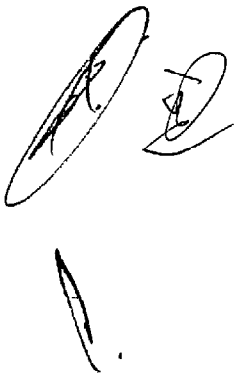


### 3. 添付資料 (ANNEXES)

#### List of Annexes

Annex 1	Project Design Matrix (PDMe) for Evaluation
Annex 2	Chronological Review of the Project
Annex 3	Tentative Schedule of Implementation (TSI)
Annex 4	Plan of Operations (PO)
Annex 5	Record of Results of Round Robin Test in Japan
Annex 6	Technical Cooperation Program (TCP)
Annex 7	Number of Clients Requesting Technical Services Repeatedly
Annex 8	Organization Chart of CIDESI
Annex 9	Allocation of Counterpart Personnel and Other Staff
Annex 10	List of the Dispatched Japanese Experts
Annex 11	Recent Annual Budget of CIDESI
Annex 12	Plan of Appropriation of Local Cost for the Project (from 1997 to 2001)
Annex 13-1	Achievement of Technology Transfer Items Initially Defined in TCP
Annex 13-2	Achievement of Consulting Technology Transfer Items
Annex 14	Machinery and Equipment Provided by the Japanese Side
Annex 15	Machinery and Equipment Provided by Mexican Side
Annex 16	List of the Mexican Counterpart Personnel Trained in Japan
Annex 17	Number of Committees and Meetings
Annex 18	Manuals Prepared for Operation & Maintenance of Machinery and Equipment
Annex 19	Maintenance and Calibration Program
Annex 20	Number of Qualified C/P at CIDESI
Annex 21-1	Record of Seminars and Training Courses Organized at CIDESI
Annex 21-2	Record of Seminars and Training Courses under the Joint Auspices of Educational and Governmental Organizations
Annex 22	Record of Entrusted Test Conducted by CIDESI
Annex 23	Record of Extension Services of Material Test/Non Destructive Test
Annex 24	Result of Survey to Clients
Annex 25	Number of Technical Services Acquired by C/P
Annex 26	Record of Training Courses for C/P
Annex 27	List of Curricula and Teaching Materials for Seminars and Training Courses
Annex 28	Information on Standards & etc. Available at CIDESI
Annex 29	Record of Promotional Activities of the Project
Annex 30	Annual Income of Material Technology Department from 1998 to September, 2001
Annex 31	List of Japanese Study Teams Dispatched by JICA
Annex 32	Expenses by the Japanese Side
Annex 33	Spare Parts List and Suppliers List

Annex 1  
Project Design Matrix (PDMe)  
for Evaluation



**Annex 1 Project Design Matrix (PDM) for Evaluation**

**Project Name: Project on Engineering and Industrial Development Center for Small and Medium Scale Industries at Queretaro State in the United Mexican States.**

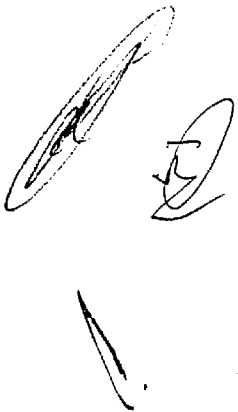
Duration: February 1, 1998 - January 31, 2002  
 Preparation of PDM: Joint Evaluation Team  
 Mexican Side Implementing Agency: Centro de Ingeniería y Desarrollo Industrial (CIDESI),  
 Secretaría de Educación Pública, Consejo Nacional de Ciencia Tecnología (SEP-CONACYT)  
 Japanese Side Implementing Agency: Japan International Cooperation Agency (JICA)  
 Target Area: Queretaro State and Surrounding Areas  
 Target Group: Small and Medium Scale Industries in and around Queretaro State

10 Dec. 2001

Narrative Summary	Objectively Verifiable Indicators	Means of Verifications	Important Assumptions
<p><b>Overall Goal</b></p> <p>CIDESI and other institutes will be able to provide appropriate technical service in the field of Material Test and Non Destructive Test for small and medium scale industries (SME) in the United Mexican States.</p>	<ol style="list-style-type: none"> <li>The number of entrusted tests, extension service, and information service at respective institutes increases.</li> <li>The number of participants in seminars and training courses at respective institutes increases.</li> <li>The number of qualified personnel at respective institutes as well as in related industries increases.</li> <li>The number of products improved by technical support of respective institutes increases (The production ratio of inferior goods decreases).</li> </ol>	<ol style="list-style-type: none"> <li>Annual report of respective institutes, questionnaire to and interview with industries concerned.</li> <li>Report of seminars and training courses of respective institutes, questionnaire to and interview with participants.</li> <li>Personnel record of respective institutes, questionnaire to and interview with industries concerned.</li> <li>Report of respective institutes, questionnaire to and interview with industries concerned.</li> </ol>	<ol style="list-style-type: none"> <li>Personnel trained in the Project will remain at their respective organizations.</li> <li>Old machinery and equipment in the said industries will be replaced or refurbished.</li> </ol>
<p><b>Project Purpose</b></p> <p>CIDESI will be able to provide appropriate technical service in the field of Material Test and Non Destructive Test for SME in and around Queretaro State.</p>	<ol style="list-style-type: none"> <li>The high level of satisfaction of SME is achieved.</li> <li>The number of technical services and their range for SME increase.</li> <li>The clients that repeatedly request technical services appear.</li> </ol>	<ol style="list-style-type: none"> <li>Questionnaires to and interview with industries concerned and other beneficiaries.</li> <li>Project record.</li> <li>Project record (factory monitor sheet), questionnaire to and interview with industries concerned.</li> </ol>	<ol style="list-style-type: none"> <li>Positive participation to related activities of the Project by the Mexican industrial, governmental, and academic authorities concerned is assured.</li> </ol>
<p><b>Outputs</b></p> <p>0. The management system of the Project will be enhanced.</p> <p>1. Machinery and equipment necessary to implement testing service in the field of Material Test and Non Destructive Test will be provided, installed, operated and maintained properly.</p> <p>2. The technical capability of the counterpart personnel (C/P) will be upgraded in the said field.</p> <p>3. Seminars and training courses in the said field that meet the needs of SME in and around Queretaro State will be established and managed.</p> <p>4. The technical support towards SME will be systematized.</p>	<ol style="list-style-type: none"> <li>C/P are allocated as planned.</li> <li>Authority and responsibility structure within the Project is clarified.</li> <li>Budget is adequately allocated.</li> <li>Management capacity of administrative C/P improves.</li> <li>Committees and management meetings are held at an appropriate pace.</li> <li>The number of public relations on the Project increases.</li> <li>The type and quantity of machinery and equipment provided are appropriate.</li> <li>Machinery and equipment provided are appropriately operated.</li> <li>Machinery and equipment provided are inspected and repaired as necessary.</li> <li>Spare parts are appropriately procured.</li> <li>Information necessary for the operation and maintenance of machinery and equipment is accumulated within CIDESI.</li> <li>Each C/P improves his own skills of technology transfer items.</li> <li>The number of technical services that each C/P can offer increases.</li> <li>Original curricula, manuals and instruction materials are developed.</li> <li>The number of qualified C/P increases.</li> <li>The number of related seminars and training courses increases.</li> <li>Related technical information is accumulated at CIDESI.</li> <li>The quantity and quality of entrusted test, extension service and information service satisfy the needs of the target group.</li> <li>Public relations on the technical services of the Project is promoted.</li> </ol>	<ol style="list-style-type: none"> <li>Organization chart of CIDESI, allocation record of C/P</li> <li>Document that explains responsibility structure,</li> <li>Accounting record</li> <li>Interview and questionnaire to administrative C/P</li> <li>Record of committees and management meetings</li> <li>Record of public relations of the Project</li> <li>List of machinery and equipment, interview with experts</li> <li>Maintenance record of machinery and equipment</li> <li>Maintenance record of machinery and equipment</li> <li>Spare parts list, suppliers list</li> <li>Related manuals, interview with C/P</li> <li>Evaluation on the achievement level of technology transfer items, results of questionnaire to clients and round roving icsa</li> <li>Project record</li> <li>List of curricula, manuals, and instruction materials</li> <li>Personnel record, record of qualification acquired</li> <li>Record of seminars and training courses of CIDESI</li> <li>List of technical information available at CIDESI</li> <li>Result of questionnaire to clients and project record</li> <li>List of brochure, periodical and Web Pages</li> </ol>	<ol style="list-style-type: none"> <li>The C/P who received technical transfer from the Japanese experts will remain at CIDESI.</li> <li>Industrial sector is co-operative for the activities of the Project such as extension service, information service, seminars and training courses organized by CIDESI.</li> </ol>



Annex 2  
Chronological Review of the Project


Handwritten scribbles and marks in the bottom left corner, including a large oval, a smaller circle, and a vertical line.

## Annex-2 Chronological Review of the Project

Year	Month/Date	Items
1995	July	The Government of the United Mexican States submitted a request for a project-type technical cooperation to the Government of Japan.
1997	Feb.	Dispatch of the Japanese Preliminary Survey Team
	Jul.	Dispatch of the Japanese Supplementary Study Team
	Nov.	Dispatch of the Japanese Implementation Study Team
	Nov. 17	Sign of the Record of Discussions (R/D)
	Dec.	Dispatch of the Equipment Planning Team
1998	Jan.	First training of two (2) Mexican counterpart personnel in Japan
	Feb. 01	Start of the Term of the Cooperation
	Feb. 19	Dispatch of two (2) long-term experts (Chief Adviser and Coordinator)
	Feb.	Completion of necessary renovation works by CIDESI
	Mar.	Provision of machinery, equipment and materials completed by Japanese side (Japanese fiscal year 1997)
		Dispatch of two (2) long-term experts (Mechanical test/Metallography and Chemical Analysis)
	Apr.	Allocation of C/P completed
		Dispatch of one (1) long-term expert (Non Destructive Test)
	Jun.	Completion of installation of machinery and equipment required for the Project
	Jul.	Dispatch of one (1) short-term expert (Operation of Scanning Electron Microscope and Fractography)
	Sep. 21	Project Opening Ceremony (Equipment Handing Over Ceremony) held
	Sep. 22	Project Opening Ceremony Commemorative Seminar held
	Sep.	Dispatch of one (1) short-term expert (Lecturer for the Commemorative Seminar)
	Oct.	Dispatch of the Japanese Management Consultation Team
	Oct. 19	First Joint Coordinating Committee held
	Nov. 17	First Project Day (R/D signing commemorative day) celebrated
	Nov.	Training of three (3) Mexican counterpart personnel in Japan
1999	Jan.	Dispatch of one (1) short-term expert (Universal Testing Machine)
	Feb.	Dispatch of one (1) short-term expert (Wet Chemical Analysis)
	Apr.	2nd Joint Coordinating Committee held

	May	1st training course for Small and Medium Scale industries organized
	Aug.	Dispatch of three (3) short-term experts (Scanning Electron microscope, Eddy Current and Welding Procedure Control)
	Sep.	Dispatch of one (1) short-term expert (Wet Method Chemical Analysis)
	Oct.	Training of three (3) Mexican counterpart personnel in Japan
	Nov.	3rd Joint Coordinating Committee held
		1st Project Supporting Committee held
		2nd Project Day celebrated
2000	Jan.	Dispatch of the Japanese Advisory Team
		Dispatch of one (1) long-term expert (Chief advisor)
		4th Joint Coordinating Committee held
	Feb.	2nd Project Supporting Committee held
	May	Dispatch of one (1) long-term expert (Mechanical test/Metallography)
		Dispatch of one (1) short-term expert (Self regulation rule for LPG tank)
	June	Dispatch of one (1) short-term expert (Fluorescence X-ray spectroscopic analysis) and one (1) short-term expert (Eddy Current Test)
	Aug.	Dispatch of one (1) short-term expert (Fracture Mechanics)
	Sep.	Training of three (3) Mexican counterpart personnel in Japan
	Oct.	5 <sup>th</sup> Joint Coordinating Committee held
	Nov.	3 <sup>rd</sup> Project Day celebrated
2001	Jan.	Dispatch of one (1) short-term expert (Press Forming/ Press Machinery)
		3 <sup>rd</sup> Project Supporting Committee held
	Feb.	Dispatch of one (1) short-term expert (Application of Welding)
	Mar.	Dispatch of one (1) short-term expert (Self regulation rule for LPG tank)
		6 <sup>th</sup> Joint Coordinating Committee held
	June	Dispatch of one (1) short-term expert (Corrosion)
	July	Dispatch of two (2) short-term experts (Press Machine/Calculation of Press Forming Center and Advanced Technology of Fractography)
	August	Dispatch of two (2) short-term experts (Press Die Assembly Techniques and Production Management)
	Sep.	Dispatch of one (1) short-term expert (Metallic Material Forming <Lecturer For the International Seminar>)
	Oct.	The Joint JICA-CIDESI Internal Seminar held
	Nov.	4 <sup>th</sup> Project Day celebrated

Annex 3  
Tentative Schedule of Implementation  
(TSI)

Handwritten scribbles and marks, including a large oval, a smaller scribble, and a vertical line.



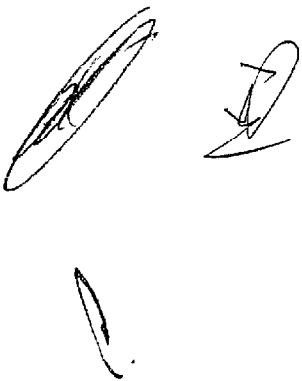
Annex 3 Tentative Schedule of Implementation (TSI)

Mexican Fiscal Year	1997				1998				1999				2000				2001			
Japanese Fiscal Year	96		1997		1998		1999		2000		2001		2001		2001		2001			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV		
Term of Technical Cooperation																				
The Japanese side																				
I Dispatch of Mission																				
(1) Preliminary Study	-																			
(2) Supplementary Study		-																		
(3) Implementation Study			-																	
(4) Management Consultation					-	-														
(5) Advisory																				
(6) Evaluation																			-	
II Dispatch of Long-Term Experts																				
(1) Chief Advisor																				
(2) Coordinator																				
(3) Mechanical Test & Metallography																				
(4) Chemical Analysis																				
(5) Non Destructive Test																				
III Dispatch of Short-Term Experts																				
IV Training of C/P in Japan																				
V Provision of Machinery and Equipment																				
The Mexican side																				
I Building and Facilities																				
II Machinery and Equipment																				
III Allocation of C/P Personnel and Necessary Staff																				
IV Allocation of Budget																				

NOTE:

- 1 The Japanese fiscal year starts in April and ends in March.
- 2 The original terms of the services of the respective long term experts are shown by the solid line.

Annex 4  
Plan of Operations (PO)

Handwritten scribbles and marks, including a large oval, a smaller scribble, and a vertical line.

Annex 4 Plan of Operations (PO)

Mexican Fiscal Year	1997				1998				1999				2000				2001			
Japanese Fiscal Year	96		1997		1998		1999		2000		2001		2001		2001		2001			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV		
Terms of Technical Cooperation																				
0 Enhancement of Management System of the Project																				
0-1 Allocate the staff as planned																				
0-2 Formulate plans of activities																				
0-3 Make budget plan with appropriate expenditures																				
1 Provision, installation, operation and maintenance of the machinery and equipment (M&E)																				
1-1 Provision and installation of the necessary M&E																				
1-2 Make plan of operation and maintenance of the M&E																				
1-3 Proper operation and regular maintenance of the M&E																				
2 Upgrading the technical capability of the counterpart personnel (C/P)																				
2-1 Evaluation of the technical capability of the C/P through OJT																				
2-2 Evaluation of the technical capabilities and needs of the small/medium scale industries in and around Queretaro																				
2-3 Make plan of technology transfer to the C/P																				
2-4 Make curricula of technology transfer to the C/P																				
2-5 Implementation of the technology transfer to the C/P (For detail, refer to TCP)																				
3 Establishment and holding seminars and training courses																				
3-1 Evaluation of the technical capabilities and needs of the small/medium scale industries in and around Queretaro																				
3-2 Make curricula of seminars and training courses																				
3-3 Prepare and compile materials and textbooks for seminars and training courses																				
3-4 Prepare/Implement/Evaluate seminars and training courses																				

▼Signing of R/D (Nov. 17)

▲Commencement (Feb. 1)

(Reviewed during the cooperation period)

Note:

- 1 The Japanese fiscal year starts in April and ends in March.
- 2 This schedule is subject to change in accordance with the progress of the Project.

Annex 4 Plan of Operations (PO)

Mexican Fiscal Year	1997				1998				1999				2000				2001			
Japanese Fiscal Year	96		1997		1998		1999		2000		2001		2001		2001		2001			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV		
Term of Technical Cooperation																				
4 Systematization of technical support towards the small/medium scale industries																				
4-1 Accumulate and pigeonhole information on standards & etc																				
4-2 Evaluate the technical capabilities and needs of the small/medium scale industries in and around Queretaro																				
4-3 Provide test service and technical guidance to the said industries at CIDESI and through extension service																				
4-4 Disseminate updated information through seminars, brochure & periodical (Information service)																				

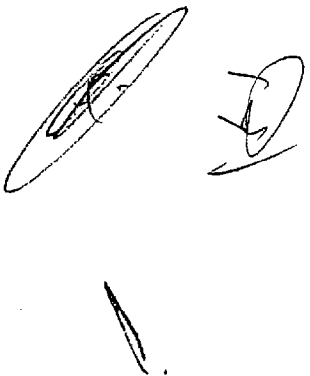
▼Signing of R/D (Nov. 17)

▲Commencement (Feb. 1)

Note:

- 1 The Japanese fiscal year starts in April and ends in March.
- 2 This schedule is subject to change in accordance with the progress of the Project.

Annex 5  
Record of Results of Round Robin Test  
in Japan



## ANNEX 5

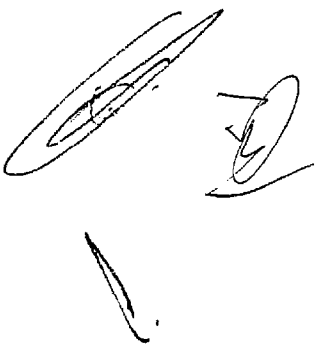
Results of round-robin Test  
(Table of Mechanical Testing Results)

Testing Item		Test Piece A19	Test Piece B19	Test Piece A76	Test Piece B76	Test Piece A805	Test Piece B805	Test Piece A809	Test Piece B809	Remarks
Dimension of Test Specimen	Width of Parallel Portion (Diameter of Parallel Portion)	25.09	25.08	25.15	25.14	13.98	13.99	13.99	14.00	
	Thickness of Parallel Portion (mm)	5.77	5.73	5.87	5.66					
	Original Area (mm <sup>2</sup> )	144.77	143.71	142.63	142.29	153.50	153.72	153.72	153.94	
Proof Stress by Offset (MPa)		398	326	383	324 *1	377	429	330 *2	420 *2	* Extensometer was slipped on mill scale.
Upper Yield Point (MPa)		400	336	391	358	425	476	393	459	
Tensile Strength (MPa)		545	453	543	463	508	680	508	679	
Elongation (%)		37 A	41 A	38 A	39 A	37 A	24 B	35 A	29 A	* When broken position is B, elongation is smaller than broken position A.
Loading Speed	Stress Rate (MPa/s)	17	19	17	17	16	16	17	17	
	Strain Rate (%/min)	33	33	33	33	33	33	33	33	
Remarks		CIDESI Plate Specimen	CIDESI Same as Left	KHK Same as Left	KHK Same as Left	CIDESI Round Specimen	CIDESI Same as Left	KHK Same as Left * Reference Value	KHK Same as Left * Reference Value	

1) CIDESI and High Pressure Gas Safety Institute of Japan (KHK) conducted mechanical tests on the same sample test pieces individually along the guidance of skill test of Japan National Laboratory Accreditation JNLA (JNPT 11-01).

2) The above figures show appropriate testing results on the whole. There is no problem on Mechanical Testing on the provided plate specimen. Regarding the round specimen, some gaps can be seen on Upper Yield Point, but the most important testing item, Tensile Strength, shows good results.

Annex 6  
Technical Cooperation Program (TCP)

Handwritten scribbles and marks in the bottom left corner, including a large oval, a smaller circle, and a downward-pointing arrow.

Calendar Year	1997				1998				1999				2000				2001					
Japanese Fiscal Year	96		1997		1998		1998		1999		1999		2000		2000		2001		2001			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
<b>Term of Technical Cooperation</b>	▽Signing of R/D (Nov. 17)																					
<b>PO Activities 2-2</b>	▲Commencement (Feb. 1)																					
Implement the technology transfer to the C/P	[Gantt chart bars]																					
<b>Type of Services Extended through OJT</b>	[Gantt chart bars]																					
1 Entrusted Test (Test Service)	[Gantt chart bars]																					
2 Factory Visit (Semi-Extension Service)	[Gantt chart bars]																					
3 Technical Guidance	[Gantt chart bars]																					
4 Seminars & Training Courses	[Gantt chart bars]																					
5 Extension Service	[Gantt chart bars]																					
<b>A Common Technical Items</b>	[Gantt chart bars]																					
<b>1 Metallurgy</b>	[Gantt chart bars]																					
1-1 Basic Metallurgy	[Gantt chart bars]																					
1-2 Properties of Various Metals	[Gantt chart bars]																					
1-3 Deterioration of Metal	[Gantt chart bars]																					
<b>2 Welding and Metal Working</b>	[Gantt chart bars]																					
2-1 Welding Metallurgy	[Gantt chart bars]																					
2-2 Application of Welding	[Gantt chart bars]																					
2-3 Metal Forming	[Gantt chart bars]																					
2-4 Heat Treatment	[Gantt chart bars]																					
2-5 Surface Treating	[Gantt chart bars]																					
<b>3 Quality Control</b>	[Gantt chart bars]																					
3-1 Definition of Quality	[Gantt chart bars]																					
3-2 Quality Control Procedure	[Gantt chart bars]																					
3-3 Quality Assurance System	[Gantt chart bars]																					
<b>4 Fundamentals of Test</b>	[Gantt chart bars]																					
4-1 Code & Standard	[Gantt chart bars]																					
4-2 Statistical Method	[Gantt chart bars]																					
4-3 Management of Testing Bodies	[Gantt chart bars]																					
4-4 Safety & Health Control in Laboratory	[Gantt chart bars]																					
4-5 Environmental Control in Laboratory	[Gantt chart bars]																					
<b>B Application of Testing</b>	[Gantt chart bars]																					
<b>1 Mechanical Test</b>	[Gantt chart bars]																					
1-1 Tensile Test	[Gantt chart bars]																					
1-2 Compression Test & Similar Tests	[Gantt chart bars]																					
1-3 Hardness Test	[Gantt chart bars]																					
1-4 Impact Test	[Gantt chart bars]																					
1-5 Fatigue Test	[Gantt chart bars]																					
1-6 Miscellanies Tests	[Gantt chart bars]																					
1-7 Equipment for Mechanical Test	[Gantt chart bars]																					
<b>2 Metallography</b>	[Gantt chart bars]																					
2-1 Preparation of Specimen	[Gantt chart bars]																					
2-2 Determination of Grain Size	[Gantt chart bars]																					
2-3 Determ. of Nonmetallic Inclusion	[Gantt chart bars]																					
2-4 Determination of Graphite in Casting	[Gantt chart bars]																					
2-5 Microhardness Test	[Gantt chart bars]																					
2-6 Determ. of Depth of Surface Treatment	[Gantt chart bars]																					
2-7 Determ. of Penetration of Welding	[Gantt chart bars]																					
2-8 Determination of Phase Distribution	[Gantt chart bars]																					
2-9 Equipment for Metallography	[Gantt chart bars]																					
<b>3 Fractography</b>	[Gantt chart bars]																					
3-1 Introduction	[Gantt chart bars]																					
3-2 Preparation of Fracture Specimen	[Gantt chart bars]																					
3-3 Photography of fracture surface	[Gantt chart bars]																					
3-4 Visual Examination and Light Microscopy	[Gantt chart bars]																					
3-5 Scanning Electron Microscopy	[Gantt chart bars]																					
3-6 Fractography by other Methods	[Gantt chart bars]																					

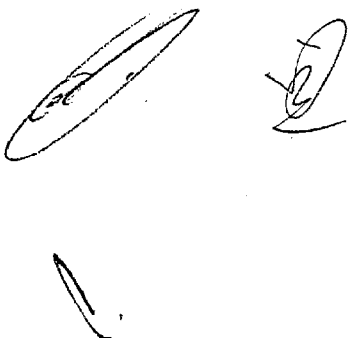


Calendar Year	1997				1998				1999				2000				2001			
Japanese Fiscal Year	96		1997		1998		1999		2000		2001		2002		2003		2004			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV		
<b>Term of Technical Cooperation</b>																				
<b>PO Activities 2-2</b>																				
Implement the technology transfer to the C/P																				
<b>Type of Services Extended through OJT</b>																				
1 Entrusted Test (Test Service)																				
2 Factory Visit (Semi-Extension Service)																				
3 Technical Guidance																				
4 Seminars & Training Courses																				
5 Extension Service																				
<b>4 Failure Analysis</b>																				
4-1 Failure Mechanism																				
4-2 Failure Mode																				
4-3 Fracture Mechanics																				
4-4 General Practice in Failure Analysis																				
4-5 Case Study																				
<b>5 Chemical Analysis</b>																				
5-1 Preparation for Analysis																				
5-2 Wet Chemical Analysis																				
5-3 Atomic Absorption Spect. Analysis																				
5-4 I.C.P. Spectroscopic Analysis																				
5-5 Optical Emission Spect. Analysis																				
5-6 X ray Fluorescence Spect. Analysis																				
5-7 Testing Equip. for Chemical Analysis																				
5-8 Relevant Technology for Chemical Analysis																				
<b>6 Non Destructive Test</b>																				
6-1 Visual Examination																				
6-2 Radiographic Test																				
6-3 Ultrasonic Test																				
6-4 Magnetic Particle Test																				
6-5 Liquid Penetrant Test																				
6-6 Eddy Current Test																				
6-7 Portable Emission Spectorscopy																				
6-8 Equipment for Non Destructive Test																				

**Note**

- 1 The Japanese fiscal year starts in April and ends in March.
- 2 This schedule is subject to change in accordance with the progress of the Project.

