations for the whole period (hereinafter referred to as "PO") as shown in ANNEX 2 and the Annual Plan of Operations (hereinafter referred to as "APO") as shown in ANNEX 3, which were jointly reviewed by the Japanese Experts and the Mexican Counterparts based upon the revised PDM, were presented at the Committee and both sides agreed on the contents of revised PO and APO.

3. Promotional Organization of RIAMA on Safety Activities

Following the recommendations of Joint Evaluation at Mid-Term of the Project held on December 1999, the Salamanca Refinery (hereinafter referred to as "RIAMA") has established the Promotional Organization of safety activities on the working site for the smooth and successful implementation and consolidation of the Japanese safety methods as shown in ANNEX 4.

RIAMA promised to fulfill the function of above-mentioned organization and the responsibilities on RIAMA's field activities.

4. Steering Meeting on the Site

Based upon the mutual agreement at the Mid-Term Evaluation, the Steering Meeting has established between the RIAMA and the Refinery Safety Training Center (hereinafter referred to as "CES"), which bears the responsibility for promoting field activities and monitoring its progress.

The functions and members of the meeting are listed in ANNEX 5.

5. Monitoring of the Project

Both sides agreed to monitor jointly and periodically the progress of the Project using the sheets as shown in ANNEX 6.

Monitoring for Project Purpose and Outputs of the Project will be made every six(6) months and for the Project Activities every month.

6. Other Issues

6-1 Input for the Project

6-1-1 Japanese side (Japanese Fiscal Year 2000)

a) Dispatch of short term experts

- one (1) for Labor Behavior Evaluation
- two(2) or three (3) for Maintenance Safety (Construction Safety)

b) Training in Japan

- two (2) CES's Counterparts
- five (5) Engineers (Area chiefs, Chiefs of Maintenance Engineers., Engineers of Inspection and Industrial Safety Superintendency)

6-1-2 Mexican Side

twenty (20) full time Promoters to promote Japanese Safety Methods in the field.

6-2 Recommendations made in the Mid-Term Evaluation Report

Countermeasures to the recommendations made in the Mid-Term Evaluation Report are conducted by both the Project team and the RIAMA as shown in ANNEX 7.



List of Annexes

Annex-1: Project Design Matrix (PDM)

Annex-2: Plan of Operations for whole period (PO)

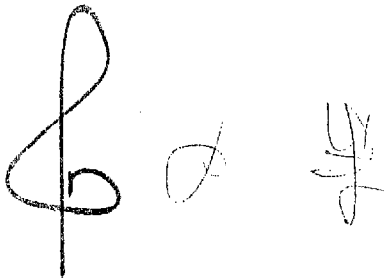
Annex-3: Annual Plan of Operations (APO)

Annex-4: Safety Promotional Organization in RIAMA

Annex-5: Function of Steering Meeting

Annex-6: Project Monitoring Control

Annex-7: Countermeasures to the recommendation at the Joint Coordinating Committee

Three handwritten signatures or initials are present at the bottom left of the page. The first is a large, stylized signature, the second is a smaller, more compact signature, and the third is a signature with a vertical line extending downwards.

PROJECT DESIGN MATRIX (1/2) (Ver-3)

| Detailed Contents of Narrative Summary | Indicators | Means of Verification | Important assumption |
|--|--|---|--|
| (Overall Goal) Productivity of Salamanca Refinery is improved. | Unplanned unit shut-down frequency due to incidents originated by human error decreases | Daily reports of refinery operation and/or operation records for each processing unit | <ul style="list-style-type: none"> There will be no serious changes in the social and economic situation affecting operations of the refinery The policy of PEMEX's top management will not change |
| (Project Purpose) Safety Level of Salamanca Refinery is improved | Safety Level of Salamanca Refinery is improved. (For reference) Total number of accidents, injury frequency rate and injury severity rate | Evaluation report Accidents record | <ul style="list-style-type: none"> Regulations on the environmental and energy saving enforcement will not deteriorate productivity |
| (Outputs) 0. The organization and management system of the Project is established | 0-1 The number of counterparts allocation is to be based upon the Minutes of Discussion in principal (confirmed by each year) 0-2 The authority and responsibility of the project organization are clearly defined | 0-1 Allocation record of counterparts 0-2 Record of CES | <ul style="list-style-type: none"> Accidents due to the causes other than human error do not affect the safety level Maintenance and repair works keep the present job level |
| 1. Safety knowledge is acquired by all the employees | 1-1 Completion ratio of training to counterparts is 100% 1-2 Attendant ratio of training on safety technology course is over 90% 1-3 Attendant ratio of training on process safety course is over 90% 1-4 Attendant ratio of training on maintenance safety course is over 90% 1-5 Attendant ratio of safety management course is over 90% 1-6 Attendant ratio of safety advanced technology course is over 90% 1-7 Attendant ratio of education on inspection is over 90% 1-8 Attendant ratio of education on HAZOP and accident analysis course is over 90% 1-9 Test passing (over 60 points) ratio after training to all employees is over 80% (sampling at random) 1-10 Qualified inspectors ratio of certification ASNT level-2 is over 60%. | 1-1 Training records of CES 1-2 Result of achievement on training 1-3 List of certification | |
| 2. Labor behavior is improved | 2-1 Attendant ratio of training on labor behavior is over 90% 2-2 Using ratio of helmet and chinstrap is over 80% 2-3 5S implementation ratio is over 80% (vs. all area and workshop) 2-4 Labor behavior is improved | 2-1 Training records of CES 2-2 Patrol report 2-3 Implementation record/ Audit 2-4 Evaluation report | |
| 3. All the employees take preventive measures by analyzing potential hazards at work | 3-1 KYK implementation ratio is over 80% (vs. all area and workshop) 3-2 HAD implementation ratio is over 80% (vs. all area and workshop) 3-3 Number of Hiyari-Hatio reported by employees increase every year. 1 per person in 2001 | 3-1 ~ 3-3 Implementation record and audit | |
| 4. All the employees observe the procedures and the regulations | 4-1 Using ratio of the attached documents of work permission is over 80% 4-2 Using ratio of the checklist is over 80% | 4-1 ~ 4-2 Patrol report | |
| 5. Recognition of unsafe conditions is improved | 5-1 The number of unsafe condition is decreased 5-2 Marks and identifications to prevent misunderstanding are improved | 5-1 Survey report 5-2 Survey report | |
| 6. Safety information is utilized in each section | 6-1 Holding ratio of meeting in each section is over 80 %. 6-2 Proposals is presented by the workers | 6-1 Meeting report 6-2 Report of proposals | |
| 7. Safety activity plan is implemented in each section | 7-1 Issuing ratio of safety activity plan is over 80% 7-2 Issuing ratio of execution report is over 80% | 7-1 Safety activity plan 7-2 Execution report / Audit | |

PROJECT DESIGN MATRIX (2/2) (Ver-3)

| Detailed Contents of Narrative Summary | | Input | | Important assumptions |
|--|---|---|---|--|
| (Outputs) | (Activities) | Japanese Side | Mexican Side | |
| 0. The organization and Management system of the Project is established | 0-1 Allocate counterparts and administrative staff 0-2 Stipulate duties of functions 0-3 Install the organization for the decision and the meeting 0-4 Establish the progress control system of Project activities | Dispatch of experts Long term • Chief Advisor • Project coordinator • Safety administration • Maintenance safety • Process safety | • Space, building and facilities • Assignment of counterparts • Equipment and materials • Local cost | • Mexican counterparts continue to work for the Project • Training courses are not interrupted by ad hoc operation in Salamanca Refinery • Salamanca Refinery allocate appropriate budget necessary for application of Japanese method to the Refinery |
| 1. Safety knowledge is acquired by all the employees | 1-1 Transfer necessary knowledge to counterparts. 1-2 Carry out training on safety technology including Japanese safety method 1-3 Carry out training on process safety 1-4 Carry out training on maintenance safety 1-5 Carry out training on safety management 1-6 Carry out training on safety advanced technology 1-7 Carry out training on inspection technology for inspectors 1-8 Carry out training on HAZOP and accident analysis 1-9 Carry out training on maintenance safety technology 1-10 Improve existing safety training system and its contents | Short term • Technical inspection and others • Acceptance of C/Ps training in Japan | | Pre-conditions • The Mexican Government supports the Project • PEMEX recognizes the importance of safety training program • Salamanca Refinery cooperates extensively with this project. |
| 2. Labor behavior is improved | 2-1 Carry out training on labor behavior 2-2 Conduct to follow the refinery basic regulations 2-3 Implement 5S 2-4 Evaluate the labor behavior | Provision of equipment | | |
| 3. All the employees take preventive measures by analyzing potential hazards at work | 3-1 Implement KYK 3-2 Implement HAD (Calling with a pointed finger) 3-3 Implement Hi-yari-Halto | | | |
| 4. All the employees observe the procedures and the regulations | 4-1 Conduct to follow the attached documents in work permission 4-2 Conduct to follow the safety regulation for maintenance and the maintenance work procedure. 4-3 Conduct to follow the safety regulation for operation and operation manual | | | |
| 5. Recognition of unsafe conditions is improved | 5-1 Decrease unsafe conditions 5-2 Improve the present marks and identifications to prevent misunderstanding | | | |
| 6. The safety information is utilized in each section | 6-1 Improve safety information system 6-2 Hold morning meeting, TBM and turnover meeting. 6-3 Stimulate to present proposals on safety matter | | | |
| 7. Safety activity plan is implemented in each section | 7-1 Review of safety organization in each section 7-2 Conduct to make target and activity plan 7-3 Conduct to follow the activity plan | | | |

Plan of Operations (PO) for whole period (Ver-2)

| Out Put | Activities | Target (Breakdown of Activities) | Schedule | | | | | | | | | | | | | | | | In Charge | |
|--|--|---|--------------------------------------|---|---|----|-----|---|---|----|-----|---|---|----|-----|---|---|-----|-----------|-----------|
| | | | '06 | | | | '07 | | | | '08 | | | | '09 | | | | | In Charge |
| | | | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | | |
| 0 The organization and management system of the Project is established | 0-1 Allocate counterparts and administrative staff | 1. Allocate counterparts and administrative staff | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | PRJ | |
| | 0-2 Stipulate duties of function | 1. Stipulate duties of function | - | | | | | | | | | | | | | | | | PRJ | |
| | 0-3 Install the organization for the decision and the meeting | 1. Install the organization for the decision and the meeting | - | | | | | | | | | | | | | | | | PRJ | |
| | 0-4 Establish the progress control system of Project activities | 1. Establish the progress control system of Project activities | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | PRJ | |
| 1 Safety knowledge is acquired by all the employees | 1-1 Transfer necessary knowledge to counterparts | 1. Prepare the training material and review | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 2. Carry out the training | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 3. Instruct the field activities by OJT | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 4. Instruct future activities to counterparts | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | 1-2 Carry out training on safety technology including Japanese Safety method | 1. Prepare the training material and review | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 2. Carry out training on safety intensive course | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 3. Carry out training to the engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 4. Carry out training to all the workers including safety promoters | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | 1-3 Carry out training on process safety | 1. Prepare the training material and review | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 2. Carry out training to the engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 3. Carry out training to the workers including safety promoters | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | 1-4 Carry out training of maintenance safety | 1. Prepare the training material and review | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 2. Carry out training to the engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| | | 3. Carry out training to the workers including safety promoters | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | |
| 1-5 Carry out training of safety management | 1. Prepare the training material | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 2. Carry out training to managers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 3. Carry out training to engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| 1-6 Carry out training of safety advanced technology | 1. Prepare the training material | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 2. Carry out training to engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| 1-7 Carry out training on inspection technology for inspectors | 1. Prepare & purchase the equipment | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 2. Utilize the equipment by RIAMA | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | RIA | | |
| | 3. Maintenance and inspection management course | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 4. Non-destructive inspection technology course | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 5. Inspection technology for corrosion | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 6. Inspection technology for H-oil reactor | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 7. Special course for IT by CIBESI | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| 1-8 Carry out training on HAZOP and accident analysis | 1. Prepare the training material | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |
| | 2. Carry out training to engineers | [Gantt bar from 1/10/06 to 10/10/06] | | | | | | | | | | | | | | | | CES | | |