Annex 7  
Number of Clients Requesting  
Technical Services Repeatedly

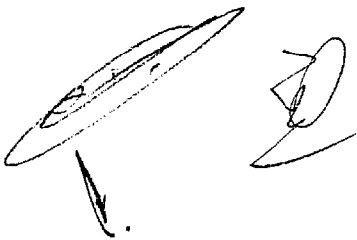


**Annex 7.- Number of Clients Requesting Technical Services Repeatedly**

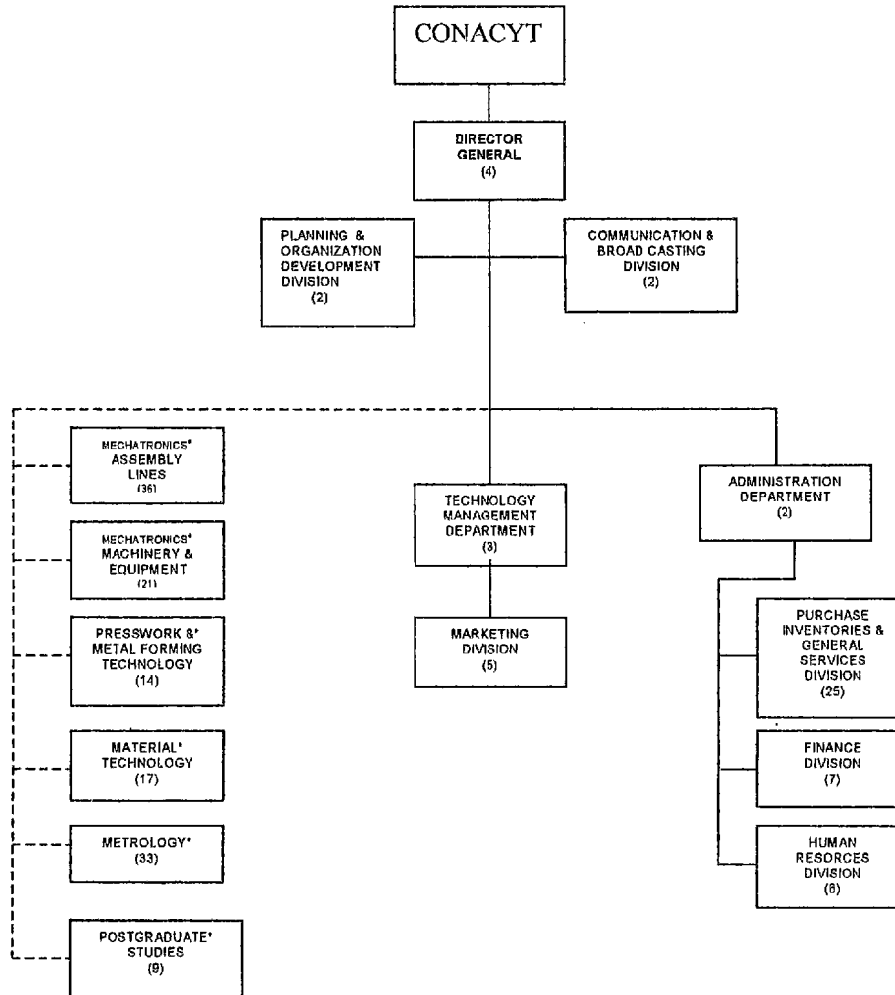
LABORATORY	MECHANICAL TEST	CHEMICAL ANALYSIS	METALOGRAPHY	NON DESTRUCTIVE TESTING	TOTAL
TOTAL OF CUSTOMERS	91	116	73	58	338
CUSTOMERS WHIT 2 OR MORE SERVICES IN 2001	42	64	29	15	150
%	46%	55%	40%	26%	44%

MECHANICAL TEST		CHEMICAL ANALYSIS		METALLOGRAPHY		NON DESTRUCTIVE TEST	
COMPANY	REPEATIVITY	COMPANY	REPEATIVITY	COMPANY	REPEATIVITY	COMPANY	REPEATIVITY
FLEX N GATE	18	CELAY	19	FLEX AND GATE	12	AUTOTANQUES NIETO	17
SERVIACEROS PLANOS	11	VENTRAMEX	15	GRUPO PALANCAS	7	PAILERIA SAN LUIS	7
ARBOMEX	11	FLEX N GATE	14	METALSA	6	FRIGUS BOHN	7
BROSE MEXICO	9	ACERLAN	11	VENTRAMEX	4	INDUSTRIAS THERME	6
ELECTROFORJ. NACION.	9	RES. Y PROD.	11	IND. ACROS WHIR.	4	INDU S.A.	6
VENTRAMEX	8	MERCADO FERR.	11	CELAY	4	MANUF. Y MANTTO.	4
TUBOS Y BARRAS HUECAS	7	CIATEQ	10	STEEL AND TRUCKS	4	CONS. EST. DE LA IND.	3
BOSAL MEXICO	7	MABE MEXICO	9	WOCO	3	METALMEC. AJAX	3
LBO FOUNDRY	7	ACEROS INOX.	9	ULBRINOX	3	PEMEX MADERO	3
SERVIACERO COMERCIAL	6	METALSA	8	BOSAL	3	CONST. LLODI	3
CIATEQ	5	AMERICAN RAC.	8	ACERLAN	3	UNIV. AUT. S.L.P.	3
MABE DE MEXICO	5	STEEL AND T.	7	SERVIACEROS	3	CIATEQ	2
EDSCHA MEXICO	5	TURBOMAQUINAS	7	MONTACARGAS	3	CERV. CUAUHT. MOCT.	2
AUTOPARTES WALKER	4	ACERO SUECO	7	FRENOS Y MEC.	3	AXA ALIMENTOS	2
BOMBAS ALEMANAS	4	RESORTES Y P.	7	CIATEQ	2	HBA CAST PRODUCTS	2
GRUPO PALANCAS	4	HBA CAST	7	NIHON PLAST	2		
PAILERIA DE SAN LUIS	3	ACOFUJ	6	POLAROID	2		
VRO AUTOMOTIVE	3	TURBOPARTES	6	PEMEX REF.	2		
METALSA	3	AUTOPARTES W.	6	FERRO	2		
VAN HOLDING	3	EDSCHA	6	MERITOR	2		
AVANTE INGENIEROS	3	ACERO CENTRO	6	ARVIN	2		
PROCESOS CONTROLADOS	3	FUNDIERRO	6	IND. AUJE	2		
CIDETEQ	3	SERVIACERO P.	5	ECOEXCEL	2		
PAILERIA ESPECIALIZADA	3	SERVILAMINA	5	VRK AUTOM.	2		
STEEL AND TRUCKS	3	TRATAMIENTOS	5	TURBOPARTES	2		
ACERO CENTRO	3	WOCO	5	AUTOPAR. WALKER	2		
LAMINA Y PLACA COMER.	3	BOMBAS ALEM.	5	METAL POWDER	2		
KSB	3	ALEJANDRO P.	5	CLIMATE SYST.	2		
PERRY OPERATIONS	2	GRUPO PALANCAS	5	BALZERS	2		
NEW HOLLAND	2	JAIME ROJAS	4				
SERVILAMINA SUMMIT	2	COCLISA	4				
AEROEQUIP	2	FISHER	4				
ANASTACIO AVILA	2	PRODUC. DE COS.	3				
FISHER MEXICANA	2	BOSAL MEXICO	3				
MAYEKAWA	2	CONDOC. DEL N.	3				
TRASPARTES DE ORO.	2	REMY	3				
PREFORMADOS DE MEXICO	2	ACROS	3				
REMY COMP.	2	FELIPE FRANCO	3				
SACHS MEXICO	2	CERA PERDIDA	3				
AUTOPARTES WALKER	2	ELECTROFOR.	3				
PYRAMID INDUSTRIES	2	NEW HOLLAND	2				
ESPC. EN TURBOPARTES	2	LAMINA Y PLACA	2				
		EXCEL	2				
		CARTEC	2				
		METALES MAG.	2				
		MAYEKAWA	2				
		VRK	2				
		MERITOR	2				
		KSB	2				
		LBO FOUNDRY	2				
		PINT. EST. Y MON.	2				
		MONTACARGAS	2				
		FUNDIALIAC.	2				
		PEMEX REF.	2				
		ULBRINOX	2				
		VALEO	2				
		FERROMEXICANA	2				
		LINDE PULLMAN	2				
		AMERICAN CAR	2				
		DIST. DE ACERO	2				
		MOISES SUÑIGA	2				
		PYRAMID IND.	2				
		TUBOS Y BARR.	2				
		ARVIN MERITOR	2				

## Annex 8 Organization Chart of CIDESI



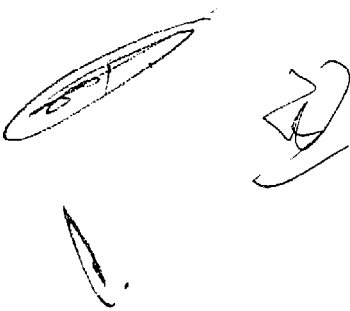
ANNEX - 8 ORGANIZATION CHART OF CIDESI



NOTE: NUMBER IN PARENTHESIS INDICATES NUMBER OF STAFF

\* BUSINESS UNITS

Annex 9  
Allocation of Counterpart Personnel  
and Other Staff

Handwritten scribbles and marks at the bottom left of the page, including a large oval shape, a smaller shape, and a vertical line.

## Annex. 9 Allocation of Counterpart Personnel and Other Staff

### CIDESI

#### 1. Administrative Counterpart

##### (1) Administrative Counterpart

###### a Project Director

Angel Ramirez Vázquez Director General, CIDESI

###### b Project Manager

Cirilo Noguera Silva Director of Technological Administrative Department, CIDESI

c Judit Rivera Montealvo Director of Administrative Department, CIDESI

d Joel Chaparro González Chief of Material Technology Business Unit, CIDESI

e Adriana García Frías Communication Division

#### 2. Technical Counterpart

##### a. Material Test

Estela González Caballero Engineer (Chemical Analysis).

Ofelia Wong Aguilera Engineer (Chemical Analysis).

Rosalba Hernández Rivera Engineer (Chemical Analysis).

Carlos Ramírez Baltazar Engineer (Metallography).

José L. Ojeda Elizarrarás Engineer (Metallography).

Concepción Obregon Zepeda Engineer (Mechanical Test).

##### b. Non Destructive Test

Mauricio Tello Rico Engineer

José Nuñez Alcocer Engineer

Guillermo Huape Engineer

Jaime González Silva Engineer

César Alejandro Sánchez Pérez Engineer

Julio César Solano Vargas Engineer

Ramsés Reyes Fuentes Engineer

#### 3. Supporting Staff

##### (1) Technical Staff

###### a Technician

Rolando Rosales Nava Material Test (Metallography)

Gerardo Castillo Pérez Material Test (Mechanical Test)

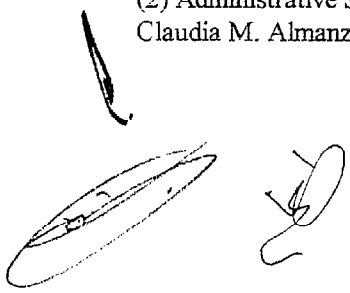
###### b) Skilled Workers

Cuauhtemoc Baru Vázquez Ortiz NDT Test

Angel Stefan Arellano E. NDT Test

##### (2) Administrative Staff

Claudia M. Almanza León Assistant





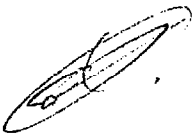
Supplementary Chart (Transition of the Counterpart Personnel) for Annex 9

Name & Designation	FY 1998				FY 1999				FY 2000				FY 2001			
	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III
<b>Term of Cooperation</b>	▼Feb1: Commencement															
(1) Administrative Counterpart																
a Project Director																
Angel Ramirez Vazquez Director General																
b Project Manager																
Cirilo Noguera Silva																
Director of Material Technology Department⇒ Director of Technology Management Department																
c Judit Rivera Montelvo																
Director of Administrative Department																
d Jara Castillo Tellez																
Chief of Communication Division	▼Jun7															
e Adriana Garcia Aguado																
Communication Division	Apr10															
f Joel Chaparro Gonzalez																
Chief of NDT Division⇒ Director of Material Technology Department	Jan1															
(2) Technical Counterpart																
a Material Test																
Santiago Soriano Reyes																
Chief of Material Characterization Division	▼Jul16															
(a) Chemical Analysis																
Estela Gonzalez Caballero																
Rosalba Hernandez Rivera																
Ofelia Wong Aguilera																
(b) Metallography																
Carlos Ramirez Baltazar																
Jose L. Ojeda Elizarraras																
(c) Mechanical Test																
Concepcion Obregon Zapata																
Jose Antonio Cano	Sep1															
(d) Mechanical Test & Metallography																
Juan Velazquez Aguirre	▼Aug31															
b Non Destructive Test																
Joel Chaparro Gonzalez																
Chief of NDT Division	▼Jan1															
Mauricio Tello Rico																
Jose Nunez Alcocer																
Cesar Alejandro Sanchez Perez																
Santos Garcia Miranda																
Jaime Gonzalez Silva																
Julio Cesar Solano																
Guillermo Buape																
Ramses Reyes Fuentes	Apr17															
	Mar1															

NOTE:

- 1 The above-underlined personnel is regarded as Direct Technical Counterpart.
- 2 The solid line ( ——— ) stands for the achievement.


Annex 10  
List of the Dispatched Japanese Experts



## Annex.- 10 LIST OF DISPATCHED JAPANESE EXPERTS

No.	Name of Experts	Assigned Scope	Assigned Term
<b>a- Long-Term Experts</b>			
1	Toshimichi Chisaka	Chief Advisor	98/02/19 - 00/01/29
2	Yuichi Endo	Project Coordinator	98/02/19 - 02/01/31
3	Hiroshi Tsukahara	Mechanical Test and Metallography Expert	98/03/16 - 00/03/15
4	Hideo Seino	Chemical Analysis Expert	98/03/16 - 00/03/15
5	Takehiko Akiyama	Non Destructive Test Expert	98/04/13 - 00/04/12
6	Susumu Kato	Chief Advisor	00/01/10 - 02/01/31
7	Masato Hirasaka	Mechanical Test and Metallography Expert	00/05/08 - 02/01/31
<b>b- Short-Term Experts</b>			
8	Hiroshi Kanno	Operation of Scanning Electron Microscope and Fractography	98/07/27 - 98/09/5
9	Keisuke Ishikawa	Fracture Mechanics (Lecturer for the Comemorial Seminar)	98/09/17 - 98/09/24
10	Masato Hirasaka	Universal Testing Machine	99/01/28 - 99/03/27
11	Shoji Sakao	Wet Chemical Analysis	99/02/18 - 99/03/17
12	Hiroshi Fujitani	Advanced technology of Scanning Electron Microscope	99/08/09 - 99/08/25
13	Tadashi Kawashima	Operation of Eddy Currents	99/08/09 - 99/09/22
14	Kunitoshi Sasaki	Mechanical Test Welding Procedure Control	99/08/23 - 99/10/20
15	Hiroyuki Nagamoto	Wet Method Chemical Analysis	99/09/09 - 99/10/30
16	Masayoshi Ikeda	Advanced Non Destructive Test Tehnology	00/01/24 - 00/03/08
17	Yasuhisa Yamazaki	Self Regulation Rule for NDT	00/05/08 - 00/06/07
18	Koji Chiba	Chemical Analisis	00/06/12 - 00/06/24
19	Tadashi Kawashima	Eddy Currents	00/06/19 - 00/08/30
20	Keisuke Ishikawa	Fracture Mechanics	00/08/07 - 00/08/29
21	Junichi Hirata	Press Forming	01/01/11 - 01/03/10
22	Hiroyuki Iwamoto	Welding	01/02/01 - 01/03/31
23	Noboru Murase	Self Regulation Rule for NDT	01/03/01 - 01/03/31
24	Masaru Endo	Corrosion	01/06/04 - 01/07/04
25	Naotake Yoshihara	Press Forming	01/07/02 - 01/08/01
26	Hiroshi Fujitani	Fractography	01/07/30 - 01/08/11
27	Hideshi Tsuji	Press Die Assembly Technique	01/08/09 - 01/10/10
28	Hajime Suzuki	Productivity Management	01/08/30 - 01/10/10
29	Tadashi Furubayashi	Metallic Material Forming	01/09/24 - 01/10/10

Annex 11  
Recent Annual Budget of CIDESI

1. 

Annex.- 11 Recent Annual Budget of CIDESI

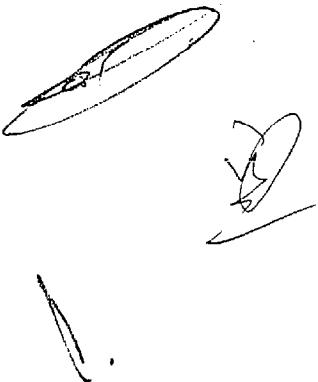
(UNIT: MS)

	1994	1995	1996	1997			1998			1999			2000			2001		
				Projection (1)	Disbursed (2)	Ratio (2)/(1)	Projection (1)	Disbursed (2)	Ratio (2)/(1)	Projection (1)	Disbursed (2)	Ratio (2)/(1)	Projection (1)	Disbursed (2)	Ratio (2)/(1)	Projection (1)	Disbursed (2)**	Ratio (2)/(1)
STAFF EXPENSES	7,503,200	10,047,250	14,623,010	17,153,800	18,820,240	1.09	28,339,900	28,315,147	1.00	32,216,900	31,878,447	0.99	40,886,910	40,375,340	0.99	51,180,080	34,797,450	0.68
MATERIALS AND CONSUMABLES	408,610	482,700	585,200	632,000	945,840	1.50	1,821,200	1,821,094	1.00	2,857,600	2,872,676	1.01	11,944,160	11,519,770	0.96	14,539,420	6,318,800	0.43
GENERAL SERVICE, INCLUDING UTILITIES, COMMUNICATION, INSURANCE, CLEANING	2,277,540	2,576,050	3,310,300	3,753,200	3,573,960	0.95	6,083,600	6,055,787	1.00	6,460,600	7,422,809	1.15	14,755,770	14,095,620	0.96	16,893,190	12,327,020	0.73
SCHOLARSHIP	0	74,000	111,000	510,000	499,020	0.98	610,000	601,086	0.99	605,500	608,305	1.00	1,475,810	1,424,580	0.97	786,490	336,300	0.43
INVESTMENT INCLUDING INTERIOR OF FACILITIES, MACHINERY AND ETC.	329,400	0	1,960,000	800,000	3,123,890	3.90	5,446,700	5,446,700	1.00	2,794,800	4,176,400	1.49	6,968,770	6,856,300	0.98	16,143,700	2,773,150	0.17
BUILDING	0	0	0	320,000	309,680	0.97	820,000	819,315	1.00	814,000	196,853	0.24	3,027,290	3,027,290	1.00	3,400,000	594,330	0.17
TOTAL (SUBSIDIES) (A)	10,516,750	13,182,000	20,589,510	23,168,800	27,072,630	1.17	43,121,400	43,069,129	1.00	45,749,400	47,157,590	1.03	79,058,710	77,298,900	0.98	102,942,880	57,149,050	0.56
INCOME FROM TECHNICAL SERVICE (B)	882,200	2,000,516	4,833,623	6,000,000	4,920,407	0.82	7,500,000	7,505,594	1.00	10,500,000	10,504,079	1.00	18,000,000	18,573,342	1.03	28,866,579	15,360,249	0.53
RATIO (%) (B/A+B)	7.74%	13.18%	19.01%	20.57%	15.38%		14.82%	14.84%		18.67%	18.22%		18.55%	19.37%		21.90%	21.18%	

NOTE:

1 The item with (\*\*) Disbursed September 2001.

Annex 12  
Plan of Appropriation of Local Cost for  
the Project (from 1997 to 2001)



Annex.- 12 Plan for Appropriation of Local Cost for the Project (from 1997-2001)

(UNIT: MS)

	1997	1998	1999	** 2000	*** 2001	TOTAL
STAFF EXPENSES	1,819,091	1,819,091	2,146,527	1,819,091	1,819,091	9,422,891
	2,330,257	3,063,571	1,521,944	3,406,269	4,019,397	14,341,438
BUILDING AND FACILITIES	12,000	81,880	0	0	0	93,880
	1,827	104,177	866	400	10,418	117,687
MACHINERY, EQUIPMENT AND MATERIALS PROCURED BY CIDESI		487,920	514,858	436,320	436,320	1,875,418
	93,142	465,623	531	731	863	560,890
MAINTENANCE AND OPERATION OF MACHINERY & EQUIPMENT		293,696	353,490	305,440	311,320	1,263,946
	28,028	293,696	356,614	433,584	511,629	1,623,551
UTILITIES, COMMUNICATIONS AND OTHERS	8,800	20,000	23,600	20,000	20,000	92,400
	13,295	55,329	34,835	158,559	187,100	449,118
DOMESTIC TRANSPORTATION, HANDLING AND INSTALLATION OF MACHINERY AND EQUIPMENT		246,760	56,640	42,000	48,000	393,400
		211,431	3,842	0	16,914	232,187
TOTAL ( A )	1,839,891	2,949,347	3,095,115	2,622,851	2,634,731	13,141,935
( B )	2,466,549	4,193,827	1,918,632	3,999,543	4,746,321	17,324,871
RATIO (A/B) (%)	0.75	0.70	1.61	0.66	0.56	0.76
INCOME FROM TECHNICAL SERVICE	4,920,407	7,505,594	10,504,079	18,573,342	28,866,579	
INCOME FROM MATERIAL TECHNOLOGY	935,425	1,046,222	1,628,384	2,979,840	3,722,000	

NOTE:

1 Mexican fiscal year starts in January and ends in December.

2 Upper row is budget as stated in R/D and lower row 1997, 1998, 1999 and 2000 figures are real expenses, 2001 figures are revised budget.