5/17

| Out Put | Activities | Target (Breakdown of Activities) | Schedule | | | | | | | | | | | | | | | | In Charge | | | | | | |
|---|--|--|--|---|---|----|----|---|---|----|----|---|---|----|----|---|---|----|-----------|----|---|---|----------|----------|-----|
| | | | 96 | | | | 97 | | | | 98 | | | | 99 | | | | | 00 | | | | | |
| | | | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | | 1 | 4 | 7 | 10 | | |
| | 1-9 Carry out training on maintenance safety technology | 1. Maintenance safety technology | | | | | | | | | | | | | | | | | | | | | | CES | |
| | 1-10 Improve existing safety training system and its contents | 1. Investigate the existing training system and its contents | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Review of the training system and contents | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Recommend the system and contents | | | | | | | | | | | | | | | | | | | | | | | CES |
| 2 Labor behavior is improved | 2-1 Carry out training on labor behavior | 4. Improve training system and contents | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 1. Prepare the training material | | | | | | | | | | | | | | | | | | | | | | | CES |
| | 2-2 Conduct to follow the refinery basic regulation | 2. Carry out training to all employees | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 1. Conduct to follow the basic regulation | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | 2-3 Implement 5S | 2. Patrol the site | 2. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | |
| 3. Introduce 5S to the site | | | | | | | | | | | | | | | | | | | | | | | | | RIA |
| 3. Consolidate 5S | | | | | | | | | | | | | | | | | | | | | | | | | RIA |
| 2-4 Evaluate the labor behavior | | 1. Evaluate the labor behavior | | | | | | | | | | | | | | | | | | | | | | | RIA |
| 3 All the employees take preventive measures by analyzing potential hazards at work | 3-1 Implement KYK | 1. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Introduce KYK to the site | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | | 3. Consolidate KYK | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | 3-2 Implement HAD (calling with a pointed finger) | 1. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Introduce HAD to the site | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | 3-3 Implement Hiyari-Hatto | 3. Consolidate HAD | | | | | | | | | | | | | | | | | | | | | | | RIA |
| 1. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| 2. Introduce Hiyari-Hatto to the site | | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| 4 All the employees observe the procedures and the regulations | 4-1 Conduct to follow the attached documents in work permission | 3. Consolidate Hiyari-Hatto | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 1. Investigate the work permission document | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Recommend on work permission document | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Prepare the additional documents | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | 4-2 Conduct to follow the safety regulation for maintenance and maintenance work procedure | 4. Conduct to use the document | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | | 1. Review items of the maintenance regulation, procedure and checklist | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Recommend on necessary documents | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Prepare the necessary documents | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | 4-3 Conduct to follow the safety regulation for operation and operation manual | 4. Conduct to use the documents | | | | | | | | | | | | | | | | | | | | | | | RIA |
| 1. Conduct to follow the safety regulation for operation | | | | | | | | | | | | | | | | | | | | | | | | CES, RIA | |
| 2. Conduct to follow the safety procedure for turnaround | | | | | | | | | | | | | | | | | | | | | | | | CES, RIA | |
| 3. Conduct to follow the operation checklist | | | | | | | | | | | | | | | | | | | | | | | | CES, RIA | |
| 4. Conduct to follow the basic operation manual | | | | | | | | | | | | | | | | | | | | | | | | CES, RIA | |
| | 5. Conduct to use safety pocket book | | | | | | | | | | | | | | | | | | | | | | CES, RIA | | |

| Out Put | Activities | Target (Breakdown of Activities) | Schedule | | | | | | | | | | | | | | | Change | | | | | | | | |
|--|---|---|--|--|---|---|----|----|---|---|----|---|----|---|----|---|---|--------|---|----|--|--|--|-----|-----|-----|
| | | | 96 | | | | | 97 | | | | | 98 | | | | | | | | | | | | | |
| | | | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | 7 | 10 | 1 | 4 | | 7 | 10 | | | | | | |
| 5 Recognition of unsafe conditions is improved | 5-1 Decrease unsafe conditions | 1. Fix the survey point | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Survey the field | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 3. Recommend how to improve unsafe condition | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 4. Carry out counter measure | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | 5-2 Improve the present marks and identifications to prevent misunderstanding | 1. Investigate the field and the existing standard | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Recommend how to improve | | | | | | | | | | | | | | | | | | | | | | | CES | |
| 6 The safety information is utilized in each section | 6-1 Improve safety information system | 1. Review information system | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Recommend information system | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 3. Improve safety information system | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | 6-2 Hold morning meeting, TBAI and turnover meeting | 1. Prepare the meeting procedure | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Introduce to the site | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 3. Consolidate | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | 6-3 Simulate to present proposals on safety matter | 1. Review the present proposal system | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Study proposal system | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 3. Introduce to the site | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 4. Implement the proposal system | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 7 Safety activity plan is implemented in each section | 7-1 Review safety organization in each section | 1. Recommend to review safety organization | | | | | | | | | | | | | | | | | | | | | | CES |
| | | | | 2. Allocate safety engineer and safety promoters in each section | | | | | | | | | | | | | | | | | | | | | | |
| 3. Clarify the duties and responsibilities of each concerned personnel in each section | | | | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | 7-2 Conduct to make safety target and activity plan | 1. Recommend how to make target | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | | 2. Make safety target and activity plan | | | | | | | | | | | | | | | | | | | | | | | RIA |
| | | 7-3 Conduct to follow the activity plan | 1. Implement of activity plan | | | | | | | | | | | | | | | | | | | | | | RIA | |
| | | | 2. Monitor the progress | | | | | | | | | | | | | | | | | | | | | | | RIA |