3 The project inflation for years:

1999 18%, 2000 8.9%, 2001 7%

4 The item with (\*\*) disbursed December 2000.

5 The item with (\*\*\*) Projection 2001.

Annex 13-1  
Achievement of Technology Transfer  
Items Initially Defined in TCP





Annex.- 13-1 Achievement of Technology Transfer Items Initially Defined in TCP (as of September, 2001)

(1/3)

Technology Transfer Items	Mechanical Testing				Metallography				Chemical Analysis				Non Destructive Test				Achievement
	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	
<b>Type of Services Extended through OJT</b>																	
1 Entrusted Test (Test Service)	○	2	4	4	○	4	5	5	○	4	5	5	○	3	5	5	*2
2 Factory Visit (Semi-Extension Service)	○	2	4	4	○	3	4	4	○	3	4	4	○	3	5	4	*2
3 Technical Guidance	○	2	4	4	○	3	4	5	○	3	5	4	○	3	4	4	*2
4 Seminars & Training Courses	○	2	4	4	○	3	4	4	○	3	5	4	○	3	5	4	*2
5 Technical Support	○	2	4	4	○	3	5	5	○	3	4	4	○	3	5	5	*2
<b>A Common Technical Items</b>																	
<b>1 Metallurgy</b>																	
1-1 Basic Metallurgy	○	2	3	3	○	3	5	5	○	3	5	4	○	3	5	4	*1
1-2 Properties of Various Metals	○	2	4	3	○	3	5	5	○	3	5	4	○	3	5	4	*1
1-3 Deterioration of Metal	○	2	3	3	○	3	4	5	○	2	5	4	○	2	4	4	*2
<b>2 Welding and Metal Working</b>																	
2-1 Welding Metallurgy	○	2	3	3	○	3	4	4	○	2	4	3	○	3	4	4	*2
2-2 Application of Welding	○	2	3	3	○	3	4	4	○				○	3	5	5	*1
2-3 Metal Forming	○	2	4	3	○	3	5	4					○	3	4	4	*1
2-4 Heat Treatment	○	2	3	3	○	3	4	4					○	2	4	4	*1
2-5 Surface Treating	○	2	3	3	○	3	4	4									*1
<b>3 Quality Control</b>																	
3-1 Definition of Quality	○	2	4	4	○	3	4	4	○	3	5	4	○	2	4	4	*2
3-2 Quality Control Procedure	○	2	4	4	○	3	4	4	○	3	5	4	○	2	4	4	*2
3-3 Quality Assurance System	○	2	4	4	○	3	4	4	○	4	5	5	○	2	4	4	*2
<b>4 Fundamental of Test</b>																	
4-1 Code & Standard	○	2	4	4	○	3	4	4	○	3	5	4	○	3	5	4	*2
4-2 Statical Method	○	2	4	4	○	2	4	4	○	3	5	4					*2
4-3 Management of Testing Bodies	○	2	4	4	○	2	5	5	○	4	5	4	○	3	4	4	*2
4-4 Safety & Health Control in Laboratory	○	2	4	4	○	2	4	5	○	4	5	5	○	3	4	4	*2
4-5 Environmental Control in Laboratory	○	2	4	4	○	2	4	4	○	3	5	4	○	3	4	4	*2
<b>B Application of Testing</b>																	
<b>1 Mechanical Test</b>																	
1-1 Tensile Test	○	2	5	4													*1
1-2 Compression Test & Similar Tests	○	2	4	4													*1

Technology Transfer Items	Mechanical Testing				Metallography				Chemical Analysis				Non Destructive Test				Achievement
	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	
1-3 Hardness Test	○	3	5	4													*1
1-4 Impact Test	○	2	4	4													*1
1-5 Fatigue Test	○	1	3	3													*2
1-6 Miscellaneous Test	○	1	3	3													*2
1-7 Equipment for Mechanical Test	○	2	4	3													*2
<b>2 Metallography</b>																	
2-1 Preparation of Specimen					○	4	5	5									*1
2-2 Determination of Grain Size					○	5	5	5									*1
2-3 Determ. Of Nonmetallic Inclusion					○	4	5	5									*1
2-4 Determination of Graphite in Casting					○	5	5	5									*1
2-5 Microhardness Test					○	4	5	5									*1
2-6 Determ. Of Depth of Surface Treatment					○	4	5	5									*1
2-7 Determ. Of Penetration of Welding					○	4	5	5									*1
2-8 Determination of Phase Distribution					○	4	5	5									*1
2-9 Equipment for Metallography					○	4	5	5									*1
<b>3 Fractography</b>																	
3-1 Introduction					○	4	5	5									*1
3-2 Preparation of Fracture Specimen					○	3	4	5									*3
3-3 Photography of fracture Surface					○	4	5	5									*1
3-4 Visual Examination and light Microscopy					○	3	5	5									*2
3-5 Scanning Electron Microscopy					○	2	5	5									*2
3-6 Fractography by other Methods					○	3	4	5									*2
<b>4 Failure Analysis</b>																	
4-1 Failure Mechanism					○	3	5	5					○	2	4	4	*2
4-2 Failure Mode					○	2	4	5					○	2	3	4	*3
4-3 Fracture Mechanics					○	1	4	5					○	2	4	4	*3
4-4 General Practice in Failure Analysis					○	3	5	5					○	2	4	4	*2
4-5 Case Study					○	3	4	5					○	2	3	4	*3
<b>5 Chemical Analysis</b>																	
5-1 Preparation for Analysis									○	3	5	4					*1
5-2 Wet Chemical Analysis									○	3	5	5					*2
5-3 Atomic Absorption Spect. Analysis									○	3	5	5					*2
5-4 I.C.P. Spectroscopic Analysis									○	4	5	5					*1
5-5 Optical Emission Spect. Analysis									○	4	5	5					*1
5-6 X ray Fluorescence Spect. Analysis									○	1	5	3					*2

Technology Transfer Items	Mechanical Testing				Metallography				Chemical Analysis				Non Destructive Test				Achievement
	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	Coverage	Initial	Actual	Target	
5-7 Testing Equip. For Chemical Analysis									○	4	5	5					*1
5-8 Relevant Technology for Chemical A.									○	3	5	5					*2
<b>6 Non Destructive Test</b>																	
6-1 Visual Examination													○	3	4	4	*1
6-2 Radiographic Test													○	4	5	5	*1
6-3 Ultrasonic Test													○	4	5	5	*1
6-4 Magnetic Particle Test													○	4	5	5	*1
6-5 Liquid Penetrant Test													○	4	5	5	*1
6-6 Eddy Current Test													○	2	4	4	*2
6-7 Portable Emission Spectroscopy													○	2	4	4	*2
6-8 Equipment for Non Destructive Test													○	4	5	5	*1

## Note

1 "Coverage" stands for whether the C/P in the respective fields should acquire the items or not.

2 The definition of "Initial" and "Target" as well as the figures in the respective columns are as follows:

(1) "Initial" stands for the initial technical capability of the C/P's measured on June, 1998.

(2) "Target" stands for the technical capability of the C/P's to be measured at the termination of the Project.

(3) The figures stands for the technical capability of the C/P's in the following categories.

**1 The C/P have the knowledge of the items.**

**2 The C/P can implement the items under the supervision and support of the experts.**

**3 The C/P can implement the items for themselves.**

**4 The C/P can teach the items to others under the supervision and support of experts.**

**5 The C/P can teach the items to others for themselves.**

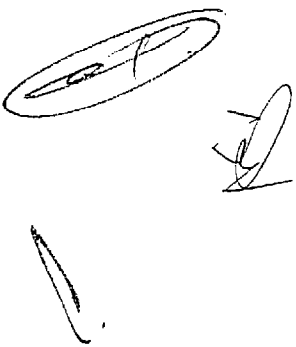
3 Target achievement

\*1: The target was achieved before June, 2001.

\*2: The target was achieved at the end of september, 2001

\*3: The target will be achieved by the end of January, 2002.

Annex 13-2  
Achievement of Consulting Technology  
Transfer Items



Annex.- 13-2 Achievement of Consulting Technology Transfer (as of September, 2001)

Technology Transfer Items	Mechanical Testing				Metallography				Stamping Press Work				Achievement
	Necessity	Initial	Actual	Target	Necessity	Initial	Actual	Target	Necessity	Initial	Actual	Target	
1. Stamping Machine	○	3	4	5	○	3	5	5	○	4	5	5	+2
1.1 Function and structure	○	3	4	5	○	3	5	5	○	4	5	5	+2
1.2 Hydraulic pressure type	○	3	4	5	○	3	5	5	○	4	5	5	+2
1.3 Mechanical type	○	3	4	5	○	3	5	5	○	4	5	5	+2
2. Die													
2.1 Understanding of drawing	○	3	4	5	○	3	4	5	○	4	5	5	+2
2.2 Usualy die	○	3	4	5	○	3	4	5	○	4	5	5	+2
2.3 Progressive die	○	2	4	5	○	2	4	5	○	4	5	5	+2
2.4 Material	○	3	4	5	○	3	5	5	○	3	4	5	+2
2.5 Heat Treatment	○	3	4	5	○	4	5	5	○	3	4	5	+2
3. Characteristic of stamping-materials													
3.1 Mild steel sheet	○	3	5	5	○	3	5	5	○	3	4	5	+2
3.2 Stainless steel sheet	○	3	5	5	○	3	5	5	○	3	4	5	+2
3.3 Al-alloy sheet	○	3	5	5	○	3	4	5	○	3	4	5	+2
3.4 Brass sheet	○	3	5	5	○	3	4	5	○	3	4	5	+2
4. Estimation of formability													
4.1 n-value	○	3	5	5	○	2	4	5	○	3	4	5	+2
4.2 r-value	○	3	5	5	○	2	4	5	○	3	4	5	+2
4.3 Erichsen test	○	2	5	5	○	2	3	5	○	2	2	4	+2
4.4 Elongation and hardness	○	4	5	5	○	3	4	5	○	3	3	5	+2
4.5 FLD (Forming-Limit Diagram)	○	2	5	5	○	2	4	5	○	2	2	4	+2
4.6 Model forming test	○	2	4	4	○	2	4	4	○	2	2	4	+2
5. Calculation of forming force													
5.1 Shearing	○	3	4	5	○	3	4	5	○	4	5	5	+2
5.2 Bending	○	3	4	5	○	3	4	5	○	4	5	5	+2
5.3 Drawing	○	3	4	5	○	3	4	5	○	4	5	5	+2
5.4 Embossing	○	3	4	5	○	3	4	5	○	4	5	5	+2
5.5 Center of forming force on progressive die	○	3	4	5	○	3	4	5	○	4	5	5	+2
6. Lubrication of forming													
6.1 Theory of lubrication	○	3	4	5	○	3	4	5	○	3	4	5	+3
6.2 Preventive method of galling	○	3	5	4	○	3	5	5	○	3	4	5	+2

Note

1 \* Coverage" stands for whether the C/P in the respective fields should acquire the items or not.

2 The definition of "Initial" and "Target" as well as the figures in the respective columns are as follows:

(1) "Initial" stands for the initial technical capability of the C/P's measured on June, 1998.

(2) "Target" stands for the technical capability of the C/P's to be measured at the termination of the Project.

(3) The figures stands for the technical capability of the C/P's in the following categories.

1 The C/P have the knowledge of the items.

2 The C/P can implement the items under the supervision and support of the experts.

3 The C/P can implement the items for themselves.

4 The C/P can teach the items to others under the supervision and support of experts.

5 The C/P can teach the items to others for themselves.

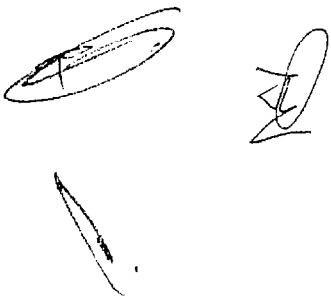
3 Target achievement

\*1: The target was achieved before June, 2001.

\*2: The target was achieved at the end of september, 2001

\*3: The target was achieved at the end of January, 2002

Annex 14  
Machinery and Equipment Provided by  
the Japanese Side



## ANNEX - 14 MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE. (1/4)

Fiscal Year	No.	Item	Unit Price US\$	Quantity	Amount US\$	Delivery Time	Invoice	Supplier
1997	1	Universal Testing Machine. Maximum capacity 1000 KN Servohydraulic system. UH-1000 KNA Estándar Acurancy Class 1%, 3 Phase, 200/220V. 50/60 Hz. 6K.V.A	164,450.00	1	164,450.00	March, 1998	17105	FAL
1997	2	Scanning Electron Microscope. Resolution: 4nm or smaller Magnification: Maximum 200,000 X or more. EDS system and image analysis software included.	265,000.00	1	265,000.00	March, 1998	OVE 359 3500313A	PHILIPS ELECTRON OPTICS
1997	3	Rockwell Hardness Tester. Rockwell and surface Rockwell hardness. Load control: Automatic. Regular Rockwell scale: A,B,C. Superficial Rockwell scale: N.T. Vertical capacity 240mm. Or more. Estándar accessory kit. Printer.	11,040.00	1	11,040.00	March, 1998	1898 2017	CIENTEC, S.A. DE C.V.
1997	4	Microhardness Tester Vickers & Knoop. Automatic charge application. 10 or 1000 grams of variable charge, camera for video and photography video monitor, microsoft windows software for image processing digital printer.	30,302.50	1	30,302.50	March, 1998	1897 2016	CIENTEC, S.A. DE C.V.
1997	5	Small Universal Testing Machine. Load capacity: 100KN 10 (ton).	92,611.20	1	92,611.20	March, 1998	4591 4592 4593	HARRY MAZAL S.A. DE C.V.
1997	6	Brinell Hardness Tester. With dead weights, motorized load application, adjustable time cycle.	7,774.00		7,774.00	March, 1998	1974 1896	CIENTEC S.A. DE C.V.
1997	7	Portable X-Ray System. (b) Capacity: 200 Kvp as minimum and 10 mA as maximum. Effective focus size 3.0x3.0 mm. or less. Forced air cool type. Generator 30 Kg. or less. Controller 20 Kg. or less.	23,293.25	1	23,293.25	March, 1998	B2832	ASESORÍA Y EQUIPOS DE INSPECCIÓN S.A. DE CV
1997	8	Fluorescence Xray Spectrometer. Wavelength Dispersive, scanning type. Range of analysis: CU. X-ray tube: Rh 3 Kw max, Cyclic cooling system. Sample loading: 8 position max & sample spinner.	215,241.95	1	215,241.95	March, 1998	1127 1128	PONA S.A. DE C.V.
1997	9	Atomic Absorption Spectrometer. Flame/flame less type Hydride Generator Device. Optical range: 185-900 nm. Hollow cathode lamp: Automatic exchanger and automatic background correction.	79,977.90	1	79,977.90	March, 1998	8891 8892	VARIAN S.A.
1997	10	Optical Emission Spectrometer. (Mobile type). Range of analysis: 15 channel, 3 reference (Fe, Cu, Al). Optical arrangement Focus: 750 m.m., Wavelength: 185-530 n.m. Dispersion: 0.55 nm.	71,451.80	1	71,451.80	March, 1998	1339	SPECTRO ANALYTICAL DE MÉXICO
1997	11	Optical Emission Spectrometer. (Fixed type) of simultaneous determination. Element analysis. 25 channel, 3 reference (Fe, Cu, Al). Optical Arrangement: Focus 1000 mm., Wavelength 120 - 589 nm. Dispersion 0.55 nm.	101,599.05	1	101,599.05	March, 1998	1340	SPECTRO ANALYTICAL INSTRUMENTS SA. DE C.V.
1997	12	Magnetic Particle Testing Apparatus. 2 Universal yokes, 2 Unmovable yokes, 1 cross yoke with 4 poles and casters 10 Standards test pieces.	6,943.41	1 set	6,943.41	March, 1998	35	CTT, S.A. DE C.V.
1997	13	Microware Sample Preparation Apparatus. Heating power. Min 900 W. Digestion Vessel: Maximum 12 safety valves for pressure type. Control of temperature and pressure: automatic control.	29,226.10	1	29,226.10	March, 1998	23146	PERKIN ELMER DE MÉXICO
1997	14	Sample Polishing Machine. Semiautomatic operation designed for heavy duty operation, single sample and rigid pressure, estándar wheel speed 150/300 or 50/600 rpm	22,137.38	1	22,137.38	March, 1998	9020	LECO DE MÉXICO S.A. DE C.V.
1997	15	Electrolyte Polisher and Eteher. Solid state design, with electronic controls, electrolyte temperature and current monitoring. Automatic polish to ethe programming.	12,865.05	1	12,865.05	March, 1998	3303	MICROANALI- SIS.
1997	16	Sample Mounting Press. Electro-hydraulic operation. 25 mm. 30 mm. 40 mm. Mount capacity, rapid automatic mounting, duplex mold available, auto cooling, autopreload.	10,978.59	1	10,978.59	March, 1998	9024	LECO DE MÉXICO S.A. DE C.V.

MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE. (2/4)

Fiscal Year	No.	Item	Unit Price US\$	Quantity	Amount US\$	Delivery Time	Invoice	Supplier
1997	17	Ultrasonic Testing Apparatuses. 2 Portable digital flaw detector with A-Scan B-Scan type B, DAC software for ASME and JIS Code Inspections. Range of operating frequency include 1000-9999 m/s. 2 Ultrasonic thickness gages, display actual waveform patterns thru-paint echo-to-echo. Applicable up to 400 mm in thickness.	49,484.78	1 set	49,484.78	March, 1998	3304 3312	LLOG, S.A. DE C.V.
1997	18	Weild Defect Samples 1) Flat plate butt-weld sample. SERVICE: UT, angle-beam for training. DEFECT CONTAINED: Incomplete penetration, lack of fusion, blow-hole.	32,389.65	1 set	32,389.65	March, 1998	-	-
1997	19	Portable Eddy Current Testing Apparatus. Mod. Phasec 2200 Flaw detector, MCA. Hocking Single Frequency mode: 60 hz- 2Mhz (Multiplexed).	18,250.50	1 set	18,250.50	March, 1998	59 60	CTT, S.A. DE C.V.
1997	20	Impact Test Machine. Impact pendulum for Charpy tests with a complete kit of accessories, according to ASTM E 23.	34,762.20	2	34,762.20	March, 1998	1987	CIENTEC S.A. DE CV.
1997	21	Standars and Literature.		1 set		March, 1998	-	-
1997	22	Estandar Sample.		1		March, 1998	1341 1342 1343	SPECTRO ANALYTICAL INSTRUMENTS S.A. DE C.V
1997	23	Copying Machine. CANON mod. NP-6050.	18,745.00	1	18,745.00	March, 1998	56625	EXCELENTE OFICINA Y SERVICIO
1997	23	Facsimile. CANON, Mod. L4000.	1,206.35	1	1,206.35	March, 1998	56624	EXCELENTE OFICINA Y SERVICIO
1997	24	Electronic Board. MOD. KXB530, PANASONIC	1,666.35	1	1,666.35	March, 1998	56626	EXCELENTE OFICINA Y SERVICIO
1997	25	Van-type Vehicle. MCA. Chevrolet Suburban MOD. 1998.	35,431.23	1	35,431.23	March, 1998	647	CHEVROLET INDUSTRIAL

TOTAL '97 USD 1,336,828.24



MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE. (3/4)

Fiscal Year	No.	Item	Unit Price US\$	Quantity	Amount US\$	Delivery Time	Invoice	Supplier
1998	26	Prensa Marca Phillips Modelo Minipress	5,616.08	1	5,616.08	March '99	1390	PONA, S.A. DE C.V.
1998	27	Molino Marca Phillips Modelo Minimill	8,968.09	1	8,968.09	March '99	1389	PONA, S.A. DE C.V.
1998	28	Sistema de Fusión Marca Philips Modelo Minifuse	43,154.68	1	43,154.68	March '99	1391	PONA, S.A. DE C.V.
1998	29	Extensómetros GL (4), modelos: 2630-111, 2630-112, 2630-105, 2630-106. Tarjeta condicionadora (1) modelo 2210-865.	21,522.25	5	21,522.25	March '99	7338	HARRY MAZAL S.A. DE C.V.
1998	30	Software para clasificación de rayos X y distribución de área iDXac.	5,600.00	1	5,600.00	March '99	OVE 622	PHILIPS MEXICANA
1998	31	Standares de Referencia SRM	5,209.50	15	5,209.50	March '99	1700	SPECTRO ANALYTICAL INSTRUMENTS
1998	32	Sensores de Corrientes Eddy	2088.12	5	2,088.12	March '99	673	CTT, S.A. DE C.V.
1998	33	Paquete de rueda de 8"	3,400.00	1	3,400.00	March '99	11133	LECO DE MEXICO
1998	34	Equipo portátil para pruebas por partículas magnéticas	2,352.90	1	2,352.90	March '99	B3504	ASESORÍA Y EQUIPOS DE INSPECCIÓN
1998	35	Segundo monitor y tarjeta de despliegue para el Microscopio Electrónico de Barrido. Mod. XL 30TPM	6,900.00	1	6,900.00	March '99	OVE 623	PHILIPS MEXICANA
1998	36	Set de Inspección Visual	1,868.75	1	1,868.75	March '99	32	A.J. TECNOLOGÍA S.A. DE CV.
1998	37	Yugos para equipo de partículas magnéticas	953.12	1 kit	953.12	March '99	30	A.J. TECNOLOGÍA
1998	38	Higrotermografo de cuerda para 2 velocidades.	1,030.09	1	1,030.09	March '99	51781	EQUIPAR SA
1998	39	Sistema de Proyección Portátil InFocus	5,045.00	1	5,045.00	March '99	18945	MICROCOM- PUTACIÓN SA

TOTAL '98 USD 113,708.58

TOTAL '97 '98 USD	1,450,536.82
-------------------	--------------

MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE. (4/4)

Fiscal Year	No.	Item	Unit Price US\$	Quantity	Amount US\$	Delivery Time	Invoice	Supplier
1999	40	Extensometers for SHIMADZU SG10-10 SG25-10	2,884.20 2,454.10	1 1	2,884.20 2,454.10	March '00	24884	FAL
1999	41	Amplificator for extensometers SGA-4	4,617.25	1	4,617.25	March '00	24884	FAL
1999	42	Calibrator of extensometers SC-50	3,757.05	1	3,757.05	March '00	24844	FAL
1999	43	Abrasive Cutter Abrasive Discs	15,062.70 331.20	1	15,062.70 331.20	March '00	4612	MICROANALI SIS SA CV
1999	44	Pt/Au Alloy crucible for Minifuse Pt dish 32 mm Minifuse	7,290.00 2,727.00	3	11,519.55	March '00	1593	PONA S.A. DE C.V.
1999	45	Ultrasonic Thickness/ failure detector Mod. USNS2R	12,260.15	1	12,260.15	March '00	2090	CTT
1999	46	Electric Screen	1,009.70	1	1,009.70	March '00	386	AV. ASESORES
1999	47	Mobile unit for Non Destructive Inspection Equipment	19,621.49	1	19,621.49	March '00	16452	FORD AUT.

TOTAL '99 USD 73,517.39

TOTAL '97, '98 '99 1,524,054.21

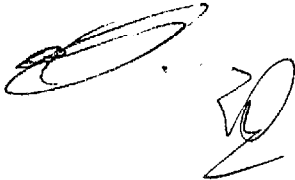
Fiscal Year	No.	Item	Unit Price US\$	Quantity	Amount US\$	Delivery Time	Invoice	Supplier
2001	48	Video boroscope, flexible with movement in 4 senses, model 128008, with color minivideocamera	30,190.00	1	30,190.00	August '01	B5111	AEISA
2001	49	Fatigue Testing Machine, model 810 servohydraulic	79,477.00	1	79,477.00	September '01		CTT

TOTAL '01 USD 109,667.00

TOTAL '97'98'99'01 1,633,721.21

Annex 15  
Machinery and Equipment Provided by  
Mexican Side

1.

Handwritten signature and scribble consisting of several overlapping loops and lines.

Annex.- 15 Machinery and Equipment Provided by Mexican Side.

(1/5)

Chemical Analysis Laboratory

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
LAN (Local Area Network)	HP.	NET SERVER LH	NO NUMBER	OK
PLASMA EMISSION SPECTROMETER	SPECTRO	FMD-07	5257/93	OK
ATOMIC ABSORPTION SPECTROMETER	VARIAN	AA-975	5031321	OK
ANALYZER FOR DETERMINING C AND S BY COMBUSTION METHOD	STROHLEIN	CSMAT-6250	9460705	OK
ULTRA VIOLET-VISIBLE SPECTROMETER	VARIAN	DMS-80	7021535	
ATOMIC ABSORPTION SPECTROMETER EXTRACTOR	NO MARK	NO MODEL	NO NUMBER	OK
PLASMA EMISSION SUPERSTRUCTURE	NO MARK	NO MODEL	NO NUMBER	OK
FUME HOOD SUPERSTRUCTURE	LABCONCO	72823-00	NO NUMBER	OK
HOT PLATE	THERMOLINE	HP-A2235M	6111884	OK
MUFLE FURNACE	THERMOLINE	6030CM	7119405391	OK
ELECTRIC HEATED DISTILLATION APPARATUS	INAPSA	DE-100	NO NUMBER	OK
PH METERS	CONDUCTRONIC	PH20	NO NUMBER	OK
CONDUCTMETER	HANNA	HI8033	949603	OK
MOISTURE DETERMINATION BALANCE	OHAUS	6010	27216	OK
AIR COMPRESSOR	EUANS	TO60ME100-108	NO NUMBER	OK
TRIPLE BEAM BALANCE	OAHS	700	28868	OK
EMERGENCY SHOWER	NO MARK	NO MODEL	NO NUMBER	OK
BORER	SOLBERGA	KESO/752-4	1210977	OK
BORER	PRECIS	NO MODEL	NO NUMBER	OK
REFRIGERATOR	IEM	852C	8104445	OK
ELECTRONIC ANALYTICAL BALANCE	ZALZGITTER	1801V50	3504019	OK
ELECTRONIC SUSPENDED PAN ANALYTICAL BALANCE	BOSCH	S 2000	16201	OK
VACUM PUMP	NO MARK	NO MODEL	NO NUMBER	OK

Non Destructive Testing Laboratory. Magnetic Particle Equipment

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
UV INTENSITY METER	TIEDE	J-221	25626	OK
MAGNETIC FIELD INTENSITY METER	TIEDE	MP-3X	3583	OK
RADIOMETER/FOTOMETER	SPECTROLINE	DSE-100X	406357	OK
VISIBLE SENSOR	SPECTROLINE	DIX-555A	406251	OK
UV SENSOR	SPECTROLINE	DIX365	406205	OK
ELECTROMAGNETIC YOKE	PERKER RESEARCH	DA-200	9917	OK
UV LAMP	SPECTROLINE	SB-100C	498979	OK
STANDARD BLOCK 4.5 KG	NO MARK	NO MODEL	NO NUMBER	OK
STANDARD BLOCK 18.1 KG	NO MARK	NO MODEL	NO NUMBER	OK
CENTRIFUGAL TUBE	TIEDE	ASTM D-96	NO NUMBER	OK
FILM CAMERA	SONY	CCD-TRV34	1016514	OK
MOBIL UNIT FOR INSPECTION	MAGNA FLUX	MAY KIT	200550	OK

Non Destructive Testing. Dye Penetrant Equipment

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
Ni-Cr STANDARD BLOCK	TESCO	PANEL NI-CR	NO NUMBER	OK
AI STANDARD BLOCK	CIDESI	ASME	2024T4	OK

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
FLAW DETECTOR	KRAUTKRAMER	USL/48	213472	OK
FLAW DETECTOR	KRAUTKRAMER	EPOCH III-2300	96156409	OK
FLAW DETECTOR	KRAUTKRAMER	EPOCH III-2300	95049305	OK
STANDARD BLOCK	ATS	IIW TIPO 1	A06666	OK
STANDARD BLOCK	KB-AEROTECH	IIW TIPO 2	793095	OK
STANDARD BLOCK	ATS	DSC	794873	OK
STANDARD BLOCK	ATS	5 STEPS	795880	OK
STANDARD BLOCK	KB-AEROTECH	4 STEPS	794555	OK
STANDARD BLOCK	KB-AEROTECH	DC	791469	OK
STANDARD BLOCK	KB-AEROTECH	RESOLUTION AWS	797156	OK
STANDARD BLOCK	KB-AEROTECH	CILINDRIC AREA/AMPLITUDE	794408	OK
STANDARD BLOCK	KB-AEROTECH	NAVHIPS	794512	OK
STANDARD BLOCK	ATS	CILINDRIC DISTANCE/AMPLI TUDE	794407-14	OK
STANDARD BLOCK	ATS	CILINDRIC DISTANCE/AMPLI TUDE	794781-99	OK
STANDARD BLOCK	ATS	CILINDRICS DISTANCE/AREA/ AMPLITUDE	795760-69	OK
STANDARD BLOCK	ATS	DSC	A06620	OK
STANDARD BLOCK	PANAMETRICS	ASME N-625	A08236	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 5 MHz I"	B14536	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 5 MHz I"	B14577	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 5 MHz 0.75"	B08530	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 3,5 MHz I"	F06574	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 3.5 MHz I"	F06555	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 2.25 MHz 0.75"	CO5538	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 2.25 MHz 0.75"	D27470	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 1MHz I"	H30332	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 1MHz I"	BO9446	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 1 MHz 0.75"	J26412	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 1 MHz 0.75"	MO7319	OK
STRAIGHT-BEAM TRANSDUCER	AEROTECH	GAMMA 1 MHz 0.75"	MO7321	OK
STRAIGHT-BEAM TRANSDUCER	NDT	GAMMA 2.25 MHz 0,25"	KII408	OK
STRAIGHT-BEAM TRANSDUCER	PANAMETRICS	GAMMA 2.25 MHz 0,25"	124210	OK
STRAIGHT-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 5 MHz 0.125"	202736	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 5 MHz 0.125"	FI2425	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 3.5MHz- 5/8" X 5/8"	D274444	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 3.5 MHz- 0.75"x I"	F12426	OK

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2,25 MHz 5/8" X 5/8"	K17431	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2,25 MHz 5/8" X 5/8"	K17432	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 1MHZ 0.5" X 1"	D16539	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz 5/8" X 5/8"	D16540	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 1MHz 0.5" X 1"	C26559	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 0.5MHz/1"	C26560	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 0.5MHz/1"	40690	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.5"	40733	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.5"	40741	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.5"	191005	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.5"	MO1912	OK
ANGLE-BEAM TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.5" MODEL 113/242/591 (MSWUC)	002FTX	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 10MHz/0.25"	MI9440	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 10MHz/0.25"	MI9443	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 5MHz/0,375"	A16585	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 5MHz/0,375"	A16581	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 5MHz/0.25"	L29906	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 3.5 MHz/0.375"	F21495	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.375"	C15587	OK
DUAL ELEMENT TRANSDUCER	KB-AEROTECH	GAMMA 2.25 MHz/0.375"	A19577	OK
DUAL ELEMENT TRANSDUCER	PANAMETRICS	GAMMA 5MHZ/0.5" X 1	198794	OK
DUAL ELEMENT TRANSDUCER	PANAMETRICS	GAMMA 3.5 MHZ/0.5" X 0.5"	180247	OK

**Non Destructive Testing Laboratory, Radiography Equipment**

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
X-RAY SYSTEM	ANDREX	2501	34453	OK
X-RAY SYSTEM	SOURCE ONE	XXQ-2505D	5751	OK
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK
25 ALUMINIUM IQI	ASTM	HOLE TYPE ASTM E-142	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-143	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-144	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-145	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-146	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-147	NO NUMBER	OK
25 ALUMINIUM-BRONZE IQI	ASTM	HOLE TYPE ASTM E-148	NO NUMBER	OK
25 PHOSPHORIZED-BRONZE IQI	ASTM	HOLE TYPE ASTM E-149	NO NUMBER	OK
25 PHOSPHORIZED-BRONZE IQI	ASTM	HOLE TYPE ASTM E-150	NO NUMBER	OK
TRANSMISSION DENSITROMETER	TECH/OPS	301	9119	OK
TRANSMISSION DENSITROMETER	X-RITE	331	2485	OK
RADIOISOTOPE SYSTEM 192-Ir	SPEC	SPEC-2T	921	OK
HIGH INTENSITY ILLUMINATOR	NO MARK	NO MODEL	I	OK
SCALE MAGNIFIER	FOWLER	SCALE MAGNIFIER	52-665-001	OK
DOSIMETER CHARGER	DOSIMETER CORP.	NO MODEL	4645	OK
PORTABLE DIGITAL OSCILOSCOPY	TEKTRONIX	THS720P	B053586	OK
DIGITAL OSCILOSCOPY	AGILENT	INFINIUM 54810A	US404 90101	OK
FAILURE ULTRASONIC DETECTOR	SONATEST	MASTER SCAN 330	3301706C	OK
PIEZOELECTRICS CONTROLER				
DIGITAL MULTRIMETER 6.5 DIGITS	AGILENT	34401A	US36129380	OK
NEGATOSCOPY VARIABLE INTENSITY	INSTRUMENT TECHNOLOGY	128008	13174569	OK
POWER SOURCE	AGILENT	E3631A	MY40004041	OK

**Welding Technology**

WELDING MACHINE	MILLER	SYNCROWAVE 350	KA817299	OK
WELDING MACHINE	MILLER	DELTA WELD 652	KK254075	OK
WELDING MACHINE (MIG)	INFRA	DELTA MIG 352	A-221-001HO	OK
WELDING MACHINE (SMAW)	LINCOLN ELETRIC	SMIG CV 300	1000928362	OK
WELDING MACHINE (MIG)	LINCOLN ELETRIC	SQUARE WAVE TIG 275	1065- U1001005938	OK
WELDING MACHINE (MIG)	INFRA	DELTA MIG 352	A-221-01810	OK
WELDING MACHINE (TIG)	INFRA	ALPHA TIG 252	376-002F0	OK
WELDING MACHINE (TIG SMAW)	LINCOLN ELECTRIC	TIG 275	10605- U1001605949	OK
VISUAL INSPECTION KIT				
ANTIVIBRATIONS TABLE (FILTRE)				

**Metallography Laboratory**

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
METALLOGRAPHIC MICROSCOPE	LEITZ	METALLOVERT	53825	OK
EXPOSIMETER	WILD	MP545	91414	OK
STANDARD MICROMETER OF 1mm WITH 100 DIVISIONS FOR MICROSCOPE	NO MARK	081-864-001	NO NUMBER	OK
METALLOGRAPHIC MICROSCOPE	NO MARK	082-200-004	273735	OK
METALLOGRAPHIC MICROSCOPE	NACHET	TM-75	272	OK
MICROHARDNESS	OPL	NO MODEL	42	OK
STEREOSCOPE	OPL	NO MODEL	306027	OK
PORTABLE METALLOGRAPHIC MICROSCOPE	NACHET	NO MODEL	86502	OK

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
MUFFLE FURNACEW	SWIFT-FM-41	NO MODEL	72062	OK
AUTOMATIC CUT-OFF MACHINE	PROLABO	POWERMET-1	398-PAC-168	OK
AIR COMPRESSOR	BUEHLER	NO MODEL	4375	OK
DIAMOND CUT-OFF SAW	CBS	ISOMET	441-IS-14848	OK
ELECTROLITIC POLISHER	BUEHLER	NO MODEL	1421993	OK
SPECIMEN MOUNT PRESS	STRUERS	NO MODEL	NO NUMBER	OK
METALLOGRAPHIC SPECIMENS POLISHING	BUEHLER	NO MODEL	255-T-247	OK
METALLOGRAPHIC SPECIMENS POLISHING	JPS	NO MODEL	737-07-38	OK
EMERYL GRINDING	MAPE	NO MODEL	167-188-180	OK
FOTOGRAFIC CAMERA	CANON	AE-1 PROGRAM	4339751	OK
METALLOGRAPHIC SPECIMENS POLISHER/GRINDER MACHINE	STRUERS	KNUTH ROTOR	1441657	OK
PERMASCOPE (TESTER OF LAYERS NON MAGNETIC OVER MAGNETIC MATERIAL	TESTWELL FISHER	NO MODEL	121898	OK
PERMASCOPE (TESTER OF LAYERS NON MAGNETIC OVER MAGNETIC MATERIAL	TESTWELL FISHER	NO MODEL	322151	OK
ANALYTICAL BALANCE	METILER	NO MODEL	3639974	OK
AMPLIFIER PHOTOGRAFIC FOR COLOR	OPEMUS	NO MODEL	606209	OK
AMPLIFIER PHOTOGRAFIC FOR BLACK AND WHITE	LEITZ	NO MODEL	NO NUMBER	OK
OVAL MUFFLE FURNACE	LINDBERG	MOD. 51894	85410	OK
STEROSCOPY MICROSCOPE	LEICA	230V	NO NUMBER	OK

*Mechanical Test Laboratory*

DESCRIPTION	TRADEMARK	MODEL	S/N	CONDITIONS
UNIVERSAL HARDNESS MACHINE	FRONKOSKOP	1968	660	OK
VICKERS HARDNESS MACHINE	LIMITED	VICKERS	H1M6771	OK
ROCKWELL HARDNESS MACHINE	MITUTOYO	RCD150	89001	OK
PORTABLE BRINELL HARDNESS TESTED (3000 Kg)	BRINELL	BRINELL	1644	OK
IMPACT MACHINE (CHARPY)	NO MARK	PSN30kgm	2621	OK
UNIVERSAL TESTING MACHINE	GALDABINI	1968	25008	OK
FLEXURAL ROTATE MACHINE (HIGH TEMPERATURE)	ADAMEL	ADAMEL No. 17	NO NUMBER	OK
FLEXURAL ROTATE MACHINE (211 PN)	SCHENK	PUN-NS	PUN-0211	OK
FLEXURAL ROTATE MACHINE (210 PN)	SCHENK	PUN-NS	PU-0210	OK
FLEXURAL ALTERNATIVE MACHINE (PWO-034)	SCHENK	PUN.NS	PWO-0314	OK
FLEXURAL ROTATE UNIVERSAL MACHINE PUNZO 212	SCHENK	PWD-NS	PUN-0212	OK
TORSION MACHINE PWY 0027	SCHENK	PWYS-NS	PWY	OK
MECHANIC DRILL	PRECIS	NO MODEL	NO NUMBER	OK
LATHE	ATLASS	NO MODEL	NO NUMBER	OK
SAMPLES DESIGNER	MOHR	TE	6340	OK
ERICHSEN TESTER	JTT	ESM1	12391	OK
STRAIN METER STATIC	TOKYO SOKKI	TC-31K	351817	OK
STRAIN METER DINAMIC	TOKYO SOKKI	DC-96A	40162	OK
GRAPHTEC CHART		SP323	NO NUMBER	OK
WELDING APPLICATION KIT	M-LINE	SA-1-115	NO NUMBER	OK



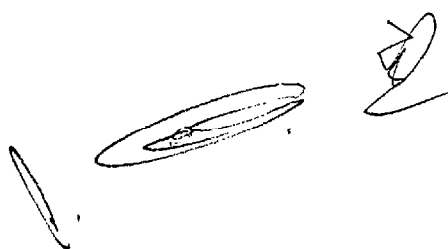
Annex 16  
List of the Mexican Counterpart  
Personnel Trained in Japan



Annex.- 16 List of the Mexican C/P Trained in Japan

No.	Name of C/P	Function in the Project	Subject of Training	Term of Acceptance
<b>JAPANESE FISCAL YEAR (1997)</b>				
1	Ángel Ramírez Vázquez	Director General, CIDESI	Project Management	January 18-February 6
2	Cirilo Noguera Silva	Director of Material Technology	Project Management	January 18-February 6
<b>JAPANESE FISCAL YEAR (1998)</b>				
3	Carlos Ramirez Baltazar	Engineer (Metallography)	Electronic Microscope Operations	November 9-December 8
4	Estela González Caballero	Chemist (Chemical Analysis)	Chemical Analysis	November 9-December 8
5	Jaime González Silva	Engineer (NDT)	Non Destructive Test	November 9-December 8
6	Judit Rivera Montalvo	Administrative Director	Project Management	March 1 <sup>st</sup> - March 21
<b>JAPANESE FISCAL YEAR (1999)</b>				
7	Santos García Miranda	Engineer (Non Destructive Test)	Non Destructive Test	September 20 - october 30
8	Rosalba Hernández Rivera	Chemist (Chemical Analysis)	Chemical Analysis	September 20 - october 30
9	Concepción Obregon Zepeda	Engineer (Mechanical Test)	Mechanical Test	September 20 - october 30
<b>JAPANESE FISCAL YEAR (2000)</b>				
10	Rolando Rosales Nava	Technician (Metallography)	Fractographic & Failure Analysis	September 20 - october 30
11	Mauricio Tello Rico	Engineer (Non Destructive Test)	NDT Inspection	September 20 - october 30
12	José Nuñez Alcocer	Engineer (Non Destructive Test)	NDT Inspection	September 20 - october 30
<b>JAPANESE FISCAL YEAR (2001)</b>				
13	Ofelia Wong Aguilera	Engineer (Chemical Analysis)	Chemical Analysis	September 25 - October 31
14	Gerardo Castillo Pérez	Technician (Mechanical Test)	Mechanical Test	September 25 - October 31
15	José Luis Ojeda Elizarrarás	Engineer (Metallography)	Mechanical Test	September 25 - October 31

Annex 17  
Number of Committees and Meetings

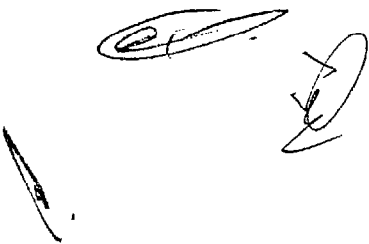


ANNEX.- 17 NUMBER OF COMMITTEE AND MEETING

PROJECT WEEKLY WORKING MEETING					PROJECT MONTHLY ADMINISTRATIVE MEETING			
No.	1998	1999	2000	2001	1998	1999	2000	2001
1	March 3 <sup>rd</sup>	January 18 <sup>th</sup>	January 10 <sup>th</sup>	January 8 <sup>th</sup>	May 14 <sup>th</sup>	February 11st		October 20 <sup>th</sup>
2	March 20 <sup>th</sup>	January 25 <sup>th</sup>	February 11 <sup>st</sup>	January 15 <sup>th</sup>	June 17 <sup>th</sup>	August 24 <sup>th</sup>	October 8 <sup>th</sup>	November 8 <sup>th</sup>
3	March 30 <sup>th</sup>	February 1 <sup>st</sup>	February 21 <sup>st</sup>	January 29 <sup>th</sup>	August 19 <sup>th</sup>	December 16 <sup>th</sup>		
4	April 6 <sup>th</sup>	February 8 <sup>th</sup>	February 28 <sup>th</sup>	February 8 <sup>th</sup>	November 12 <sup>nd</sup>			
5	April 20 <sup>th</sup>	February 15 <sup>th</sup>	March 6 <sup>th</sup>	February 13 <sup>th</sup>	June 26 <sup>th</sup>			
6	April 27 <sup>th</sup>	February 22 <sup>nd</sup>	March 13 <sup>rd</sup>	February 19 <sup>th</sup>	July 3 <sup>rd</sup>			
7	May 11st	March 8 <sup>th</sup>	March 23 <sup>rd</sup>	March 5 <sup>th</sup>				
8	May 18 <sup>th</sup>	March 15 <sup>th</sup>	April 3 <sup>rd</sup>	March 12 <sup>th</sup>				
9	May 25 <sup>th</sup>	March 22 <sup>nd</sup>	April 10 <sup>th</sup>	April 2 <sup>nd</sup>				
10	June 1 <sup>st</sup>	March 29 <sup>th</sup>	April 24 <sup>th</sup>	April 16 <sup>th</sup>				
11	June 8 <sup>th</sup>	April 12 <sup>nd</sup>	May 8 <sup>th</sup>	April 23 <sup>th</sup>				
12	June 15 <sup>th</sup>	April 19 <sup>th</sup>	May 24 <sup>th</sup>	May 7 <sup>th</sup>				
13	June 22 <sup>nd</sup>	May 3 <sup>rd</sup>	May 29 <sup>th</sup>	May 21 <sup>st</sup>				
14	June 29 <sup>th</sup>	May 11st	June 13 <sup>rd</sup>	June 11 <sup>th</sup>				
15	July 6 <sup>th</sup>	June 7 <sup>th</sup>	June 19 <sup>th</sup>	June 26 <sup>th</sup>				
16	July 13 <sup>rd</sup>	June 14 <sup>th</sup>	July 3 <sup>rd</sup>	July 16 <sup>th</sup>				
17	July 20 <sup>th</sup>	June 21 <sup>st</sup>	July 17 <sup>th</sup>	July 23 <sup>th</sup>				
18	July 27 <sup>th</sup>	September 6 <sup>th</sup>	July 26 <sup>th</sup>	July 30 <sup>th</sup>				
19	August 3 <sup>rd</sup>	September 13 <sup>rd</sup>	August 7 <sup>th</sup>	August 6 <sup>th</sup>				
20	August 17 <sup>th</sup>	September 20 <sup>th</sup>	August 21st	August 20 <sup>th</sup>				
21	August 24 <sup>th</sup>	September 27 <sup>th</sup>	August 28 <sup>th</sup>	August 27 <sup>th</sup>				
22	September 8 <sup>th</sup>	October 4 <sup>th</sup>	September 4 <sup>th</sup>	September 10 <sup>th</sup>				
23	September 14 <sup>th</sup>	October 11 <sup>th</sup>	September 11 <sup>th</sup>	September 17 <sup>th</sup>				
24	September 29 <sup>th</sup>	October 18 <sup>th</sup>	September 20 <sup>th</sup>	September 24 <sup>th</sup>				
25	October 5 <sup>th</sup>	October 25 <sup>th</sup>	September 25 <sup>th</sup>	October 15 <sup>th</sup>				
26	October 26 <sup>th</sup>	November 15 <sup>th</sup>	October 2 <sup>nd</sup>	October 22 <sup>th</sup>				
27	November 9 <sup>th</sup>	November 22 <sup>th</sup>	October 16 <sup>th</sup>	October 29 <sup>th</sup>				
28	November 16 <sup>th</sup>	December 13 <sup>rd</sup>	October 25 <sup>th</sup>	November 5 <sup>th</sup>				
29	November 23 <sup>rd</sup>		October 31st	November 12 <sup>th</sup>				
30	November 30 <sup>th</sup>		November 6 <sup>th</sup>	November 19 <sup>th</sup>				
31	December 7 <sup>th</sup>		November 23 <sup>rd</sup>	November 26 <sup>th</sup>				
32			December 4 <sup>th</sup>					
PROJECT JOINT COORDINATING COMMITTEE & PROJECT SUPPORTING COMMITTEE								
1998								
1	1 <sup>st</sup> Meeting of the Joint Coordinating Committee at the time of Management Consultation Study October 19 <sup>th</sup>							
1999								
1	2 <sup>nd</sup> Meeting of the Joint Coordinating Committee April 13 <sup>th</sup>							
2	1 <sup>st</sup> Meeting of the Project Supporting Committee September 24 <sup>th</sup>							
3	3 <sup>rd</sup> Meeting of the Joint Coordinating Committee October 29 <sup>th</sup>							
2000								
1	4 <sup>th</sup> Meeting of the Joint Coordinating Committee on the occasion of visit of the Japanese Advisory Team January 24 <sup>st</sup>							
2	2 <sup>nd</sup> Meeting of the Project Supporting Committee February 18 <sup>th</sup>							
3	5 <sup>th</sup> Meeting of the Joint Coordinating Committee October 13 <sup>rd</sup>							
2001								
1	3 <sup>rd</sup> Meeting of the Project Supporting Committee January 19 <sup>th</sup>							
2	6 <sup>th</sup> Meeting of the Joint Coordinating Committee March 30 <sup>th</sup>							


\* Extraordinary meeting.