NOTE

RIA : Salamanca Refinery
 CES : Safety Training Center
 PRJ: Project

JE: Japanese Experts
 CA: Chief Advisor
 SA: Safety Administration
 PS: Process Safety
 MS: Maintenance Safety
 CP: Counterparts
 ALL: CES members

| | Activities | Target (Breakdown of activities) | Schedule | | | | | | | | | | | | | | | | | | | | | | | | in charge |
|-----|--|---|----------|------|-------|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|----|----|---------|-----------|
| | | | 00 | | | | | | | | | | | | 01 | | | | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| 0-1 | Allocate counterparts and administrative staff | 1. Allocate counterparts and administrative staff | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Project |
| 0-2 | Stipulate duties of function | 2. Stipulate duties of function | | Done | | | | | | | | | | | | | | | | | | | | | | Project | |
| 0-3 | Install the organization for the decision and the meeting | 3. Install the organization for the decision and the meeting | | Done | | | | | | | | | | | | | | | | | | | | | | Project | |
| 0-4 | Establish the progress control system of Project activities | 1. Recommend the progress control system | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Establish the progress control system |  |  | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | PROJECT | |
| | | 3. Function the control system | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | PROJECT |
| 1-1 | Transfer necessary knowledge to counterparts | 1. Prepare the training material and review | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Carry out the training | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 3. Instruct the field activities by OJT | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 4. Instruct future activities to counterparts | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| 1-2 | Carry out training on safety technology including Japanese Safety method | (1) Prepare the material | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (2) Instruct future activities | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 1. Prepare the training material and review | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Carry out training on safety intensive course | | Done | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Carry out training to the engineers | | Done | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 4. Carry out training to all the workers including safety promoters | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| 1-3 | Carry out training on process safety | (1) Phase -1 | | Done | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (2) Phase-2 | | Done | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (3) Phase-3 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | (4) Phase-4 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 1. Prepare the training material and review | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Carry out training to the engineers | | Done | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Carry out training to all the workers including safety promoters | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | (1) Phase -1 | | Done | | | | | | | | | | | | | | | | | | | | | | | CES |
| 1-4 | Carry out training of maintenance safety | (2) Phase-2 | | Done | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (3) Phase-3 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | (4) Phase-4 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 1. Prepare the training material and review | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Carry out training to the engineers | | Done | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 3. Carry out training to all the workers including safety promoters | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| 1-5 | Carry out training of safety management | (1) Phase -1 | | Done | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (2) Phase-2 | | Done | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (3) Phase-3 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | (4) Phase-4 | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 1. Prepare the training material | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| | | 2. Carry out training to managers | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES |
| 1-5 | Carry out training of safety management | (1) Training to top management personnel | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | (2) Training to Area manager and area chief | | | | | | | | | | | | | | | | | | | | | | | | | CES |

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| | Activities | Target (Breakdown of activities) | Schedule | | | | | | | | | | | | | | | | | | | | | | | | in charge | | |
|--------------------------------------|--|---|----------|---|-------|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|----|----|----|-----------|-------|-----|
| | | | 00 | | | | | | | | | | | | 01 | | | | | | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| 1-6 | Carry out training of safety advanced technology | 3. Carry out training to engineers | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 1. Prepare the training material | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | (1) Material for Safety common | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | (2) Material for process | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | (3) Material for maintenance | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | 2. Carry out training to the engineers | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| | | (1) Training to safety engineer | | | | | | | | | | | | | | | | | | | | | | | | | | | CES |
| (2) Training to process engineer | | | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| (3) Training to maintenance engineer | | | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| 1-7 | Carry out training on inspection technology for inspectors | 1. Prepare & purchase the equipment | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Utilize the equipment by RIAMA | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| | | 3. Maintenance and inspection management course | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 4. Non-destructive inspection technology course | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 5. Inspection technology for corrosion | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 6. Inspection technology for H-oil reactor | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 7. Special course for UT by CIDESI | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| 1-8 | Carry out training on HAZOP and accident analysis | 1. Prepare the training material | | | ... | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Carry out training to engineers |  |  | ..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CES | |
| 1-9 | Carry out training on maintenance safety technology | 1. Maintenance safety technology | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| 1-10 | Improve existing safety training system and its contents | 1. Investigate the existing training system and its contents | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 2. Review the training system and contents | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 3. Recommend training system and contents | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 4. Improve training system and contents | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 2-1 | Carry out training on labor behavior | 1. Prepare the training material and review | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Carry out training to the engineers | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | 3. Carry out training to all the workers including safety promoters | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (1) Phase-1 | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (2) Phase-2 | | | Done | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | (3) Phase-3 | | | | | | | | | | | | | | | | | | | | | | | | | | CES | |
| 2-2 | Conduct to follow the refinery basic regulation | 4) Phase-4 | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 1. Conduct to follow the basic regulation | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| | | (1) Clarify the basic regulation | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| | | (2) Notify the basic regulation to all employees | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| | | (3) Conduct to follow the basic regulation | | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 2-3 | Implement 5S | 2. Patrol the site | | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (1) Patrol the site | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (2) Make comment to RIAMA | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 1. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (1) Fix the way of introduction, consolidation and monitoring | | | | | | | | | | | | | | | | | | | | | | | | | CES | | |

| | Activities | Target (Breakdown of activities) | Schedule | | | | | | | | | | | | | | | | | | | | | | | | in charge |
|-----|--|--|--|------|---|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|----|---------|-------|--------------|
| | | | 00 | | | | | | | | | | | | 01 | | | | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| | | 2. Introduce SS to the site | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| | | 3. Consolidate SS | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 2-4 | Evaluate the labor behavior | 1. Evaluate the labor behavior | | | | | | | | | | | | | | | | | | | | | | | PROJECT | | |
| 3-1 | Implement KYK | 1. Prepare the instruction for site activities | | Done | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Introduce KYK to the site | | Done | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | 3. Consolidate KYK | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 3-2 | Implement HAD (Calling with a pointed finger) | 1. Prepare the instruction for site activities | | Done | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Introduce HAD to the site | | Done | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | 3. Consolidate HAD | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 3-3 | Implement Hiyari-Hatto | 1. Prepare the instruction for site activities | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Introduce Hiyari-Hatto to the site | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | 3. Consolidate Hiyari-Hatto | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | |
| 4-1 | Conduct to follow the attached documents in work permission | 1. Investigate the work permission document | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Recommend on work permission document | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (1) Fix the additional documents | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (2) Make sample documents | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 3. Prepare the revised and/or additional documents | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (1) Fix the contents | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (2) Prepare the documents | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | 4. Conduct to follow the document | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| 4-2 | Conduct to follow the safety regulation for maintenance and maintenance work procedure | 1. Review the items of the maintenance regulation, procedure and checklist | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 2. Recommend on necessary documents | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (1) Checklist | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (2) Technical know-how book | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | (3) Safety pocket book | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | | 3. Prepare the necessary documents | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (1) Check list | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (2) Technical know-how book | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | (3) Safety pocket book | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | | 4. Conduct to follow the documents | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| 4-3 | | Conduct to follow the safety regulation for operation and operation manual | 1. Conduct to follow the safety regulation for operation | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | | | (1) Investigate the actual regulation | | | | | | | | | | | | | | | | | | | | | | | CES | |
| | (2) Recommend how to review the manuals | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (3) Review the manuals | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (4) Conduct to follow the manuals | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |
| | 2. Conduct to follow the safety procedure for turnaround | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (1) Investigate the turnaround maintenance | | | Done | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (2) Recommend turnaround procedure | | | Done | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (3) Explain the recommendation | | | | | | | | | | | | | | | | | | | | | | | | CES | | |
| | (4) Review the turnaround procedure | | | | | | | | | | | | | | | | | | | | | | | | RIAMA | | |

| | Activities | Target (Breakdown of activities) | Schedule | | | | | | | | | | | | | | | | | | | | | | | | in charge |
|-----|---|--|--------------|---|---|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|----|---|----|-----------|
| | | | 00 | | | | | | | | | | | | 01 | | | | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| | | (5) Conduct to follow the procedure 3. Conduct to follow the operation checklist (1) Investigate the present checklist (U-7,8,3B,6) (2) Prepare the example of checklist (Unit operation, oil movement, others) (3) Prepare the checklist in each plant (4) Conduct to follow the checklist 4. Conduct to follow the basic operation manual (1) Investigate operation manual in each plant (2) Prepare the example of basic manual (3) Prepare the manual (4) Conduct to follow the manual 5. Conduct to use safety pocket book (1) Make a plan of safety pocket book (2) Prepare the safety pocket book (3) Conduct to follow the pocket book | | | | | | | | | | | | | | | | | | | | | | | RIAMA CES CES RIAMA RIAMA CES CES RIAMA RIAMA CES RIAMA RIAMA CES RIAMA RIAMA | | |
| 5-1 | Decrease unsafe conditions | 1. Fix the survey point 2. Survey the field 3. Recommend how to improve unsafe condition 4. Carry out counter measure (1) Make plan to improve (2) Carry out counter measure | Done Done | | | | | | | | | | | | | | | | | | | | | | RIAMA CES CES CES RIAMA RIAMA | | |
| 5-2 | Improve the present marks and identifications to prevent misunderstanding | 1. Investigate the field and the existing standard (1) Survey the existing standard (2) Survey the field (3) Fix the content 2. Recommend how to improve 3. Improve the marks and identifications | | | | | | | | | | | | | | | | | | | | | | | CES CES CES CES RIAMA | | |
| 6-1 | Improve safety information system | 1. Review information system (1) Investigate present information system (2) Study information system for improvement * Contents of necessary information * Information root * Way of notify * The sender and receiver 2. Recommend information system 3. Improve safety information system | | | | | | | | | | | | | | | | | | | | | | | CES CES CES CES RIAMA RIAMA | | |
| 6-2 | Hold morning meeting, TBM and turnover | 1. Prepare the meeting procedure 2. Introduce to the site 3. Consolidate | Done Done | | | | | | | | | | | | | | | | | | | | | | RIAMA CES RIAMA RIAMA | | |