Annex 18  
Manuals Prepared for Operation &  
Maintenance of Machinery and Equipment



EQUIPMENT	MAINTENANCE MANUAL	CALIBRATION MANUAL	OPERATION MANUAL
<i>NON DESTRUCTIVE TESTING</i>			
Portable Digital Flaw Ultrasonic Detector	Portable Digital Flaw Ultrasonic Detector Maintenance Manual	Portable Digital Flaw Ultrasonic Detector Calibration Manual	Portable Digital Flaw Ultrasonic Detector Operation Manual
Weld Defect Samples	Weld Defect Samples Maintenance Manual	Weld Defect Samples Calibration Manual	Weld Defect Samples Operation Manual
Ultrasonic Testing Apparatuses	Ultrasonic Testing Maintenance Manual	Ultrasonic Testing Calibration Manual	Ultrasonic Testing Operation Manual
Portable Digital Flaw Detector	Portable Digital Flaw Detector Maintenance Manual	Portable Digital Flaw Detector Calibration Manual	Portable Digital Flaw Detector Operation Manual
Ultrasonic Testing Apparatus	Ultrasonic Testing Apparatus Maintenance Manual	Ultrasonic Testing Apparatus Calibration Manual	Ultrasonic Testing Apparatus Operation Manual
<i>METALLOGRAPHY</i>			
Scanning and Electron Microscope	Scanning and Electron Microscope Maintenance Manual	Scanning and Electron Microscope Calibration Manual	Scanning and Electron Microscope Operation Manual
Microhardness Tester	Microhardness Tester Maintenance Manual	Microhardness Tester Calibration Manual	Microhardness Tester Operation Manual
Electrolyte Polisher	Electrolyte Polisher Maintenance Manual	Electrolyte Polisher Calibration Manual	Electrolyte Polisher Operation Manual
Sample Polishing Machine	Sample Polishing Machine Maintenance Manual	Sample Polishing Machine Calibration Manual	Sample Polishing Machine Operation Manual
Sample Mounting Press	Sample Mounting Press Maintenance Manual	Sample Mounting Press Calibration Manual	Sample Mounting Press Operation Manual

Annex 19  
Maintenance and Calibration Program





**UEN DE TECNOLOGIA DE MATERIALES  
PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE PRUEBAS MECANICAS PARA EL 2001**



MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

SERVICIO REALIZADO

FUERA DE CALIBRACION

HOJA 1 DE 2

No. FOLIO	DESCRIPCIÓN DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC	
					MANTENIMIENTO														
1	PENDULO CHARPY	SATEC	S1-1K3	1786	ANUAL	BIEN				▼									
					ANUAL	BIEN													
2	PENDULO CHARPY	TRAYVOU	PSN-30 Kgm	2621	ANUAL	MAL				▼									
					ANUAL	MAL													
3	DUROMETRO BRINELLA	SUN-TEC	HB 30C0B	9815B	ANUAL	BIEN				▼									
					ANUAL	BIEN													
4	DUROMETRO ROCKWELL	FUTURE-TECH	FR-3	FR-3172	ANUAL	BIEN				▼									
					ANUAL	BIEN													
5	DUROMETRO ROCKWELL	MITUTOYO	RCED-150	89001	ANUAL	BIEN				▼									
					ANUAL	BIEN													
6	DUROMETRO VICKERS	VICKERS	3000 Kg	HTM6771	ANUAL	BIEN				▼									
					ANUAL	BIEN													
7	DUROMETRO PORTATIL	BRINELLA	3000 Kg	1644	ANUAL	BIEN				▼									
					ANUAL	BIEN													
8	MICRO MAQUINA UNIVERSAL 10 TONS.	INSTRON	4482	C3911	ANUAL	BIEN				▼									
					ANUAL	BIEN													
9	MAQ. UNIVERSAL 100 TONS.	SHIMADZU	UH-100 KN	UH-AC	ANUAL	BIEN				▼									
					ANUAL	BIEN													
10	MAQ. UNIVERSAL 30 TONS.	AMSLER	SZBD	699/489	ANUAL	BIEN				▼									
					ANUAL	BIEN													

- 123 -

TEC. GERARDO CASTILLO PEREZ  
ELABORADO POR

MA. CONCEPCION OBREGON ZEPEDA  
Revisado por

M.C JOEL CHAPARRO GONZALEZ.  
Autorizado por





**U.E.N. DE TECNOLOGIA DE MATERIALES  
PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE METALOGRAFIA PARA 2001**



MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

Realizado

FUERA DE CALIBRACION

HOJA 1 DE 2

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC
					MANTENIMIENTO												
1	MICROSCOPIO OPTICO	LEITZ	METALLOVERT	53025	ANUAL												
					CADA 2 MESES												
2	MICROSCOPIO OPTICO	NACHET	75	273735	ANUAL												
					CADA 2 MESES												
3	MICRODUOMETRO	OPL	42	*****	ANUAL												
					CADA 2 MESES												
4	MAQUINA CORTADORA DE DISCO	BUEHLER	METASERV	398PAC168	N/A												
					CADA 4 MESES												
6	AMPLIFICADORA BLANCO Y NEGRO	OPEMUS 6	MEOPTA	****	N/A												
					CADA 4 MESES												
7	BALANZA ANALITICA	METTLER	P1200	82914	N/A												
					CADA 4 MESES												
8	CORTADORA DE DISCO DE DIAMANTE	BUEHLER	ISOMET	1484E	N/A												
					CADA 4 MESES												
9	DESBASTADORA	STRUERS INSTRUMENTS	*****	1441-657	N/A												
					CADA 4 MESES												
10	ESMERIL	MAPE	201-MP	LG7188-180	N/A												
					CADA 4 MESES												
12	MAQUINA PULIDORA	BUEHLER	481572	255247	N/A												
					CADA 4 MESES												
13	MARCO DE PESAS	OHAUS	*****	*****	CADA 2 AÑOS												
					N/A												
14	MICROSCOPIO ELECTRICO DE BARRIDO	PHILIPS	XL-30	30 0306/266	N/A												
					CADA 6 MESES												
15	MICRODUOMETRO	FUTURE TECH	FM-7	F117309	ANUAL												
					CADA 2 MESES												
16	PRENSA MONTADORA	LECO	805-600-125	3368	N/A												
					CADA 3 MESES												
18	MAQUINA PULIDORA ELECTROLITICA	BUEHLER	ELECTROMET	70-1830-115	N/A												
					CADA 3 MESES												

ELABORADO POR: ROLANDO ROSALES NAVA

AUTORIZADO POR:

M.C. JOEL CHAPARRO GONZALEZ



**U.E.N. DE TECNOLOGIA DE MATERIALES  
PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE METALOGRAFIA PARA 2001**



MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

Realizado

FUERA DE CALIBRACION

HOJA 2 DE 2

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC	
					MANTENIMIENTO													
17	MAQUINA PULIDORA DE PROBETAS	LECO	825-100-231	3167	N/A													
					CADA 3 MESES													

ELABORADO POR: ROLANDO ROSALES NAVA

AUTORIZADO POR:

M.C. JOEL CHAPARRO GONZALEZ



GERENCIA DE TECNOLOGIA DE MATERIALES  
PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE ANALISIS QUIMICOS PARA 2001



○ MANT. CORRECTIVO

MANT. PREVENTIVO

○ CALIBRACION

✓ SERVICIO REALIZADO

○ FUERA DE CALIBRACION

HOJA 1 DE 3

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC
					MANTENIMIENTO													
1	ESPECTROMETRO DE EMISION POR PLASMA ACOPLADO. SPECTROFLAME	SPECTRO	FMD-07	5257#3	EN CADA ANALISIS	OK		✓			✓			✓				
					CUATRIMESTRAL	OK												
2	ESPECTROFOTOMETRO DE ABSORCION ATOMICA	VARIAN	AA-975	503 1321	EN CADA ANALISIS	OK		✓						✓				
					SEMESTRAL	OK												
3	ANALIZADOR PARA CARBON Y AZUFRE POR COMBUSTION	STROHLEIN	CS MAT 6250	9460705	EN CADA ANALISIS	OK		✓			✓			✓				
					CUATRIMESTRAL	OK												
5	ESPECTROFOTOMETRO ULTRAVIOLETA-VISIBLE	VARIAN	DMS-80	702 1535	EN CADA ANALISIS	OK												
					SOLO CORRECTIVO	OK												
11	PARRILLA ELECTRICA	THERMOLYNE	NI	NI	N/A	OK					✓							
					ANUAL	OK												
13	MUFLA	THERMOLYNE	6030 CM	71194057391	N/A	OK												
					SOLO CORRECTIVO	OK												
21	POTENCIOMETRO	CONDUCTRONIC	PH-20		EN CADA ANALISIS	OK												
					SOLO CORRECTIVO	OK												
22	CONDUCTIMETRO	HANNA INSTRUMENTS	HI-8033	949603	EN CADA ANALISIS	OK												
					SOLO CORRECTIVO	OK												
24	COMPRESOR DE AIRE	EVANS	T060ME	100-108	N/A	OK												
					ANUAL	OK												
25	TALADRO	SOLBERGA	NI	1542	N/A	OK								✓				
					ANUAL	OK												
26	TALADRO	PRECIS	TBE 4-13		N/A	OK					✓							
					ANUAL	OK												
27	BALANZA ANALITICA ELECTRONICA DIGITAL	SARTORIUS	1801	3504019	ANUAL	OK					✓							
					ANUAL	OK	✓											
28	BALANZA ANALITICA MECANICA	BOSCH	S2000	16207	ANUAL	OK	✓											
					ANUAL	OK	✓											
29	MARCO DE MASAS	TREMNER		41242	ANUAL	OK	✓											
					ANUAL	OK	✓											
32	REGADERAS DE EMERGENCIA	NI	NI	NI	N/A	OK												
					SOLO CORRECTIVO	OK												

ELABORADO POR:

Q.M. MA. ESTELA GONZALEZ CABALLERO

AUTORIZADO POR:

M.C. JOEL CHAPARRO GONZALEZ

○ MANT. CORRECTIVO

MANT.PREVENTIVO

○ CALIBRACION

SERVICIO REALIZADO

○ FUERA DE CALIBRACION

HOJA 2 DE 3

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC
					MANTENIMIENTO													
34	ESPECTROMETRO DE FUORESCENCIA DE RAYOS X	PHILIPS	PW2400	DY 1123	EN CADA ANALISIS													
					ANUAL	OK								✓				
35	ESPECTROMETRO DE EMISIO OPTICA POR CHISPA ESPECTROLAB	SPECTRO	LAV MB	9435/EB	EN CADA ANALISIS													
					CUATRIMESTRAL	OK		✓		✓				✓				
36	SISTEMA DE PREPARACIÓN DE MUESTRAS HORNO DE MICROONDAS	PERKIN ELMER	ANTON PARA	2207712	N/A													
					SOLO CORRECTIVO	OK												
38	ESPECTROFOTOMETRO DE ABSORCION ATOMICA	VARIAN	SPECTRAA 220	NA	EN CADA ANALISIS													
					SEMESTRAL	OK		✓						✓				
40	CAMPANA DE EXTRACCION	LABCONCO	NA	NA	N/A													
					ANUAL	OK		✓										
8	EXTRACTOR DE ABSORCION ATOMICA AA 220	NA	NA	NA	N/A													
					ANUAL	OK		✓										
9	EXTRACTOR DE ICP	NA	NA	NA	N/A													
					ANUAL	OK				✓								
42	EXTRACTOR DE ABSORCION ATOMICA AA 975	NA	NA	NA	N/A													
					ANUAL	OK				✓								
41	DESBASTADORA DE BANDA DUOMET II	BUEHLER	16-1290-160	534-NDMT-1605	N/A													
					ANUAL	OK		✓										
43	PARRILLA ELECTRICA CIMAREC 3	THERMOLYNE	8P47235-80	10729704 84142	N/A													
					ANUAL	OK								✓				
44	REGULADOR DE TENSION TIPO INDUSTRIAL PARA ABSORCION ATOMICA SPECTRAA220	SOLA BASIC	CVH	NA	N/A													
					ANUAL	OK									✓			
45	REGULADOR ELECTRONICO DE VOLTAJE PARA EL EQUIPO DE COMBUSTION	S/I	S/I	S/I	N/A													
					ANUAL	OK					✓							
46	REGULADOR DE TENSION TIPO COMPUTADORA PARA EL EQUIPO DE ULTRAVIOLETA-VISIELE	SOLA BASIC	CVH	85-1	N/A													
					CORRECTIVO	OK												
47	STABLINE POWER CONDITIONER WHC SERIES EQUIPO DE FLUORESCENCIA DE RAYOS X	WARNER ELECTRIC DANA	WHC1228012	12598 39	N/A													
					ANUAL	OK									✓			
48	REGULADOR DE TENSION TIPO INDUSTRIAL PARA EL EQUIPO DE ABSORCION ATOMICA AA975	SOLA BASIC	CVH	85-C	N/A													
					ANUAL	OK								✓				
49	REGULADOR DE TENSION TIPO INDUSTRIAL PARA EL EQUIPO DE EMISION POR CHISPA	SOLA BASIC	CVH	98-C	N/A													
					ANUAL	OK								✓				
50	BOMBA DE VACIO				N/A													
					ANUAL	OK									✓			



# PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO DEL LABORATORIO DE RADIOGRAFIA PARA 2001

REV-03

○ MANT. CORRECTIVO

○ MANT. PREVENTIVO

○ CALIBRACION

✓ SERVICIO REALIZADO

○ FUERA DE CALIBRACION

HOJA 1 DE 4

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC
					MANTENIMIENTO	ACTUAL												
RT-001-01	GAMMALARMA	TECH/OPS	492D	2143	ANUAL	REPARADO												
					ANUAL	SERVICIO REALIZADO												
RT-001-02	GAMMALARMA	TECH/OPS	492D	2142	ANUAL	OK												
					ANUAL	OK												
RT-002-01	RADIOMETRO	VICTOREEN	492	6376	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-002-02	RADIOMETRO	VICTOREEN	492	6344	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-003-01	RADIOMETRO	TA	PUG-LAB	116225	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-003-02	RADIOMETRO	TA	PUG-LAB	116227	ANUAL	REPARADO												
					ANUAL	REPARADO												
RT-004-01	DETECTOR DE ALARMA	TECH/OPS	5-205	C311	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-004-02	DETECTOR DE ALARMA	TECH/OPS	5-205	C319	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-004-03	DETECTOR DE ALARMA	TECH/OPS	5-205	C332	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-004-04	DETECTOR DE ALARMA	TECH/OPS	5-205	C375	ANUAL	OK							✓					
					ANUAL	OK					✓							
RT-005-01	DOSIMETRO DIGITAL	SUPERDAD	1888-A	275286	ANUAL	OK			✓									
					ANUAL	OK			✓									
RT-005-02	DOSIMETRO DIGITAL	SUPERDAD	1888-A	276286	ANUAL	OK												
					ANUAL	OK												
RT-005-03	DOSIMETRO DIGITAL	SUPERDAD	1888-A	277286	ANUAL	OK												
					ANUAL	OK												
RT-005-04	DOSIMETRO DIGITAL	SUPERDAD	1888-A	278286	ANUAL	OK												
					ANUAL	OK												
RT-006-01	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	373G	ANUAL	OK							✓					
					SEMESTRAL	OK												
RT-006-02	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0401G	ANUAL	REPARADO												
					SEMESTRAL	REPARADO												
RT-006-03	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0412G	ANUAL	OK							✓					
					SEMESTRAL	OK												

**PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE RADIOGRAFIA PARA 2001**

REV-03

○ MANT. CORRECTIVO

MANT. PREVENTIVO

○ CALIBRACION ✓ SERVICIO REALIZADO

○ FUERA DE CALIBRACION

HOJA 2 DE 4

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE		ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC	
					CALIBRACION	MANTENIMIENTO														
RT-006-04	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0423G	ANUAL															
					SEMESTRAL															
RT-006-05	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0443G	ANUAL															
					SEMESTRAL															
RT-006-06	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0447G	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-006-07	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	0480G	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-006-08	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	1202G	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-006-09	DOSIMETRO TIPO PLUMA	VICTOREEN	541-R	1211G	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-007-01	DOSIMETRO TIPO PLUMA	X-RAY	862	405323	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-007-02	DOSIMETRO TIPO PLUMA	X-RAY	862	405331	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-007-03	DOSIMETRO TIPO PLUMA	X-RAY	862	405334	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-007-04	DOSIMETRO TIPO PLUMA	X-RAY	862	405338	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-007-05	DOSIMETRO TIPO PLUMA	X-RAY	862	405343	ANUAL	FUERA DE SERVICIO														
					SEMESTRAL	FUERA DE SERVICIO														
RT-008	EQUIPO DE RAYOS X	ANDREX	2501	34453	N/A	FUERA DE OPERACION														
					ANUAL	FUERA DE OPERACION														
RT-009-01					N/A															
AL 009-06	JUEGO DE 25 PENET. DE AL	ASTM	BARRENO ASTM E-142	S/N	ANUAL	OK	✓													
RT-009-07					N/A															
AL 009-12	JUEGO DE 25 PENET. DE AL-BR	ASTM	BARRENO ASTM E-142	S/N	ANUAL	OK	✓													
RT-009-13					N/A															
AL 009-18	JUEGO DE 25 PENET. DE P-BR	ASTM	BARRENO ASTM E-142	S/N	ANUAL	OK	✓													
RT-009-19					N/A															
AL 009-24	JUEGO DE 25 PENET. DE MONEL	ASTM	BARRENO ASTM E-142	S/N	ANUAL	OK	✓													
RT-009-25					N/A															
AL 009-28	JUEGO DE 25 PENET. DE INOX.	ASTM	BARRENO ASTM E-142	S/N	ANUAL	OK	✓													

**PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO  
DEL LABORATORIO DE RADIOGRAFIA PARA 2001**

REV-03

○ MANT. CORRECTIVO

MANT. PREVENTIVO

○ CALIBRACION ✓ SERVICIO REALIZADO

○ FUERA DE CALIBRACION

HOJA 3 DE 4

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC
					MANTENIMIENTO													
RT-010	DENSITOMETRO DE TRANSMISION	TECH/OPS	301	9119	ANUAL	OK	✓		✓		✓		✓		✓		✓	
					ANUAL													
RT-011	DENSITOMETRO DE TRANSMISION	X-RITE	331	002455	TRIMESTRAL	FUERA DE OPERACION												
					TRIMESTRAL													
RT-012	EQUIPO DE RAYOS GAMMA	SPEC	SPEC-2T	921	N/A													
					ANUAL	OK												
RT-013	NEGATOSCOPIO	S/M	S/N	01	N/A													
					SEMESTRAL	OK	✓				✓							
RT-014	PANTALLAS Y PORTAPELICULAS	S/M	S/N	S/N	N/A													
					ANUAL	OK	✓											
RT-015-01	JUEGO DE 18 PENT. DE Cu	ASTM	HILOS ASTM E-747	S/N	N/A													
					ANUAL	OK	✓											
RT-015-02	JUEGO DE 18 PENT. DE ACERO	ASTM	HILOS ASTM E-747	S/N	N/A													
					ANUAL	OK	✓											
RT-015-03	JUEGO DE 18 PENT. DE Al	ASTM	HILOS ASTM E-747	S/N	N/A													
					ANUAL	OK	✓											
RT-016-01	JUEGO DE 21 PENET. DE Al	DIN 62	HILOS DIN 62	S/N	N/A													
					ANUAL	OK	✓											
RT-016-02	JUEGO DE 21 PENET. DE Cu	DIN 62	HILOS DIN 62	S/N	N/A													
					ANUAL	OK	✓											
RT-016-03	JUEGO DE 21 PENET. DE ACERO	DIN 62	HILOS DIN 62	S/N	N/A													
					ANUAL	OK	✓											
RT-017	ALARMA SONORA	X-GAMMA	S/N	S/N	ANUAL	FUERA DE SERVICIO												
					ANUAL													
RT-018	MONITOR DE AREA	S/M	S/N	2182	ANUAL	FUERA DE SERVICIO												
					ANUAL													
RT-019	GAMMALARMA	S/M	S/N	S/N	ANUAL	FUERA DE SERVICIO												
					ANUAL													
RT-020	TINA DE AC. INOX. P/REVELAR	S/M	S/N	S/N	ANUAL	OK						✓						
					N/A													
RT-021	SECADORA PARA RADIOGRAFIAS	S/M	S/N	S/N	ANUAL	OK						✓						
					N/A													
RT-022	RELOJ P/ CUARTO OSCURO	GRA-LAB	300	S/N	ANUAL	OK						✓						
					N/A													



## PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO DEL LABORATORIO DE RADIOGRAFIA PARA 2001

REV-03

MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

SERVICIO REALIZADO

FUERA DE CALIBRACION

HOJA 4 DE 4

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC
					MANUTENIMIENTO													
RT-023-01		KODAK, UL			N/A													
AL 023-09	LAMPARA PCUARTO OSCURO	KD PARIS, TR600	S/N	S/N	ANUAL													
RT-024	COMPARADOR OPTICO 7X	FOWLER	SCALE MAGNIFIER	52-665-001	N/A													
					ANUAL													
RT-025	CONTENEDOR EDUCATIVO	TECH/OPS	660 XL	74	N/A													
					ANUAL	OK						✓						
RT-026	TELEMANDO EDUCATIVO	TECH/OPS	604	3758	N/A													
					ANUAL	OK						✓						
RT-027	CARGADOR DE DOSIMETROS	DOSIMETER COR	S/N	4645	N/A													
					ANUAL	OK						✓						
RT-028	EQUIPO DE RAYOS X	SOURCE ONE	XXQ2505D	6750	N/A													
					ANUAL	OK											✓	
RT-029	EQUIPO DE RAYOS X	X-IT	CMA-5	2424	N/A													
					ANUAL	OK												
RT-030	TERMO-HIGROMETRO	S/M	3310-40	S/N	N/A													
					ANUAL	OK												
RT-031	TERMOMETRO DE CARATULA	TEL-TRU	S/M	S/N	N/A													
					ANUAL	OK												
TR-032	PELICULAS DE INT. RAD.	QCC	S/M	S/N	N/A													
					ANUAL	OK												
RT-033	KIT DE RADIOGRAFIA	FLAW TECH	S/M	S/N	N/A													
					ANUAL	OK												

ELABORADO POR:

ING. JAIME GONZALEZ SILVA

AUTORIZADO POR:

M.C. JOEL CHAPARRO G.

# PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO DEL LABORATORIO DE METODOS SUPERFICIALES PARA 2001

Realizado

MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

CALIBRADO

FUERA DE CALIBRACION

HOJA 1 DE 3

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC
					MANTENIMIENTO	ACTUAL												
MS-001	MEDIDOR DE INTENSIDAD DE LUZ UV	TIEDE	J-221	25626	FUERA DE USO													
					SEMESTRAL													
MS-002	MEDIDOR DE INTENSIDAD DE CAMPO MAGNETICO	TIEDE	MP-3X	3583	N/A													
					SEMESTRAL													
MS-003	RADIOMETRO/FOTOMETRO	SPECTRONICS	DSE-100X	406357	BIANUAL	EN CALIB.												
					SEMESTRAL													
MS-004-01	SENSOR DE LUZ VISIBLE	SPECTRONICS	DIX-555A	406251	BIANUAL	EN CALIB.												
					SEMESTRAL													
MS-004-02	SENSOR DE LUZ UV	SPECTRONICS	DIS-365	406205	BIANUAL	EN CALIB.												
					SEMESTRAL													
MS-005-01	YUGO ELECTROMAGNETICO	PARKER RESEARCH	DA-200	9917	N/A													
					SEMESTRAL													
MS-005-02	YUGO ELECTROMAGNETICO	PARKER RESEARCH	B-300	6633	N/A													
					SEMESTRAL													
MS-005-03	YUGO ELECTROMAGNETICO	PARKER RESEARCH	B-300	S/N	N/A													
					SEMESTRAL													
MS-006-01	LAMPARA DE LUZ NEGRA	SPECTRONICS	SB-100G	488979	N/A													
					TRIMESTRAL													
MS-006-02	LAMPARA DE LUZ NEGRA	TIEDE	D-7081	8521106	N/A													
					TRIMESTRAL													
MS-006-03	LAMPARA DE LUZ NEGRA	SPECTRONICS	B-100P	963894	N/A													
					TRIMESTRAL													
MS-006-04	LAMPARA DE LUZ NEGRA	SPECTRONICS	BIB-150P	954939	N/A													
					TRIMESTRAL													
MS-006-05	LAMPARA DE LUZ NEGRA	SPECTRONICS	BIB-150P	957149	N/A													
					TRIMESTRAL													
MS-007-01	PIEZA PATRON 18.1 kg	CIDESI	S/M	S/N	BIANUAL	EN CALIB.												
					ANUAL													
MS-007-02	PIEZA PATRON 4.5 kg	CIDESI	S/M	S/N	BIANUAL	EN CALIB.												
					ANUAL													

ELABORADO POR:

Q.M. J. MAURICIO TELLO RICO

AUTORIZADO POR:

M.C. JOEL CHAPARRO G.

## PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO DEL LABORATORIO DE METODOS SUPERFICIALES PARA 2001

MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

CALIBRADO

FUERA DE CALIBRACION

HOJA 2 DE 3

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE		ESTADO ACTUAL	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC	
					CALIBRACION	MANTENIMIENTO														
MS-008	EQUIPO DE MAGNETIZACION POR PUNTAS	TSI	MP-1000	109847	N/A															
					ANUAL	OK														
MS-009-01	INDICADOR DE CAMPO MAGNETICO	DETEK	D-250	MFI-250	N/A															
					ANUAL	OK														
MS-009-02	INDICADOR DE CAMPO MAGNETICO	ANNIS	25	97-1046	N/A															
					ANUAL	OK														
MS-010	YUGO ELECTROMAGNETICO MULTIDIRECCIONAL	TIEDE	KWM42	8620147	N/A															
					ANUAL	OK														
MS-011-01	YUGO ELECTROMAGNETICO	PARKER RESEARCH	DA-400	8610	N/A															
					SEMESTRAL	OK														
MS-011-02	YUGO ELECTROMAGNETICO	PARKER RESEARCH	DA-400	8619	N/A															
					SEMESTRAL	OK														
MS-012-01	YUGO ELECTROMAGNETICO	PARKER RESEARCH	B 300 S	6882	N/A															
					SEMESTRAL	OK														
MS-012-02	YUGO ELECTROMAGNETICO	PARKER RESEARCH	B 300 S	6883	N/A															
					SEMESTRAL	OK														
MS-013	ANILLO DE KETOS	N/A	N/A	N/A	N/A															
					ANUAL	OK														
MS-014	YUGO ELECTROMAGNETICO	MAGNAFLUX	Y-6	43530	N/A															
					SEMESTRAL	OK														
MS-015	YUGO ELECTROMAGNETICO	MAGNAFLUX	Y-6	43530	N/A															
					SEMESTRAL	OK														
MS-016	YUGO ELECTROMAGNETICO	MAGNAFLUX	Y-8	620145	N/A															
					SEMESTRAL	OK														

ELABORADO POR:

G.M. J. MAURICIO TELLO RICO

AUTORIZADO POR:

M.C. JOEL CHAPARRO S.

## PROGRAMA DE MANTENIMIENTO Y CALIBRACION DEL EQUIPO DEL LABORATORIO DE METODOS SUPERFICIALES PARA 2001

MANT. CORRECTIVO

MANT. PREVENTIVO

CALIBRACION

CALIBRADO

FUERA DE CALIBRACION

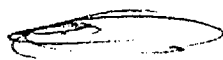
HOJA 3 DE 3

No. FOLIO	DESCRIPCION DEL EQUIPO	MARCA	MODELO	No. SERIE	FRECUENCIA DE CALIBRACION	ESTADO	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEPT	OCT	NOV	DIC	
					MANTENIMIENTO	ACTUAL													
MS-017-01	LAMPARA DE LUZ ULTRAVIOLETA	SPECTROLINE	SB-100P	969065	N/A														
					SEMESTRAL	OK													
MS-017-02	LAMPARA DE LUZ ULTRAVIOLETA	SPECTROLINE	BIB-150P	1168867	N/A														
					SEMESTRAL	OK													
MS-018	EQUIPO ESTACIONARIO DE PARTICULAS MAGNET.	MAGNAFLUX	MAG KIT	200550	N/A														
					SEMESTRAL	OK													

ELABORADO POR:  
  
Q.M. J. MAURICIO TELLO RICO

AUTORIZADO POR:  
  
M.C. JOEL CHAPARRO G.

Annex 20  
Number of Qualified C/P at CIDESI



ANNEX. 20 NUMBER OF QUALIFIED C/P AT CIDESI

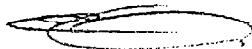
TECHNIQUES	NUMBER OF QUALIFIED C/P AT CIDESI				
	1997	1998	1999	2000	2001
<b>1. LIQUID PENETRANT TEST</b>					
LEVEL I	2	2	2	2	-
LEVEL II	3	4	4	2	6
LEVEL III	-	-	1	2	2
<b>2. ULTRASONIC TEST</b>					
LEVEL I	3	4	3	2	3
LEVEL II	3	3	3	3	3
LEVEL III	-	-	1	1	1
<b>3. RADIOGRAPHIC TEST</b>					
LEVEL I	-	2	2	0	-
LEVEL II	-	-	1	2	5
LEVEL III	-	1	1	1	1
<b>4. MAGNETIC PARTICLES TEST</b>					
LEVEL I	2	1	2	2	-
LEVEL II	3	5	4	2	6
LEVEL III	1	1	1	2	2
<b>5. ACUSTIC EMISION TEST</b>					
LEVEL I	-	2	2	2	1
LEVEL II	-	-	-	-	-
LEVEL III	-	-	-	-	-
<b>6. EDDY CURRENT TEST</b>					
LEVEL I	-	4	7	6	3
LEVEL II	-	1	2	2	1
LEVEL III	-	-	-	-	1
<b>7. QUALITY SYSTEM AUDITOR</b>	1	4	5	6	7
Milagros González Ruiz (Leader Auditor)					
Claudia Almanza León					
Ofelia Wong Aguilera					
Rolando Rosales Nava					
Estela González Caballero					
José Luis Ojeda Elizarrarás					
Rolando Rosales Nava (Leader Auditor)					
<b>8. WELDING INSPECTOR (CWI)</b>	-	-	-	2	2

*Note:*

Levels I and II from 1 to 6 are according to Recommended Practice SNT-TC-1A of American Society for Non Destructive Testing (ASNT)

Levels III from 1 to 6 are according to ASNT.

Annex 21-1  
Record of Seminars and Training  
Courses Organized at CIDESI



Annex - 21-1 Record of Seminars and Training Courses Organized at CIDESI

Name	Speaker	Date	Industry	Government	Educational	States
<b>1998 TRAINING COURSES</b>						
Shielded Metal Arc Welding Course	M.C. Juan A. Pozo M.	9/11/1998 to 13/11/1998	10			(2) Veracruz, Ver. (8) Querétaro, Qro.
		<i>Sub-total</i>	10			
<b>1998 SEMINARS</b>						
Surface Modification Technology	Hiroshi KANNO	24/8/1998	18		1	(19) Querétaro, Qro.
Commemorative Seminar	Keisuke ISHIKAWA	22/9/1998	25	28	4	(55) Querétaro, Qro., Cuba (2)
1 <sup>st</sup> Scanning Electron Microscope Seminar	JICA-Philips-CIDESI	29/10/1998 to 30/10/1998	2	3	6	(1) Michoacán., (1) San Luis Potosí, SLP. (1) Saltillo, Coah., (1) Veracruz, Ver. (7) Querétaro, Qro., (1) México, D.F.
		<i>Sub-total</i>	55	31	11	
		<b>Total 1998</b>			107	



Name	Speaker	Date	Industry	Government	Educational	States
<b>1999 TRAINING COURSES</b>						
Mechanical Test & Metallography 1 <sup>st</sup> Course	Concepción Obregon Carlos Ramírez Baltazar Rolando Rosales Gerardo Castillo	24/5/1999 to 28/5/1999	8		1	(9) Querétaro, Qro.
Chemical Analysis Course	Estela González Ofelia Wong Rosalba Hernández	28/6/1999 to 2/7/1999	16		1	(17) Querétaro, Qro.
Eddy Currents Course	Tadashi KAWASHIMA	13/9/1999	19	2	21	(42) Querétaro, Qro.
Mechanical Test & Metallography 2 <sup>nd</sup> course	Concepción Obregon Carlos Ramírez Baltazar Rolando Rosales Gerardo Castillo	29/11/1999 to 3/12/1999	28		2	(2) León, Gto., (11) San Luis Potosi, SLP., (4) Salamanca, Gto., (4) Celaya, Gto., (1) Orizaba, Ver. (1) Villahermosa, Tab. (7) Querétaro, Qro.
Non Destructive Test 2 <sup>nd</sup> Course	Joel Chaparro, José Nuñez Mauricio Tello, Julio Solano, Santos García, César Sánchez, Jaime Gonzalez	6/12/1999 to 10/12/1999	25		5	(3) Salamanca, Gto, (1) Villahermosa Tab., (1) Orizaba, Ver., (1) Saltillo Coah., (2) Morelia, Mich., (1) Cancun Quintana Roo, (5) San Luis Potosi, SLP., (1) Minatitlán Ver. (1) Cd. Madero, Tamps. (1) Zacatecas, Zac. (13) Querétaro, Qro.
<i>Sub-total</i>			96	2	30	
<b>1999 SEMINARS</b>						
High Strength Sheet for Automotive Exterior Panel & Galling on Press Forming.	Masato HIRASAKA	3/3/1999	20		10	(30) Querétaro, Qro.
Non Destructive Testing Techniques Seminar	Takehiko AKIYAMA	4/3/1999	22		11	(30) Querétaro, Qro.
Technical Seminar on Material Engineering	Masao KIKUCHI Tomoki MIYAMOTO Toshiro YAMASHITA	22/4/1999	32		10	(2) San Luis Potosi, SLP., (38) Querétaro, Qro. (1) Celaya, Gto. (1) Morelia, Mich.
Non Destructive Test Seminar	Joel Chaparro, José Nuñez Mauricio Tello, Julio Solano, Santos García, César Sánchez, Jaime Gonzalez	23/8/1999 to 27/8/1999	19	2		(4) Tuxpan, Ver. (1) Irapuato, Gto., (2) Texcoco, Edo. México (1) Cd. del Carmen Campeche, (1) Salamanca, Gto., (2) Guadalajara Jal., (10) Querétaro, Qro.
Welding of Titanium Seminar	Kunitoshi SASAKI	12/10/1999	41	7	10	(1) Villahermosa, Tab., (54) Querétaro, Qro., (3) San Luis Potosi
Application of the rare earth elements in advanced technology	Hiroyuki NAGAMOTO	22/10/1999	7	2	13	(22) Querétaro, Qro.
2 <sup>nd</sup> Scanning Electron Microscopy Seminar	JICA-Philips-CIDESI Hideo SEINO, Ron WITT, Lorena Cruz, Rino BAUN, Lourdes Mondragón, Paulo FRIAS, Fernando Mendoza	18/11/1999 to 19/11/1999	25	7	11	(3) Morelia, Mich., (4) San Luis Potosi, SLP., (1) Monterrey Nvo. León. (27) Querétaro, Qro. (5) México, D.F. (2) Texas, EUA, (1) Caracas, Ven.
<i>Sub-total</i>			166	18	65	
<b>TOTAL</b>			262	20	95	
<b>Total 1999</b>						377

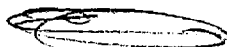
Name	Speaker	Date	Industry	Government	Educational	States
<b>2001 SEMINARS</b>						
Physics of Material Testing Relación de la Dureza con otras Pruebas <i>(UTQ San Juan del Río)</i>	Masato HIRASAKA	21/2/2001			100	San Juan del Río (100)
Welding of Super Stainless Steel <i>(FIMEE, SALAMANCA)</i> Welders Qualification	Hiroyuki IWAMOTO  Eduardo Díaz Cedre	8/3/2001	7	1	13	Salamanca Gto. (21)
Equipment Diagnosis And Welding Repair in Refinery Evaluation of Creep Rupture Time by Micro structure for Long-Term Used High Temperature Steel Parts Welders Qualification  <i>Refinery "Ing. Antonio M. Amor" PEMEX Salamanca</i>	Hiroyuki IWAMOTO  Masato HIRASAKA  Mauricio Tello Rico	15/3/2001		59		Salamanca Gto. (59)
Fundamentals of Welding How to Avoid Hydrogen-Induced Cracking Fundamental of Fusion Welding <i>UAQ ( Chemical School)</i>	Hiroyuki IWAMOTO	19/3/2001 to 20/3/2001	4		33	Querétaro, Qro. (37)
Equipment Diagnosis And Welding Repair in Refinery Welding Super Stainless Steels  Evaluation of Creep Rupture Time by Micro structure for Long-Term Used High Temperature Steel Parts <i>IITCM (Cd. Madero)</i>	Hiroyuki IWAMOTO  Masato HIRASAKA	23/3/2001	16	10	123	Cd. Madero Tamps. (149)
Evaluation of Residual Stress of Welding International Congress of Welding Welding Super Stainless  <i>COMIMSA, Saltillo, Coah.</i>	Masato HIRASAKA  Mauricio Tello Eduardo Díaz Cedre	28/5/2001	118	23	59	Saltillo Coah. (45), Monterrey Nvo. León (30), Zacatecas, Zac. (18), Durango, Dgo. (20), Querétaro, Qro. (25) México D.F. (34), San Luis Potosí (28)
Corrosion & Creep Rupture Time by Microstructure for Long-Term Used High Temperature Steel Parts <i>Refinery "Francisco I. Madero" Cd. Madero, Tamp.</i>	Masaru ENDO  Masato HIRASAKA	18/6/2001		64		Ciudad Madero, Tamps. (64)
Corrosion & Creep Rupture Time by Microstructure for Long-Term Used High Temperature Steel Parts <i>Refinery " Ing. Antonio Dovali Jaime" Salina Cruz Oax.</i>	Masaru ENDO  Masato HIRASAKA	27/6/2001		34		Salina Cruz, Oax. (34)

Name	Speaker	Date	Industry	Government	Educational	States
<b>2000 TRAINING COURSES</b>						
						Zacatepec, Mor. (1), Zitacuaro, Mich. (1)
Fatigue and Fracture of Materials	Keisuke ISHIKAWA	22/8/2000 to 23/8/2000			12	Querétaro, Qro. (6), Celaya, Gto. (5), San Luis Potosí (1)
3 <sup>rd</sup> Basic Course of Material Characterization	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Ofelia Wong Aguilera	23/10/2000 to 27/10/2000	29	1		Querétaro (28), Celaya, Gto. (2)
1 <sup>st</sup> Course of Introduction of Welding Process	Mauricio Tello Rico José Nuñez Alcocer Jaime González Silva César Sánchez Pérez	27/11/2000 to 1/12/2000	25	9	5	Querétaro, Qro. (11) San José Iturbide, Gto (5), Salamanca Gto. (5), Irapuato, Gto. (2), Silao, Gto. (1), Celaya, Gto. (1) Veracruz (5), Villahermosa, Tab. (4), Cd. Madero Tamps. (3), San Luis Potosí, S.L.P. (1), Morelia, Mich. (1)
		<b>Sub-Total</b>	<b>113</b>	<b>27</b>	<b>148</b>	
<b>2000 SEMINARS</b>						
Seminar on Japanese Technology Transfer	Hiroshi TSUKAHARA Hideo SEINO Takehiko AKIYAMA	14/1/2000	69	4	1	Querétaro (45), Toluca Edo. De México (3), Celaya, Gto. (13) León, Gto. (6), México D.F. (7)
Seminar on Special Ultrasonic Techniques	Masayoshi IKEDA	1/3/2000	4	4		Querétaro (8)
Non Destructive Test used as a Quality & Safety Tool for Industries	Yasuhisa YAMAZAKI José Nuñez Alcocer Fernando Cruz Himello	2/6/2000	26	1		Querétaro (25), Hidalgo (1), Guanajuato (1)
Seminar on Quality Assurance for Press Forming Materials	Irma Morán Saúl Rubio Alonso Gaona Julio Rojo Hernández Carlos Ramírez Baltazar Masato HIRASAKA Tadashi KAWASHIMA	27/7/2000 to 28/7/2000	21	1	1	Querétaro, Qro. (21), Celaya, Gto. (2)
Seminar on Fatigue and Fracture of Materials (Magnesium Alloys, Today and Future) (Fracture Mechanics Application on the Mechanical Design)	Keisuke ISHIKAWA Carlos Rubio	11/8/2000	19	22	13	Celaya Gto.. (3), Querétaro, Qro. (51),,
Fundamental Casting Technology on Countermeasure of Casting Defects	Masao KIKUCHI	24/8/2000	26	5	2	Celaya, Gto. (6), Querétaro, Qro. (26), Morelia, Mich (1)
Physics of Material Testing	Masato HIRASAKA	28/9/2000			1	Querétaro, Qro. (1)
3 <sup>rd</sup> Seminar on Scanning Electron Microscope	Paul Mainwaring Ron Witt Rafael Schouwennarts Masato HIRASAKA Jorge Morales H. Agustín Salvador Morales Carlos Ramírez Baltazar	16/10/2000 to 17/10/2000	11	20	24	Querétaro, Qro. (30), Moclova, Coah. (3), Celaya, Gto. (2) México, D.F. (7), Cd. Madero Tamps. (1), Saltillo Coah. (1) San Luis Potosí, SLP (3), Morelia, Mich. (3), Monterrey, Nvo. León (2), Puebla, Pue. (2), Guadalajara, Jal. (1)
			176	57	42	
			289	84	190	
<b>Total 2000</b>			<b>563</b>			

Name	Speaker	Date	Industry	Government	Educational	States
<b>2001 SEMINARS</b>						
The die & Press Technology of Stamping Parts Maker	Junichi HIRATA	16/2/2001	19	4	2	Quéretaro (25)
Analysis of Press Forming Force (CIDESI)	Masato HIRASAKA					
Welding of Super Stainless Steel (CIDESI)	Hiroyuki IWAMOTO	22/2/2001	44	2	9	Edo. de México (5) Querétaro, Qro. (43) Morelia Mich. (5) Salamanca, Gto. (2)
Welding of Super Stainless Steel (CIDESI)	Hiroyuki IWAMOTO	2/3/2001	39	9	1	Querétaro, Qro. (38) Irapuato, Gto. (1) San Luis Potosí (4) Edo. De México (2) Morelia Mich. (1) Guanajuato, Gto. (1) Celaya Gto. (2)
Welders Qualification	Mauricio Tello Rico					
Consideration for Pressure Vessel Fabrication (CIDESI)	Noboru Murase	22/3/2001	2	8		Querétaro, Qro. (10)
"5s" Activities (CIDESI; International Metrology Week)	Dr. Masato Hirasaka	31/8/2001	23	10	17	Querétaro (18), Puebla, Pue. (7), San Luis Potosí, S.L. (8), Celaya, Gto. (8), Irapuato, Gto. (4), Morelia, Mich (5),
Productivity and Practical KAIZEN (CIDESI)	Eng. Hajime Suzuki	28/9/2001	13	48	74	Querétaro, Qro. (134), Celaya, Gto. (1)
International Seminar (CIDESI)	Dr. Masato HIRASAKA Eng. Hajime SUZUKI Eng. Hideshi TSUJI Eng. Tadashi FURUBAYASHII Dr. Mario O. Quinteiro Dr. Juan Fernando Alvarez C. Dr. José Rubens de Camargo Ing. José Pizarro González Dra. Glasys Ocharán Q.M. Estela González Caballero Q.A. Concepción Obregon Z. Q.M. Carlos Ramírez Baltazar Dr. Cuauhtemoc Maldonado C. Ing. José Nuñez Alcocer Dr. Carlos Rubio González Ing. Julio C. Solano Vargas Ing. Jorge Rangel García M.C. Joel Chaparro González	2/10/2001 to 5/10/2001	48	22	33	Argentina (3), Brasil (3), Chile (2), Costa Rica (2), Peru (1), Toluca, edo de México (2), San Juan del Río, Qro. (8) San Luis Potosí, S.L.P. (10), Acapulco, Gro. (2), Aguascalientes, - Ags. (1), Morelia, Mich. (2), Saltillo, Coah. (2), Cd. Madero, Tamps. (3), Cd. Victoria, Tamps. (1), Veracruz, Ver. (1), Querétaro, Qro. (67) México, D.F. (3), Salamanca, Gto. (2), Puebla, Pue. (1)
4 <sup>th</sup> Seminar on Scanning Electron Microscope	Dra. Gladys Ocharán M.C. Lorena Cruz Matus D. en C. Hilda Villegas Castrejón Dr. Masato HIRASAKA Q.M: Carlos Ramírez Baltazar Dr. Oscar Barceinas Dr. Fernando Mendoza Dr. Pedro Tamayo	22/11/2001 to 23/11/2001	30	6	35	Peru (1), Queretaro, Qro. (47), Saltillo, Coah. (4), San Luis Potosí SLP. (3), Durango, Dgo. (1), Edo. de México (6) México, D.F. (6), La Paz, Baja Calif.(1), Morelia, Mich. (2)
<b>Sub-Total</b>			<b>218</b>	<b>109</b>	<b>171</b>	

Name	Speaker	Date	Industry	Government	Educational	Countries/States
<b>2001 COURSES</b>						
Practical Training Course on Casting Design (CIDESI)	Masao KIKUCHI Toru TSUBURA Hideyuki SUNAOSHI Alonso de la Garza San Miguel	28/3/2001 to 29/3/2001	6	5		Querétaro, Qro. (9), San Juan del Río, Qro. (2)
2 <sup>nd</sup> Course of Tickness Measure by Ultrasonic	José Nuñez Alcocer	18/4/2001	2	3	2	Salamanca, Gto. (2), Ramos Arizpe, Coah. (1) Querétaro, Qro. (3), Tuxtla Gutierrez, Chps. (1)
5 <sup>th</sup> Basic Course on Material Characterization	Concepcion Obregon Zepeda Carlos Ramirez Baltazar Estela Gonzalez Caballero Jose Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	14/5/2001 to 18/5/2001	1	8	2	Querétaro (5), Saltillo, Coah. (2), San Juan del Río, Qro. (3) Morelia , Mich. (1)
6th Course on Non Destructive Testing	José Nuñez Alcocer Jaime Gonzalez Silva César A. Sánchez Pérez Julio C. Solano Vargas	28/5/2001 to 1/6/2001	2	6	7	Morelia, Mich. (3), Salina Cruz, Oax. (1), Celaya, Gto. (1) Orizaba, Ver. (1), Tampico, Tamps. (1), Acapulco, Gro. (2) Querétaro, Qro. (4), Minatitlán, Ver. (2)
Metallography in Situ (CIDESI)	Dr. Alejandro Duffus Scott Dr. Masato HIRASAKA	25/7/2001 to 27/7/2001	3	1		México, D.F. (3), Querétaro, Qro. (1)
Quality Control in Welding (CIDESI)	Dr. Alejandro Duffus Scott	22/8/2001 to 24/8/2001	6		7	Querétaro (5); Morelia, Mich. (3), Tampico Tamps. (2), Acapulco, Gro. (1), Cd. Victoria Tamps. (2)
Welding Introduction (CIDESI)	M.C. Juan A. Pozo Morejon M.C. Victor M. Sánchez Cabrera Dr. Miguel Velez Mtz. Q.M. Mauricio Tello Rico Ing. Fernando López Franco Ing. Norberto Sánchez Jimenez	12/11/2001 to 16/11/2001	7	5	10	León, Gto. (2), Querétaro, Qro. ( 4 ), San Luis Potosi, SLP. (1) Salamanca, Gto. ( 5 ), Cd. Madero (1), Cd. Valles (1) Acapulco, Gro. (2), Morelia, Mic. (1), Celaya, Gto. (2) Minatitlán, Ver. (1)
			27	28	28	
			245	137	199	
<b>Total 2001</b>				<b>581</b>		
<b>Grand Total</b>				<b>1628</b>		

Annex 21-2  
Record of Seminars and Training  
Courses under the Joint Auspices of  
Educational and Governmental  
Organizations



Annex.- 21-2 Record of Seminars and Training Courses under the Joint Auspices of Educational, and Governmental Organizations.