SFO

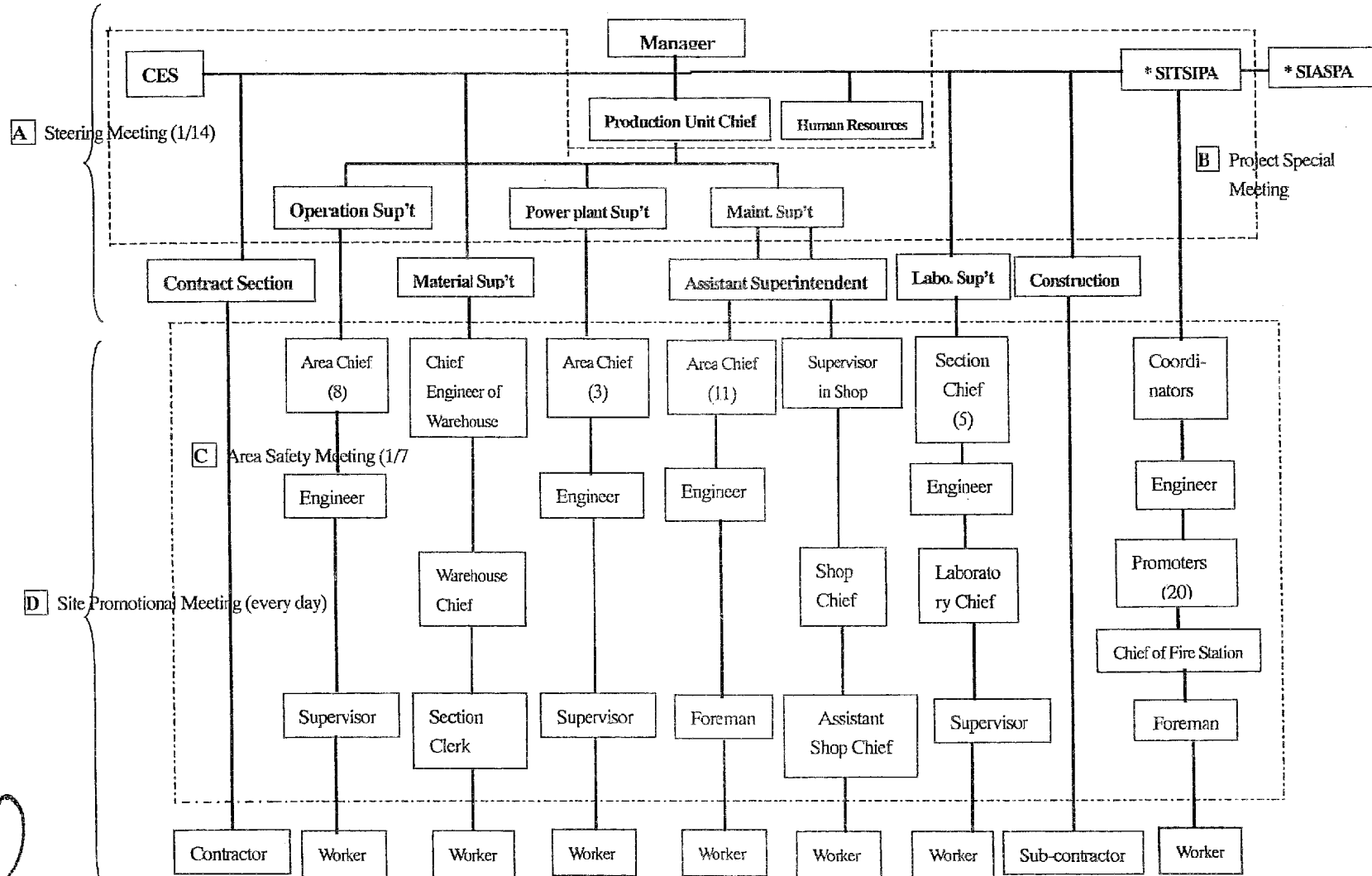
| | Activities | Target (Breakdown of activities) | Schedule | | | | | | | | | | | | | | | | | | | | | | | | in charge | | | | | | | | | | | | |
|-----|---|--|----------|---|---|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|----|----|----|-----------|---|---|---|---|---|---|---|----|----|----|------------------------------|----------------------------------|
| | | | 00 | | | | | | | | | | | | 01 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | | | | | |
| 6-3 | Stimulate to present proposals on safety matter | 1. Review of the present proposal system 2. Study proposal system 3. Introduce to the site 4. Implement the proposal system | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | CES CES RIAMA RIAMA | |
| 7-1 | Review of safety organization in each section | 1. Recommend to review safety organization 2. Allocate safety engineer and safety promoters in each section 3. Clarify the duties and responsibilities of each concerned personnel in each section (1) Recommend the duties and responsibilities (2) Clarify the duties and responsibilities | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | CES RIAMA CES RIAMA |
| 7-2 | Conduct to make safety target and activity plan | 1. Recommend how to make target (1) Investigate present activity plan in RIAMA (2) Recommend how to make target and activity plan 2. Make safety target and activity plan | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | CES CES RIAMA RIAMA |
| 7-3 | Conduct to follow the activity plan | 1. Implement of activity plan 2. Monitor the progress (1) Monitor the progress (2) Evaluate the progress | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | RIAMA RIAMA RIAMA RIAMA |

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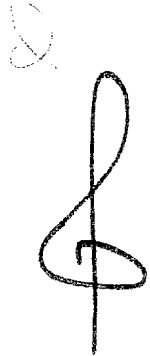
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SAFETY PROMOTIONAL ORGANIZATION IN RIAMA



(Note) SITSIPA: Superintendence of Inspection Technique, Industrial Safety and Environmental Protection
 SIASPA: Integral System of Administration of Safety and Environmental Protection



SITSIPA

Functions of Steering Meeting

Mar. 2000

1. The Person in charge (Members)

- (1) Project manager (RIAMA manager)
- (2) Project manager assistant (SITSIPA superintendent)
- (3) CES (Japanese Experts, Chief of CES and counterparts)
- (4) Production unit chief
- (5) Human resources unit chief
- (6) Operation superintendent
- (7) Maintenance superintendent
- (8) Power plant superintendent
- (9) Training department chief
- (10) SIASPA
- (11) SITSIPA
- (12) Others (if necessary)

2. Scope of Function

- (1) Settlement of Organization and/or System to promote the CES Project
- (2) Study and discussion of RIAMA safety administration program
- (3) Decision of action plan of the program
- (4) Decision of responsible person to the CES recommendation
- (5) Notification of action plan to all the employees
- (6) Monitoring and Evaluation of the progress of the field activities
- (7) Promote the safety activities through line organization
- (8) Study and decision of improvement plan for the program

The image shows three handwritten signatures or initials in black ink. The first is a large, stylized signature on the left. The second is a smaller, more compact signature in the middle. The third is a signature on the right that includes the letters 'YX' above a larger mark.

Project Monitoring Control

The following is the monitoring and evaluation sheet of the project purpose.

In accordance with the six (6) items and the results of monitoring of each project output, actual situation and improved contents would be described.

Project purpose: Safety level of Salamanca refinery is improved

Date:

| Item | Evaluation point | Actual situation |
|--|---|------------------|
| 1. Safety attitude of top management personnel | 1. Safety attitude of top management personnel 2. Safety policy in refinery 3. Others | |
| 2. Safety organization | 1. Establishment of organization, duties and responsibilities 2. Function of organization 3. Others | |
| 3. Safety regulation | 1. Safety regulation system 2. Preparation of safety regulation 3. Others | |
| 4. Safety education | 1. Safety education system 2. Education 3. Others | |
| 5. Japanese safety method and safety consciousness | 1. Enforcement of daily safety activity 2. Observation of safety regulation 3. Observation of work procedure and manual 4. Safety meeting 5. Others | |
| 6. Facilities | 1. Improvement of facilities or unsafe condition 2. Others | |
| 7. For reference | 1. Total number of accident is decreased 2. Injury frequency rate is decreased 3. Injury severity rate is decreased | |

Project Output Monitoring

Verification of each output would be carried out every 6 months by RIAMA and CES.

| Output | Indicators | Means of verification | Actual (%) | Actual situation of output |
|--|--|-----------------------------------|------------|----------------------------|
| 1 Safety knowledge is acquired by all the employee | (1) Completion ratio of training to counterparts is 100% | Training record of CES | | |
| | (2) Attendant ratio of training on safety technology course is over 90% | Training record of CES | | |
| | (3) Attendant ratio of training on process safety course is over 90% | Training record of CES | | |
| | (4) Attendant ratio of training on maintenance safety course is over 90% | Training record of CES | | |
| | (5) Attendant ratio of safety management is over 90% | Training record of CES | | |
| | (6) Attendant ratio of safety advanced course is over 90% | Training record of CES | | |
| | (7) Attendant ratio of education on inspection is over 90% | Training record of CES | | |
| | (8) Attendant ratio of education on HAZOP and accident analysis is over 90% | Training record of CES | | |
| | (9) Test passing ratio after training to all employee is over 80% | Result of achievement on training | | |
| | (10) Qualified inspectors ratio of certification of ASNT level-2 is over 60% | List of certification | | |
| 2 Labor behavior is improved | (1) Attendant ratio of training on labor behavior is over 90% | Training record of CES | | |
| | (2) Using ratio of helmet and chinstrap is over 80% | Patrol | | |
| | (3) 5S implementation ratio is over 80% | Patrol and audit report | | |
| | (4) Labor behavior is improved | Evaluation report | ---- | |
| | | | --- | |

Site

| Output | Indicators | Means of verification | Actual (%) | Actual situation of output |
|---|---|-------------------------------|------------|----------------------------|
| 3 All the employees take preventive measures by analyzing potential hazards at work | (1) KYK implementation ratio is over 80% (vs. No. of areas and workshop) | Field survey and audit report | | |
| | (2) HAD implementation ratio is over 80% (vs. No. of areas and workshop) | Field survey and audit report | | |
| | (3) No. of Hiyan-Hatto reported by employees increase every year (one per person in 2001) | Field survey and audit report | | |
| | (4) Others | | ---- | |
| 4 All the employees observe the procedures and the regulations | (1) Using ratio of the attached document of work permission is over 80% (vs. No. of areas and workshop) | Patrol | | |
| | (2) Using ratio of checklist is over 80% (vs. No. of areas and workshop) | Patrol | | |
| | (3) Others | | ---- | |
| 5 Recognition of unsafe condition is improved | (1) The number of unsafe condition is decreased | Survey report | ---- | |
| | (2) Marks and identifications to prevent misunderstanding are improved | Survey report | ---- | |
| | (3) Others | | ---- | |
| 6 Safety information is utilized in each section | (1) Holding ratio of meeting in each section is over 80% | Meeting report | | |
| | (2) Proposals are presented by workers | Report of proposals | ---- | |
| | (3) Others | | ---- | |
| 7 Safety activity plan is implemented in each section | (1) Issuing ratio of safety activity plan is over 80% | Safety activity plan | | |
| | (2) Issuing ratio of execution report is over 80% | Execution report and audit | | |
| | (3) Others | | ---- | |

Project Activity Monitoring

Verification would be carried out every month by RIAMA and CES.

Output 1. Safety knowledge is acquired by all the employees

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Transfer necessary knowledge to counterparts | | |
| Carryout training to counterparts by OJT | | |
| Carryout training on safety technology including Japanese safety method (To all the employees) | | |
| Carryout training on process safety (To all the employees) | | |
| Carryout training on maintenance safety (To all the employees) | | |
| Carryout training on safety advanced technology (To engineers) | | |
| Carryout training on inspection technology to inspectors | | |
| Carryout training on HAZOP and accident analysis (To engineers) | | |
| Carryout training on maintenance safety technology | | |
| Improve existing safety training system and its contents | | |

Output 2. Labor behavior is improved

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Carryout training on labor behavior | | |
| Conduct to follow the refinery basic regulation (1) Basic regulation is notified to all the employees (2) Conduct to follow the basic regulation | | |
| Implement 5S (1) Prepare the instruction for site activities (2) Introduce 5S to the site (3) Each area carry out 5S in accordance with their own activity plan | | |
| Evaluate the labor behavior | | |

1

Output 3. All the employees take preventive measures by analyzing potential hazards at work