Name	Speaker	Date	Industry	Government	Educational	States
<b>2000 TRAINING COURSES</b>						
4th Course of Non Destructive Test Introduction ( <i>Ciudad Madero Tamps.</i> )	Joel Chaparro González Jaime González Silva José Nuñez Alcocer Mauricio Tello Rico César Sanchez Perez Julio C. Solano Vargas	28/6/2000 to 1/7/2000	11	0	9	Cd. Madero Tamps. (12) Cerro Azul Ver. (1) Altanira Tamps (3), Tampico Tamps (1) Cd. Cuauhtemoc Ver. (2), Mata Redonda Ver. (1)
5th Course of Non Destructive Test Introduction ( <i>Ciudad Madero Tamps.</i> )	Mauricio Tello Rico José Nuñez Alcocer	13/11/2000 to 17/11/2000	9	8	9	Coatzacoalcos Ver. (10), Minatitlán Ver. (15), Acayucan, Ver. (1)
		<i>Sub-total</i>	20	8	18	
<b>2000 SEMINARS</b>						
Metal Mechanics Expo ( <i>Irapuato, Gto.</i> )	Tadashi KAWASHIMA José Nuñez Alcocer Mauricio Tello Rico Juilo Solano Vargas	10/8/2000 to 13/8/2000	33	7	23	Irapuato, Gto. (23), Celaya, Gto. (14), Querétaro, Qro. (7) Salamanca, Gto. (13), Guanajuato, Gto. (5)
Seminar on Fatigue and Fracture of Materials (Magnesium Alloys, Today and Future) (Fracture Mechanics Application on the Mechanical Design) <i>IPAC, S.L.P.</i>	Keisuke ISHIKAWA Carlos Rubio	18/8/2000	20	21	26	San Luis Potosí, SLP. (67)
Strengthen Method of Steel ( <i>San Juan del Río</i> )	Masato HIRASAKA	22/8/2000			65	San Juan del Río Qro. (65)
International Conference of Materials ( <i>Cancún Quintana Roo</i> )	Mauricio Tello Rico Carlos Ramírez Baltazar	8/28/2000 to 1/9/2000	7	3	41	Cancún Quintana Roo (23), Tabasco (4), Veracruz (12) Oaxaca (12)
Seminar on Press Forming ( <i>IPAC, San Luis Potosí</i> )	Masato Hirasaka Concepción Obregon Z. Alonso Gnona Zuno Carlos Ramírez Baltazar	6/10/2000	29		2	San Luis Potosi (31)
Analysis of Press Forming Force ( <i>San Juan del Río UTQ</i> )	Masato Hirasaka	17/10/2000			50	San Juan del Río, Qro. (50)
Evaluation Creep Rupture Time by Micro-structurwe for Long-Term Used High Temperature Steel Parts. ( <i>Tec. de Minatitlán</i> )	Masato HIRASAKA	14/11/2000			300	Minatitlán, Ver. (113), Coatzacoalcos, Ver. (76), Veracruz Ver. (54), Acayucán, Ver. (20), Jalapa, Ver. (37)
			89	31	507	
			109	39	525	
<b>Total 2000</b>			673			

Name	Speaker	Date	Industry	Government	Educational	States
<b>2001 SEMINARS</b>						
Physics of Material Testing Relación de la Dureza con otras Pruebas <i>(UTQ San Juan del Río)</i>	Masato HIRASAKA	21/2/2001			100	San Juan del Río (100)
Welding of Super Stainless Steel <i>(FIMEE, SALAMANCA)</i> Welders Qualification	Hiroyuki IWAMOTO  Eduardo Díaz Cedre	8/3/2001	7	1	13	Salamanca Gto. (21)
Equipment Diagnosis And Welding Repair in Refinery Evaluation of Creep Rupture Time by Microestructure for Long-Term Used High Temperature Steel Parts Welders Qualification  <i>Refinery "Ing. Antonio M. Amor" PEMEX Salamanca</i>	Hiroyuki IWAMOTO  Masato HIRASAKA  Mauricio Tello Rico	15/3/2001		59		Salamanca Gto. (59)
Fundamentals of Welding How to Avoyd Hydrogen-Induced Cracking Fundamental of Fusion Welding <i>UAQ ( Chemical School)</i>	Hiroyuki IWAMOTO	19/3/2001 to 20/3/2001	4		33	Querétaro, Qro. (37)
Equipment Diagnosis And Welding Repair in Refinery Welding Super Stainless Steels  Evaluation of Creep Rupture Time by Microestructure for Long-Term Used High Temperature Steel Parts <i>ITCM (Cd. Madero)</i>	Hiroyuki IWAMOTO  Masato HIRASAKA	23/3/2001	16	10	123	Cd. Madero Tamps. (149)
Evaluation of Residual Stress of Welding International Congress of Welding Welding Super Stainless  <i>COMIMSA, Saltillo, Coah.</i>	Masato HIRASAKA  Mauricio Tello Eduardo Díaz Cedre	28/5/2001	118	23	59	Saltillo Coah. (45), Monterrey Nvo. León (30), Zacatecas, Zac. (18), Durango, Dgo. (20), Querétaro, Qro. (25) México D.F. (34), San Luis Potosí (28)
Corrosion & Creep Rupture Time by Microestructure for Long-Term Used High Temperature Steel Parts <i>Refinery "Francisco I. Madero" Cd. Madero, Tamp.</i>	Masaru ENDO  Masato HIRASAKA	18/6/2001		64		Ciudad Madero, Tamps. (64)
Corrosion & Creep Rupture Time by Microestructure for Long-Term Used High Temperature Steel Parts <i>Refinery " Ing. Antonio Dovali Jaime" Salina Cruz Oax.</i>	Masaru ENDO  Masato HIRASAKA	27/6/2001		34		Salina Cruz, Oax. (34)

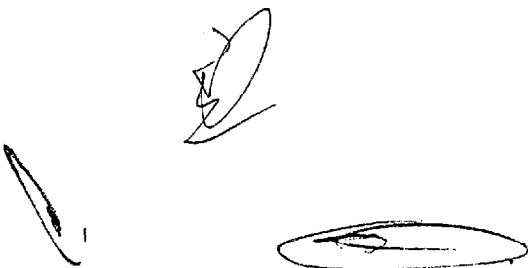


Name	Speaker	Date	Industry	Government	Educational	States
Press Forming Seminar <i>Instituto Tecnológico de Puebla</i>	Masato HIRASAKA Concepción Obregon Zepeda Naotake YOSHIHARA Carlos Ramirez Baltazar	9/7/2001	17		7	Puebla, Pue (24)
Preventive Maintenance <i>Universidad Tecnológica de San Juan del Río</i>	Masato HIRASAKA	13/7/2001			50	San Juan del Río, Qro. (50)
Press Forming Technologies Seminar <i>San Luis Potosi, CETECI</i>	Masato HIRASAKA Naotake YOSHIHARA Carlos Ramirez Baltazar	27/7/2001	55		1	San Luis Potosi, S.L.P. (56)
"5s Activities" <i>Universidad Tecnológica de San Juan del Río</i>	Masato HIRASAKA	3/8/2001			140	San Juan del Río (140)
Welding Inspection Welders Qualification <i>San Luis Potosi, CETECI</i>	Dr. Alejandro Duffus Scott Q.M. Mauricio Tello Rico	21/8/2001	10	1	1	San Luis Potosí, S.L.P. (12)
Progressive Die for Press Forming Galling in Press Forming of Various Steel Sheets Press Working Material Characterization <i>UAQ</i>	Eng. Hideshi TSUJI Dr. Masato HIRASAKA Concepción Obregon Zepeda	6/9/2001 to 7/9/2001	15		40	Querpetaro (55)
Progressive Die for Press Forming <i>San Luis Potosi, CETECI</i>	Eng. Hideshi TSUJI	14/9/2001	22			San Luis Potosi (22)
Progressive Die for Press Forming <i>Instituto de Fundición y Maquinado de Jalisco</i>	Eng. Hideshi TSUJI	21/9/2001	18			Guadalajara, Jal. (18)
Progressive Die for Press Forming <i>Instituto Tecnológico de Puebla</i>	Eng. Hideshi TSUJI	28/9/2001	29		1	Puebla, Pue. (30)
Engineering International Congress <i>Tecnológico de Colima</i>	Dr. Masato HIRASAKA Sr. Yuichi ENDO	12/10/2001			300	Colima, Col. (300)
5s Activities Workshop <i>(CANACINTRA)</i>	Dr. Masato HIRASAKA	22/11/2001	50			Querétaro, Qro. (50)
		<i>Sub-total</i>	<i>361</i>	<i>192</i>	<i>868</i>	
<b>2001 COURSES</b>						
Casting Technology Course ( <i>Saltillo Coah</i> )	Masao KIKUCHI Sergio Villanueva Bravo Alonso de la Garza San Miguel Nora Edith Cerón Arenas	26/2/2001 to 27/2/2001	13		21	Ramos Arizpe, Coah. (21), Saltillo, Coah. (5), San Pedro, Coah. (5) La Aurora, Coah. (3)

	13		21
	374	192	889

<i>Total 2001</i>	1455
<i>Grand Total</i>	2128

Annex 22  
Record of Enrusted Test Conducted  
by CIDESI



ANNEX. 22 RECORD OF ENTRUSTED TEST CONDUCTED BY CIDESI.

1 Mechanical Test

	1996		1997		1998		1999		2000		2001		Increment 2001/2000 ( %)	
	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples
January	15	60	12	56	11	51	17	90	15	133	30	167	100.0%	25.6%
February	12	53	14	48	9	50	15	126	22	129	27	189	22.7%	46.5%
March	27	246	7	25	14	54	11	47	15	234	36	176	140.0%	-24.8%
April	24	105	7	33	26	108	24	149	19	119	21	71	10.5%	-40.3%
May	16	149	15	48	13	104	18	131	20	131	37	238	85.0%	81.7%
June	15	104	13	67	19	68	13	78	28	144	24	179	-14.3%	24.3%
July	16	63	8	31	25	74	20	121	33	517	23	121	-30.3%	-76.6%
August	14	28	16	106	24	102	28	188	19	160	35	222	84.2%	122.0%
September	23	70	13	39	21	117	12	70	22	120	37	230	68.2%	91.7%
October	20	70	15	55	25	126	20	138	22	138	26	240	18.2%	73.9%
November	14	46	8	31	25	66	19	110	16	65				
December	14	104	8	32	14	78	11	28	9	35				
Total	210	1098	136	571	226	998	208	1276	240	1865	296	1833	N/A	N/A

2 Metallography

	1996		1997		1998		1999		2000		2001		Increment 2001/2000 ( %)	
	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples	No. of Service Order	No. of Samples
January	11	22	4	5	10	31	12	50	15	28	13	31	-13.3%	10.7%
February	5	13	8	24	4	35	11	30	16	58	11	16	-31.3%	-72.4%
March	9	23	8	10	10	17	17	56	9	9	16	39	77.8%	333.3%
April	5	11	9	21	14	32	23	58	10	35	15	24	50.0%	-31.4%
May	12	60	15	25	9	15	12	24	11	26	18	33	63.6%	26.9%
June	11	27	9	19	10	32	16	106	8	28	6	7	-25.0%	-75.0%
July	6	11	7	9	11	15	21	112	10	12	14	17	40.0%	41.7%
August	7	16	10	22	13	57	15	80	21	45	22	68	4.8%	51.1%
September	11	21	10	15	9	26	11	40	12	30	19	32	58.3%	6.7%
October	6	15	9	18	14	41	16	21	8	20	19	28	137.5%	40.0%
November	9	20	10	14	19	59	12	21	12	17				
December	1	1	10	44	3	4	10	23	5	7				
Total	93	240	109	226	126	364	176	621	137	315	153	295	N/A	N/A

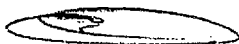
3 Chemical Analysis

	1996			1997			1998			1999			2000			2001			Increment 2001/2000 (%)		
	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements	No. of Service Order	No. of Samples	No. of Elements
January	18	34	232	15	45	252	15	52	284	16	35	166	18	32	154	30	51	236	66.7%	59.4%	53.2%
February	5	17	79	33	79	336	11	55	352	24	56	291	29	71	434	32	47	305	10.3%	-33.8%	-29.7%
March	12	48	294	21	35	179	26	50	229	20	46	147	25	90	686	30	52	319	20.0%	-42.2%	-53.5%
April	8	17	89	18	33	175	23	58	348	30	68	343	17	35	257	36	84	391	111.8%	140.0%	52.1%
May	17	50	254	18	39	122	13	24	113	22	56	286	20	79	427	44	106	493	120.0%	34.2%	15.5%
June	22	67	302	21	52	230	22	42	212	36	76	424	29	56	235	34	110	655	17.2%	96.4%	178.7%
July	21	49	243	12	27	116	20	35	187	25	111	701	32	117	650	46	77	443	43.8%	-34.2%	-31.8%
August	19	34	157	18	29	210	22	70	258	30	87	274	26	72	371	39	87	354	50.0%	20.8%	-4.6%
September	24	60	221	16	29	152	18	16	169	18	64	352	20	49	274	49	93	517	145.0%	89.8%	88.7%
October	21	63	262	25	44	242	29	67	326	36	103	496	38	76	431	41	103	481	7.9%	35.5%	11.6%
November	25	65	210	15	28	183	23	71	273	29	91	480	28	98	638						
December	2	3	13	14	47	293	16	23	136	19	32	183	12	18	87						
Total	194	507	2356	226	487	2490	238	563	2887	305	823	4143	294	793	4644	381	810	4194	N/A	N/A	N/A

4 Non Destructive Test

	1996	1997	1998	1999	2000	2001	Increment 2001/2000 (%)
	No. of Service Order	No. of Service Order	No. of Service Order	No. of Service Order	No. of Service Order	No. of Service Order	No. of Service Order
January	3	4	2	9	10	16	60.0%
February	7	2	7	5	13	11	-15.4%
March	8	3	4	7	10	13	30.0%
April	9	8	2	1	17	10	-41.2%
May	7	2	7	17	14	22	57.1%
June	5	2	4	5	16	11	-31.3%
July	2	8	6	7	27	29	7.4%
August	4	2	4	15	19	20	5.3%
September	4	1	7	5	29	28	-3.4%
October	2	3	11	4	25	39	56.0%
November	3	4	8	9	21		
December	5	1	3	5	13		
Total	59	40	65	89	214	199	N/A

Annex 23  
Record of Extension Services of  
Material Test/Non Destructive Test



Annex 23 RECORD OF EXTENSION SERVICES OF NON DESTRUCTIVE TEST

No.	Date	Company Name	Personnel in Charge	Results
1	1997-1999	AUTOTANQUES NIETO	Mauricio Tello José Nuñez	Tantrucks inspection (ut, mt, vt): 236 Development of operation procedure according to asme code. Welding procedure qualification Welder performance qualification Increase of safety standards of l.p. gas carriers
2	Jan-Nov, 1999	CERVECERIA CUAUHTEMOC	Mauricio Tello José Nuñez	Tanks inspection by vt and pt Tanks inspection by mt and ut Advice on tanks construction Increase performance qualification: 12
3	March/1999	GRAMMER MEXICANA	Mauricio Tello	Welding advice Welding procedure qualifications Welders performance qualification: 12
4	May-Dec/1999	PEMEX SALAMANCA	José Nuñez Mauricio Tello	Training course in ndt for 15 inspectors (ut, met, rt) Qualification and certification procedure for ndt personnel
5	Dec/1999	PEMEX TAMPICO	José Nuñez	Training course in ndt (ut) for 15 inspectors
6	Mar-Nov/1998	CLIMATE SYSTEMS	José Nuñez	Training and equipments inspector by ut, pt, and mt
7	Jun-Nov/1998	TANQUES MENHER	Mauricio Tello	Training course in rt and pt Qualification and certification procedure for ndt personnel
8	Oct-98	AUTOPARTES EXCEL	José Nuñez Mauricio Tello	Automotive parts inspection Inspection program advice in production line
9	May/1998- Dec/1999	RETESA	Mauricio Tello	Welders performance qualifications Thickness inspection by ut
10	Aug/1999	ALSTOM ENERGIA	Mauricio Tello	Welding advice Welding procedure qualifications Welders performance qualification
11	Jul-99	OLDEMBURG MITSA	Mauricio Tello José Nuñez	Minery Machinery Inspection (Ut, Mt, Pt)
12	SEP.97- UP TO DATE	AUTOTANQUES NIETO	José Nuñez Mauricio Tello	Tanktruck Ndt Inspections (Ut, Mt, Vt): 248. Development Of Repair Welding Procedure In Accordance With Asme Code. Welding Procedure Qualifications. Increase Of Safety Standards Of Lp Gas Carriers.
13	JAN 2000 AUG-SEP 2000	TRANSMISIONES T.S.P	José Nuñez	Automotive Parts Inspection (Ut, Mt, Vt) Advice In Ndt Methods Automotive Parts Inspection Pt, Rt
14	JAN-FEB 2000	ARVIN DE MÉXICO	José Nuñez	Automotive Parts Inspection (Mt): 10,000
15	JAN-JUN 2000	FRIGUS BOHN	Mauricio Tello	Welding Performance Qualification Brazing Procedure Qualification Brazers Performance Qualification
16	FEB- UP TO DATE	CARRIER TRANSICOLD	Cesar Sanchez	Welding Advice Welding Procedure Qualification Welder Performance Qualification
17	FEB- UP TO DATE	INDUSA	Mauricio Tello	Welding Advice Wps Elaboration Welding Procedure Qualification Welders Performance Qualification
18	MAR-APR 2000	CIDETEQ	José Nuñez	Structure Inspection (Ut, Mt; Vt) Welding Advice
19	Feb-00	CERVECERÍA CUAUHTEMOC MOCTEZUMA	José Nuñez	Pressure Vessels Inspection By Vt And Pt Pressure Vessels Inspection By Ut And Mt Advice On Pressure Vessels Construction
20	APR- UP TO DATE	BECHTEL DE MEXICO	Mauricio Tello	Welding Advice Welder Performance Qualification Structures Inspection By Mt And Ut Welding Procedure Qualification Welding Inspection By Rt
21	MAY-JUN 2000	PEMEX MINATITLAN	Mauricio Tello	Welding Advice Welding Procedure Qualification Welder Performance Qualification Training Course Welding Process Smaw/Gtaw: 26 Welders
22	MAY 2000/AUG 2000	TREMEC	José Nuñez	Automotive Parts Inspection Ut, Mt
23	May-00	PRODUCTOS LAMESA	Jaime González	Pressure Vessel Inspection: Ut, Vt
24	May-00	TANQUES DE ACERO TRINITY, S.A.	Jaime González	Advice On Ndt And Welding Advice On Safety Regulation

No.	Date	Company Name	Personnel in Charge	Results
25	May-00	TANQUES HOYO	José Nuñez	Advice On Ndt And Welding Advice On Safety Regulation
26	JULY 2000 Sep-00	AGROGEN	José Nuñez Mauricio Tello Cesar Sánchez	Inspection Of Tanks And Pipe Lines By Ut
27	SEPTEMBER 2000	INDUSTRIAS THERME	Mauricio Tello Cesar Sánchez	Visual Inspection Of Welding By Cwi Inspector Welding Advice
28	JULY-AUGUST 2000	PAILERIA SAN LUIS	José Nuñez Jaime González	Welding Performance Qualification Welding Procedure Qualification Welding Advice
29	OCT-NOV 2000	PROCTER & GAMBLE	José Nuñez	Non Destructive Inspection Procedures Thickness Inspection By Ut Mt Inspection Ndt Advice
30	JUL-NOV 2000	AVANTE INGENIEROS	Mauricio Tello	Welding Advice Welding Performance Qualifications Welding Procedure Qualification
31	OCT-DEC 2000	MABE MÉXICO	Jaime González	Radiographic Inspection Visual Inspection
32	OCT- DEC 2000	MISION HILLS	Mauricio Tello	Welding Training Courses Tig: 20 Welders Smaw: 19 Welders
33	SEP-DEC 2000	TRANSMISIONES TSP	Jaime González	Automotive Parts Inspection Mt, Ut And Vt
34	Oct-00	HBA CAST PRODUCTS	Jaime González	Rt Inspection
35	JAN-MAR 2001	INGENIERIA Y DESARROLLO URBANO S.A.	Mauricio Tello	Welding Procedure Qualification Welder Procedure Qualification
36	Feb-01	UNION DE PRODUCTORES DE LECHE DE QUERETARO	Cesar Sánchez	Pipelines Inspection (Ut And Mt) Welding Inspection Pressure Vessels Inspection
37	JAN-MAR 2001	MANUFACTURAS Y MANTENIMIENTO METALMECÁNICOS	Mauricio Tello	Welding Advice Welder Performance Qualification
38	JAN-MAR 2001	CONSORCIO INDUSTRIAL	Jaime González	Pressure Vessels Inspection (Rt Method)
39	Feb-01	SINTERSTAHZ MEXICO	Jaime González	Pressure Vessels Inspection (Mt, Ut)
40	FEB-MAR 2001	INDUSTRIAL TUBERA	Mauricio Tello	Welding Advice Wps Preparation Welding Procedure Qualification Welding Performance Qualification
41	Mar-01	LINDE PULLMAN	Jaime González	Automotive Parts Inspection (Rt, Pt)
42	Mar-01	CONSTRUCTORA LLODI	José Nuñez Jaime González	Ndt Advice Ut Inspection Mt Inspection In The Field Welding Advice
43	Mar-01	BALZERS	Cesar Sánchez	Ut Inspection Bars Steel Inspection By: Ut, Vt, Mt
44	AUGUST 01-TO UP TO DATE	AVANTE INGENIEROS	Mauricio Tello	Welding Advice Welding Procedure Qualification
45	JUL 2001/UP TO DATE	EXPORTADRA DE HORTALIZAS	José Nuñez	Ndt Advice Ndt Procedures Pressure Vessel Inspection by VT, UT, MT
46	JUN 2001/ UP TO DATE	INDUSTRIAS DE MONTACARGAS	Cesar Sánchez	Welding Advice Welding Procedure Qualification Welding Performance Qualification
47	JUL 2001/ UP TO DATE	EMBOTELLADORA LA VICTORIA	José Nuñez	Ndt Advice Ndt Procedure elaboration Pressure Vessels Inspection by UT, MT, VT Draws Elaboration
48	OCT. 5, 2001	CIATEQ	José Nuñez	MT
49	OCT. 5, 2001	CIA. MEXICANA DE RADIOLOGÍA	Mauricio Tello	Welding Procedure Elaboration Welding Procedure Qualification
50	OCT. 16, 2001	INDUSTRIAS THERME	Mauricio Tello	Welding Procedure Qualification
51	OCT. 17	SEIEMENS	José Nuñez	Inspection by UT
52	OCT. 19, 2001	COMPAÑÍA DISTRIBUI DORA DE COMBUSTIBLE	Jaime González	Inspection by UT
53	OCT. 23, 2001	PRODUCTOS ALIMENTI- CIOS LAMESA	Jaime González	Inspection by PT
54	OCT. 23, 2001	AUTOTANQUES NIETO	José Nuñez	Inspection by UT, MT
55	OCT. 30, 2001	HBA Cast Products S.A.	Jaime González	Radiography
56	OCT. 31, 2001	FRIGUS BOHN	Mauricio Tello	Tensile Testing for Welding