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Implement KYK (1) Recommend how to carry out KYK (2) Advice and recommend for site activity (3) KYK is introduced to all the work place (4) Establish and implement activity plan for consolidation (5) Consolidate KYK | | |
| Implement HAD (1) Recommend how to carry out HAD (2) Advice and recommend for site activity (3) HAD is introduced to all the work place; (4) Establish and implement activity plan for consolidation (5) Consolidate HAD | | |
| Implement Hiyari-Hatto (1) Recommend how to carry out Hiyari-Hatto (2) Advice and recommend for site activity (3) Hiyari-Hatto is introduced to all the work place (4) Establish and implement activity plan for consolidation (5) Consolidate Hiyari-Hatto | | |

Output 4. All the employees observe the procedures and regulations

| Activities (Target) | Achievement (%) | Actual situation |
|---|-----------------|------------------|
| Conduct to follow the attached documents in work permission (1) Investigate and review present work permission documents (2) Recommend on work permission documents (3) Prepare the additional document (4) Conduct to use the document | | |
| Conduct to follow the safety regulation for maintenance and maintenance work procedure (1) Review items of the maintenance regulation, procedure and checklist (2) Recommend the necessary documents (3) Prepare the necessary documents (4) Conduct to use the documents | | |
| Conduct to follow the safety regulation for operation and operation manual (1) Conduct to follow the safety regulation for operation (2) Conduct to follow the safety procedure for turnaround (3) Conduct to follow the operation checklist (4) Conduct to follow the basic operation manual (5) Conduct to use the pocket book | | |

Project Activity Monitoring

Output 5. Recognition of unsafe condition is improved

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Decrease unsafe condition (1) Survey the unsafe condition (2) Recommend how to improve (3) RIAMA carryout countermeasures | | |
| Improve the present marks and identifications to prevent misunderstanding (1) Investigate the field and existing standards (2) Recommend how to improve (3) RIAMA improve the marks and identifications | | |

Output 6. The safety information is utilized in each section

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Improve safety information system (1) Investigate and review present information system (2) Recommend information system (3) Improve safety information system | | |
| Hold morning meeting, TBM and turnover meeting (1) Prepare the meeting procedure (2) Introduce the site (3) Consolidate | | |
| Stimulate to present proposals on safety matter (1) Review the present proposal system (2) Study the proposal system (3) Introduce to the site (4) Implement the proposal system | | |

Output 7. Safety activity plan is implemented in each section

| Activities (Target) | Achievement (%) | Actual situation |
|--|-----------------|------------------|
| Review safety organization system (1) Recommend to review safety organization (2) Allocate safety engineer and safety promoters in each section (3) Clarify the duties and responsibilities of each concerned personnel in each section | | |
| Conduct to make safety target and activity plan (1) Recommend how to make activity plan (2) Make safety target and activity plan | | |
| Conduct to follow the activity plan (1) Implement activity plan (2) Monitor the progress | | |

ANNEX 7

Countermeasure to the recommendation at the "Joint Coordinating Committee" (Refer to Minute of Discussions (M/D))

Mar. 2000

| Recommendation in M/D | Countermeasures |
|---|--|
| 1. Necessary to consider the detailed and specific means of verification on Output 2 (Labor behavior is improved) (Page-1 in M/D) | (1) A short-term expert will be dispatched to evaluate the actual "Labor behavior" and will have a seminar "How to evaluate the labor behavior". (2) In the future, in accordance with the recommendation by him, RIAMA and the project team will carryout monitoring and evaluation. |
| 2. To be revised the PO based on the progress and recommendation of the Joint Evaluation Report (Page-1 in M/D) | (1) PO and APO was revised and approved at the Joint Coordination Committee held on March 2000. |
| 3. Periodical monitoring is needed based on PO and APO (Page-1 in M/D) | (1) An activity is added in Output-0 as "Establish the progress control system of Project activities" (2) RIAMA and CES agreed to monitor in accordance with a monitoring sheet. |
| 4. The "Steering Committee" bears responsibility for promoting field activities and monitoring its progress. (Page-1 in M/D) | (1) The members and the function of steering committee have been established. (2) Committee is held every two weeks. |
| 5. In order to sustain the achievement of the Project in RIAMA after the Project ends, establishment of safety management system (especially, managerial personnel are well functioned) is indispensable. (Page-8 in Appendix 1) | (1) RIAMA has established the promotional safety organization and promised to fulfil the function of organization and the responsibilities of each concerned personnel. (2) RIAMA is going to establish a reporting system from each concerned personnel. |
| 6. In order to implement activities by themselves (C/Ps) after the Project ends, techniques for effective instruction need to be transferred within 2 years. (Page-8 in Appendix 1) | (1) Japanese experts prepared instruction sheets for field activities and pay further effort to transfer the techniques trough On the Job Training (OJT) of field activities. |
| 7. Insufficient understanding and cooperation of middle managerial personnel is the obstacle for implementing Japanese method at work. Hereafter, it is very important to make approaches to these middle management personnel. (Page-9 in Appendix 1) | (1) CES has started a training course to middle management personnel including engineers. (2) Training in Japan for some management personnel is scheduled (3) RIAMA is establishing a countermeasure. |
| 8. Moreover, because more time and activities are necessary to proceed field activities than that expected when the Project started, sufficient and adequate input needed to be timely implemented. (Page-9 in Appendix 1) | (1) RIAMA allocated some 250 safety promoters and further 20 safety promoters, and nominated engineers in line organization. (2) JICA is scheduling to send 2-3 short-term experts and to receive 7 counterparts for training in Japan in Japanese fiscal year 2000. |
| 9. To establish the project monitoring system. (Page-9 in Appendix 1) | (1) As same as Item-4 above. |
| 10. To clarify the responsible person for corresponding to the recommends by CES. (Page-9 in Appendix 1) | (1) When CES issue recommendations, the responsible person will be nominated to each activity at the steering meeting. |
| 11. Not to transfer C/P to other sections, as it would retarded technical transfer from Japanese experts. (Page-9 in Appendix 1) | (1) RIAMA has recognized. |