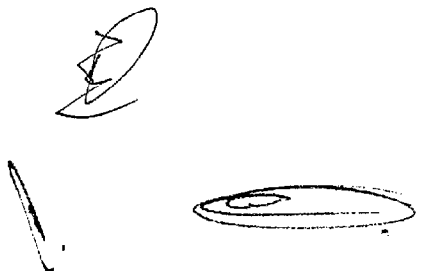
No.	Date	Company Name	Personnel in Charge	Results			
1	15-Jul-00	CTQ	Rolando Rosales	Center of forming force determination			
	JUL 27-28 2000			Press forming seminar			
	AUG 3-17 2000			Improvement of Straingh of "Holder Part".			
	AUG 24-14 SEP 2000			Improvement of Die set for "Holder Part".			
	SEP 14 - NOV 16, 2000			Absent (Training in Japan) Calculation of Spring Force			
	NOV 23 - DEC 7, 2000			Improvement of clamp problem now is almost flat. Center Forming Force Determination Training (Press Forming Seminar) Rectify radius punch's LID Calculation of requested force in the die clamps Change springs in the clamp die Failure Analysis in LID We gave them fourth recomendations about how to improve the clamp in the last step			
	FROM JANUARY 18 TO MAY 15 2001			TRAINING (CTQ Staff participated in the press forming seminar)			
	FEBRUARY 26 2001			TRAINING ( We taught to CTQ Staff a Chemica and Mechanical properties of Carbon Steel, Stainless Steel and tool steel			
	MARCH 6/7 2001			Stainless Steel an tool steel We designed some stopers to stapler machine since this machine didn't get clamp in a good position			
	APRIL, 2001			We taught to CTQ skill workers the protective maintenance of course die tools			
	MAY, 2001			We taught to CTQ skill workers the fast changes in die sets course.			
	JUNE, 2001			Maintenance of press machine course.			
	JULY- AUGUST 2001			We Derrminate the necessary force to work in a machine wich make a number part 120, 600-6540 (support with head) We Improve the production of (support with head)			
				We recomend wich is the best tool steel to make the support with head die tool			
	AUGUST-SEPTEMBER 2001			We determinated by Chemical Analysis, Metallography and Mechanical Test that the problem in the un,ver part 0498-D (flange). Is not the reason of the cracks in this number part.			
	2			JUN 30 2000	PROCESOS CONTROLADOS	Gerardo Castillo	Center of forming force determination
				JUL 14 2000			Surface Hardness determination.
JUL 21 2000		Break box design for 160 ton press machine Press forming seminar					
JUL 27-28 2000		Improvement of "Clamp part number 990155-56 left side".					
SEP 22 & 29 2000		Design of Erichssen die set					
Oct-00		Maintenance of Press Machine					
Nov-00		Center of Forming Force determination					
DEC 2000		Repair of stamping and punching					
Feb 06 2001		To make the check point for New die set					
FEB 12 2001		To improve the check point for AU39001 die set					
MAR 2 2001		To Calculate the drawing deep force To New picee required					
MAR 16 2001		New method for die set Maintenance Compresion mechanical test To assembled pieces To make internal validation To crmpresion Machine made by themselves					
MARCH 23, 2001		Supervision of operation of Machine made for themselves used to unfastening test os assembled parts					
MARCH 30, 2001		Machine approved and we made report To BROSE company.					
APRIL 6, 2001		Air pressure adjusting of Air pistons of Break system.					
APRIL 13, 2001		Die set adjusting part No. 990155-56 (fixing plate)					
APRIL 20, 2001		Desing and quotation of die set part number 990155-56					
APRIL 27, MAY 4, MAY 11, MAY 18, 2001		Supervision of crank Press Machine operation					
MAY 25, 2001		Crank press 160 ton. Press machine operation					
JUN 1, 2001		Discussion with die set group about the new die set quotation. Part number 99155-56					
JUN 8, 2001		Adjusting of heights of fixing plate (die set number 990155-56)					
JUN 15, 2001		Determination of forming force of "thermic panel"					
JUN 22, 2001		Explanation about the how to calculate the forming force of "thermic panel"					
JUL 6, 2001	Calculation and desing of new safety break box.						
JUL 13, 2001	Paper about die set maintenance						
JUL 17/18, 2001	Failure analysis cluth brake system. (start)						
No.	Date	Company Name	Personnel in Charge	Results			
3	JUN 16 2000	DYTISA	Carlos Ramirez Baltaza	To calculate the center of forming force			
	JUN 23 2000			How to calculate the moment force for a single system.			
	JUN 30 2000			Basic heat treatment of D2 tool steel			
	JUL 7 & 14 2000			Introduction of galling phenomenon			
	JUL 27-28 2000			Press forming seminar			
	AUG 4 2000			Review of prototype design.			
	AUG 30 2000			Design Erichssen die set.			
	SEP 15 2000			Mechanical properties of raw material			



No.	Date	Company Name	Personnel in Charge	Results
	OCT 23, 2000			Estimation of press forming force by motor power (Theoretically).
	NOV-DEC, 2000			Estimation of press forming force by motor power (experimentally). Lecture : Conversion Units.
	JAN 15, 2001			Estimation of press forming force by motor power
	FEB 6, 2001			Estimation of press forming force by fly wheel energy
	FEB 12, 2001			Die set maintenance
	FEB 19, 2001			Mathematics for machining work shop (Units and Dimensions)
	FEB 21, 2001			Physics of material Testing
	MAR 9, 2001			Industrial Drawing Course
	MAR 16, 2001			Heat Treatment of steel
	APR, 2001			Classification and type of stamping machine. Comparison of Mechanical type stamping machine and hydraulic pressure type
	MAY, 2001			Basic of trigonometry (Lecture)
	JUNE, 2001			Basic logarithms & Estimation of press force by hywheel.
	JULY			Logarithms Basic Course Used in Press Work and Formability Estimation of Press Forming Force by Motor Power Estimation of Press Forming by Other Methods
	AUGUST			Heat Treatment of D2 Tool Steel, Quenching and Tempering
	SEPTEMBER			Lubrication and Die Maintenance (Eng. Tsuji) Push Back and Drawing Die of Dytisa
	OCTOBER			Formability Analysis of Steel Sheet Used for Making Part Number 326652 Called Charola
4	JUN 28 2000	TALLERES RAOVA	José Luis Ojeda E.	Characterization of machinery pieces' steel (two pieces). Measurement of hardness. Obtaining of microstructure. Chemical Analysis.
	JUL 5 2000			Valuation of eccentricity phenomenon degree
	JUL 27-28 2000			Press forming seminar.
	AUG 3 2000			Manufacture of pinion (frise machine) of steel
	SEP 14 2000			Compilation of specific technical datas of machinery.
	SEP 20 2000			Advancing of Technology Transfer: "V" Bending Force Session.
	OCT 04 2000			Advancing of Technology Transfer: "V" Bending Force Session. Improve advising for a fasten system in machinery.
	NOV 01 2000			Resolution advising for die set press
	NOV 15 2000			Advancing of Technology Transfer "Drawing Force Session".
	JAN, 2001			Make an estimation about the ratio between raw material and tool steel used. To realized machinery maintenance according to working demand and condition of machinery
	FEB, 2001			To open un a grinder machine to become the correct inspection and reach a good maintenance
	MAR, 2001			To Make diagnostic by an expert about the welding procedure used.
	APR, 2001			Training (Short Course of welding Process) Conclusion of Training on welding Process Broaching some real cases (recovery and reparation of mechanical elements and design aspects of structural pieces) Establishment of a advising proposal about the implementation of the TALLERES RAOVA quality system.
	MAY, 2001			Resolution of Welding preparation troubles for aluminium alloys elements (through the training on welding metallurgy items and the advising given to)
5	May15, 2001	LEGAR	Concepción Obregon Z.	It was reviewed a press machine (a die set was broken). It was made the estimation of: * Limit of Compressive * Limit of buckling force
6	March 19, 2001	INGENIERIA EN MAQUINADOS	Concepción Obregon Z.	Check the hardness tester machine It was cleaning The measuring system was adjusted
	May 8, 2001			It was given lecture about E244 course of hardness" and instructions sheet to operate this equipment.
	JULY			Forces Analysis in Order to Improve the Die Ste of Part Called Guide Pin (Change to Progressive Die) Screws Failure Analysis
	AUGUST			Press Maintenance given by Dr. Masato Hirasaka Guides about the Die Design for Part Called "Soporte Varilla" by Eng. Tsuji. Countermeasurement for Screw Failure Analysis Evaluation of Residual Stress on Raw Material Used for Making the "Fleje"

No.	Date	Company Name	Personnel in Charge	Results
7	March 13, 2001	MAQUINADOS GON-VEN	Concepción Obregon Z	Check the hardness tester machine * Lubrication * Filled of hydraulic liquid container * Checking of indenters Suggested to change the hardness tester machine to another kind of support, (rigidly completely)
	March 21, 2001			The Gon-Ven's people had a lecture "Basic Course of Hardness"
	April 3, 2001			It was adjusted the hardness tester machine Measurement system
	April 9, 2001			To Check the screw rolling machine * Was made a calculation of theoric value of work to this machine. * It was suggested to adapt a guide support to raw material, before to pass through rolling dies. * It was recommended to change a support. It has one side griding.
	April 22, 2001			We gave the instruction manual to operate the hardness tester machine. Training about use hardness tester machine. Standard to Make corrections. Interpolations.
	June 14, 2001			It's reviewed the heat treating process to screws. It was measured hardness on specimens, to get the adequate procedure to T.T. We recomend Make a controled quench and tempering.
	July 4, 2001			It was reviewed hardness of some screws was applied corrections
8	MAY 31, 2000 JUNE 6, 2000 JUNE 7, 2000 JUNE 15, 2000 JUNE 26, 2000	TREMEC	Concepción Obregon	Comparative tests for geast samples, Dr. Hirasaka suggested flexure tests and impact tests to determinate the quantity of absorbed energy
9	MAY 11-14, 2000 JUNE 1, 2000 FEB.22, 24, 2001 SEPT. 9, 2000 FEB 19, 2001	PEMEX	Carlos Ramirez  José Luis Ojeda	a) Failure analysis of tube of 1Cr-1/4Mo. Specification failed by no good welding process b) Failure analysis of heater tube from steam plant, this tube failed by creep phenomenon.
10	MAY 29, 2000	IGC	Carlos Ramirez	Material characterization to heater pin used for soldering process, we recommended a new material in order to improve the life time
11	JULY 12, 2000	POLAROID	Gerardo Castillo	Calculus of Load Racks
12	AUGUST 4, 2000  NOV. 9, 2000	MABE	Conchita  Carlos Ramirez	Failure analysis of steel sheet refrigerator with small cracks in bended zone, we made steel sheet formability investigation using Erichsen and tension test.
13	SEPT. 7, 2000	CROWN	Carlos Ramirez	Failure analysis of pins broken during welding process, we found a brittle fracture due. No good welding procedure.
14	FEB 2, 2001 FEB 14, 2001	COMISION ESTATAL DE AGUAS	Carlos Ramirez	a) Water tube failure analysis, this tube failed general corrosion due to different specification of material used. b) Organic material analysis, found into the waste water system (we found sulfur), the sample was taken from the cover of Universidad and Tecnologico streets in Queretaro City.
15	JUNE 1, 2001	VANTECH	Carlos Ramirez	Break plate failure analysis, the company has problems of surface heat treatment, we gave advise about surface heat treatment.
16	JULY 15, 2001	AGROGEN	Carlos Ramirez	Structural steel failure analysis from Amonia plant. The structural steel has problems of corrosion by Amonia salts.
17	JULY 25, 2001	VENTRAMEX	Carlos Ramirez	Stamped piece failure analysis, we gave advise about material characterization and die design.
18	AUG 28, 2000	ARVIN MERITOR	Carlos Ramirez Gerardo Castillo	Powder metallurgic ring piece failed analysis, the failure occur during the welding process.
19	NOV. 5-9, 2001	INDUSTRIAS DE MONTACARGAS	Carlos Ramirez	(Current service) Steel plate cross, failed during the bending process steel weldment fork failed after welding process.

Annex 24  
Result of Survey to Clients



Sistema de Calidad ISO 9002  
Tecnología de Materiales

	Excelent	Good	Medium	Bad	No answer	TOTAL
1. Our quotation that you have required, they have been handed in with enough information and on time?	26	26	3	2	2	59
2. How can you qualify the availability and attention of our staff?	30	23	1	1	4	59
3. Has the information about of our results been reliable and on time?	15	22	17	2	3	59
4. Do you consider good our lead-time?	14	20	17	5	3	59
5. Have the results agreed with your require?	39	13	3	2	2	59
6. Have the test made with the process and standards required by your enterprise?	10	14	0	1	4	59
7. Has the reliability of the results been accomplish with your expectances?	36	18	2	1	2	59
8. How do you consider the technical capacity of the people who work in the laboratory (if you have had opportunity of contacting with them)?	30	21	0	1	7	59
9. Have you had reply at the right moment when you have had a problem with our services?	28	19	7	3	2	59
10. How do you qualify our services at this moment?	27	26	3	1	2	59
	Yes	NO			No answer	
12. The number of services is good enough?	49	7			3	59
13. Do you have another supplier that offers the same services that CIDESI?	33	24			2	59
	Better	Same	Worse		No answer	
14. How do you consider our services compared with other suppliers?	5	17	9		28	59
	1-3 years	4-6 years	7 or more years		No answer	
15. ¿How long have we offering to you our services?	30	18	6		5	59
	10%	30%	50%	60% o mas	No answer	
16. Across the time that CIDESI has given services, how much our services have increased in you company?	12	12	14	9	12	59
	Monthly	Every 3 months	Every 4 months	Twice a year	No answer	
17. How often do you require our services?	34	10	3	10	2	59
	Si	No			No answer	
18. Do you know the project JICA-CIDESI?	20	30			9	59
19. Have you participated (or people from your company) in courses or events promoted by this project?	14	20			25	59
20. Do you consider important this type of projects between Mexico and Japan for the technologycal develop in our country?	29	0			30	59



SQP • CONACYT



ISO 9002: 1994  
Registrado 047



QUALITY SYSTEM  
CERTIFIED



CIDESI



SQP • CONACYT



ISO 9002: 1994  
Registrado 047

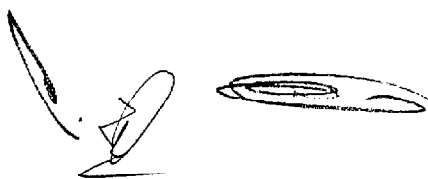


Sistema de Calidad ISO 9002  
Tecnología de Materiales

	Excelent	Good	Medium	Bad	No answer	
1. Our quotation that you have required, they have been handed in with enough information and on time?	44%	44%	5%	3%	3%	100%
2. How can you qualify the availability and attention of our staff?	51%	39%	2%	2%	7%	100%
3. Has the information about of our results been reliable and on time?	25%	37%	29%	3%	5%	100%
4. Do you consider good our lead-time?	24%	34%	29%	8%	5%	100%
5. Have the results agreed with your require?	66%	22%	5%	3%	3%	100%
6. Have the test made with the process and standards required by your enterprise?	17%	24%	0%	2%	7%	49%
7. Has the reliability of the results been accomplish with your expectances?	61%	31%	3%	2%	3%	100%
8. How do you consider the technical capacity of the people who work in the laboratory (if you have had opportunity of contacting with them)?	51%	36%	12%			98%
9. Have you had reply at the right moment when you have had a problem with our services?	47%	32%	5%	5%	3%	93%
10. How do you qualify our services at this moment?	46%	44%	0%	2%	3%	95%
	Yes	NO			No answer	
12. The number of services is good enough?	83%	12%			5%	100%
13. Do you have another supplier that offers the same services that CIDESI?	56%	41%			3%	100%
	Better	Same	Worse		No answer	
14. How do you consider our services compared with other suppliers?	8%	29%	10%		47%	95%
	1-3 years	4-6 years	7 or more years		No answer	
15. ¿How long have we offering to you our services?	51%	31%	24%		8%	114%
	10%	30%	50%	60% o mas	No answer	
16. Across the time that CIDESI has given services, how much our services have increased in you company?	20%	20%	5%	15%	20%	81%
	Monthly	Every 3 months	Every 4 months	Twice a year	No answer	
17. How often do you require our services?	58%	17%	0%	17%	3%	95%
	Si	No			No answer	
18. Do you know the project JICA-CIDESI?	34%	51%			15%	100%
19. Have you participated (or people from your company) in courses or events promoted by this project?	24%	34%			42%	100%
20. Do you consider important this type of projects between Mexico and Japan for the technological develop in our country?	49%	0%			51%	100%



Annex 25  
Number of Technical Services  
Acquired by C/P

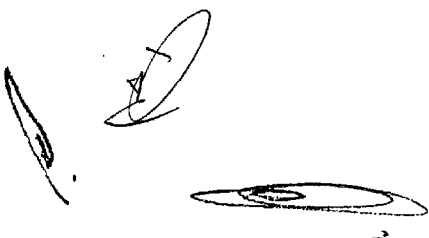


ANNEX.25 Number of Technical Services acquired by C/P.

<i>NON DESTRUCTIVE TESTING</i>		<i>CHEMICAL ANALYSIS</i>	
<i>BEFORE THE PROJECT</i>	<i>AFTER THE PROJECT</i>	<i>BEFORE THE PROJECT</i>	<i>AFTER THE PROJECT</i>
<ul style="list-style-type: none"> <li>* LIQUID PENETRANT</li> <li>* ULTRASONIC</li> <li>* RADIOGRAPHIC</li> <li>* MAGNETIC PARTICLES</li> </ul>	<ul style="list-style-type: none"> <li>* VISUAL INSPECTION</li> <li>* EDDY CURRENT</li> <li>* WELDING INSPECTIONS</li> <li>* HIDROSTATIC TEST</li> </ul>	<ul style="list-style-type: none"> <li>* ATOMIC ABSORPTION BY FLAME</li> <li>* PLASMA EMISSION</li> <li>* COMBUSTION</li> </ul>	<ul style="list-style-type: none"> <li>* OPTIC EMISSION</li> <li>* X-RAY FLUORESCENCE</li> <li>* GRAPHITE FURNACE</li> <li>* HIDRIDE GENERATOR</li> <li>* (MELTING) FUSION METHOD</li> <li>* MICROWAVE FURNACE</li> <li>* FUSION METHOD</li> </ul>
<i>METALLOGRAPHY</i>		<i>MECHANICAL TESTING</i>	
<ul style="list-style-type: none"> <li>* OPTIC METALLOGRAPHY</li> <li>* THICKNESS MEASUREMENT</li> <li>* MICROHARDNESS OF MATERIALS</li> </ul>	<ul style="list-style-type: none"> <li>* SCANNING ELECTRONIC MICROSCOPE</li> <li>* X-RAY MICROANALYSIS</li> <li>* COLOR MAPPING</li> <li>* PARTICLES CHARACTERIZATION BY SEM.</li> <li>* FAILURE ANALYSIS</li> <li>* MICROHARDNESS (semiautomatic equipment)</li> <li>* REPLICA</li> <li>* ELECTROPOLISHING &amp; ETCHING</li> <li>* METALLOGRAPHY IN SITE &amp; METALLOGRAPHYC REPLICA</li> </ul>	<ul style="list-style-type: none"> <li>*TENSILE &amp; COMPRESSION BY AMSLER MACHINE</li> <li>*HARDNESS: ROCKWELL, C, B, 15T, 15N</li> <li>BRINELL 3000 kg</li> <li>* ENERGY IMPACT TEST</li> </ul>	<ul style="list-style-type: none"> <li>*TENSILE &amp; COMPRESSION BY INSTRON &amp; SHIMADZU MACHINES</li> <li>FACTOR "r" and "n"</li> <li>*SPECIAL TESTINGS: ADHERENCE, CLAMPS, SPRINGS, CARDBOARD, WIRE AND PLASTICS.(*)</li> <li>* BRINELL HARDNESS TESTING 2500, 2000, 1500, 1000, 500</li> <li>*HIGH IMPACT TEST AND SEVERAL TEMPERATURE</li> <li>* ERICHSEN TESTING</li> <li>* HARDNESS TESTING WITH EUQOTIP</li> </ul>

SEM: SCANNING ELECTRON MICROSCOPE.

Annex 26  
Record of Training Courses for C/P





Annex. 26 Record of Training Courses for C/P  
1998

Name	C/P's	Speaker	Date
Microwave Operation Course	Rosalba Hernández Rivera Estela González Caballero Ofelia Wong Aguilera	Equipment Supplier	6/3/1998
X-ray Espectrometry Operation	Rosalba Hernández Rivera Estela González Caballero Ofelia Wong Aguilera	Equipment Supplier	16/3/1998 to 18/3/1998
Optic Emission Espectrometry Operation	Rosalba Hernández Rivera Estela González Caballero Ofelia Wong Aguilera	Equipment Supplier	19/3/1998 to 20/3/1998
Atomic Absorption Course	Rosalba Hernández Rivera Estela González Caballero Ofelia Wong Aguilera	Equipment Supplier	26/3/1998 to 27/3/1998
Shimadzu Machine Operation	Concepción Obregón Zepeda Gerardo Castillo Pérez	Equipment Supplier	31/3/1998
Instron Machine Operation	Concepción Obregón Zepeda Gerardo Castillo Pérez	Equipment Supplier	2/4/1998
Analysis of Metal in Water by Atomic Absorption Spectrometry	Concepción Obregón Zepeda Gerardo Castillo Pérez	Equipment Supplier	28/4/1998 30/4/1998
English Course	All Counterparts	<i>Professional Language Institute</i>	04/8/98 to 11/12/98
Basic Metallurgy	All Counterparts	<i>Juan Alberto Pozo Morejón</i>	15/9/98 to 01/12/98
Quality Systems Auditor	Ofelia Wong Aguilera Claudia Almanza León	<i>Quality Systems</i>	12/11/98 to 14/11/98
X-Ray Espectrometry	Estela González Caballero	<i>CENAM</i>	5/10/98 to 9/10/98
Ultrasonic Testing Level I	Santos García Miranda	<i>IMENDE</i>	3/11/98 to 4/12/98
Penetrant Liquids Level I and Level II	Cesar Sanchez Pérez	<i>IMENDE</i>	1/12/98 to 5/12/98

1999

Name	CP's	Speaker	Date
English course	All counterparts	Professional Language Institute	January-November
Uncertain Course (CENAM)	Rosalba Hernández Ofeli Wong	CENAM	April 15-16
Radiographic Testing Level II	Jaime González, César Sánchez	IMENDE	April
Deterioration of Metal	All counterparts	Hiroshi TSUKAHARA	May
Quality Control	All counterparts	Hideo SEINO	June
Liquid Penetrant Level II	Jaime González Angel Arellano	IMENDE	June
Basic Metallurgy	José Nuñez, Mauricio Tello, César Sánchez, Rolando Rosales, Carlos Ramírez, Concepción Obregón, Gerardo Castillo Jaime González	Hiroshi TSUKAHARA	September
Application of Welding	José Nuñez, Mauricio Tello, César Sánchez, Rolando Rosales, Carlos Ramírez, Concepción Obregón, Gerardo Castillo Jaime González	Takehiko AKIYAMA	August- September
First Aids	Santos García, César Sánchez, Barú Vázquez Angel Arellano	T.U.M Francisco Pérez Salinas CAPCENTER	6/9/99 to 13/9/99
Fire Prevention	Jaime González, José Nuñez, Mauricio Tello, Julio Solano, Barú Vázquez Angel Arellano, César Sánchez.	CAPCENTER	18/10/1999
Eddy Current Level II	José Nuñez, Julio Solano	ZETEC Seattle USA	25/10/99 to 5/11/99
Magnetic Particles Level II	Barú Vázquez	IMENDE	8/11/99 to 12/11/99

2000

Name	C/P's	Speaker	Date
Statistical Method	Concepción Obregon, Ofelia Wong, Rosalba Hernández, Rolando Rosales, Carlos Ramírez, Gerardo Castillo, Estela González.	Jorge Bribiesca Ruiz	March
Certified Welding Inspector (CWI) Test	Mauricio Tello, César Sánchez	American Welding Society AWS	March
Safety & Health Control in Laboratory	José Nuñez, Mauricio Tello, César Sánchez, Jaime Glz., Gerardo Castillo, Concepción Obregon, Rolando Rosales, Carlos Ramírez, Rosalba Hernández, Ofelia Wong, Estela González.	CAPCENTER	April
Manufacturing 1 <sup>st</sup> Congress	Jaime González	CIDESI	April
Good Practices in Laboratorie Fluorescence Espectrometry	Ofelia Wong, Rosalba Hernández	CENAM	May
Metallography in Situ	Carlos Ramírez, José Luis Ojeda, Rolando Rosales	Dr. Rómulo F. González Rodríguez	May 10to 14
Safety & Handling of Amonia	José Nuñez, Jaime González Baru Vázquez, Angel Espinosa Rolando Rosales, José Luis Ojeda, Carlos Ramírez, Gerardo Castillo, Concepción Obregon, Guillermo López.	CAPCENTER	June
Non Destructive Testing used as a Quality & Safety Tool for Industries	José Nuñez Alcocer Jaime González Guillermo López Huape	Dr. Yasuhisa YAMAZAKI	June 2 <sup>th</sup>
Evaluation of Creep fracture time by microestructure for long term used high temperature steel parts	Concepción Obregon, Gerardo Castillo, Carlos Ramírez, Rolando Rosales, José Luis Ojeda.	Dr. Masato HIRASAKA	June Every Monday
Uncertainty Course	Rosalba Hernández Concepción Obregon Gerardo Castillo Pérez José Luis Ojeda. Guillermo López Huape Carlos Ramírez Baltazar	Fis. Alfonso Mauri Toledo	31/7/2000 to 4/8/2000

2000

Name	C/P's	Speaker	Date
Fracture Mechanics	Rosalba Hernández Concepción Obregon Gerardo Castillo Pérez José Luis Ojeda. Guillermo López Huape Carlos Ramírez Baltazar Israel Marines García Abdias García Hernández Antonio Ramírez Martínez.	Dr. Keisuke Ishikawa	14/8/2000 to 18/8/2000
First Aids Course	Ofelia Wong Aguilera Rosalba Hernández Rivera Claudia Almanza León Carlos Ramírez Baltazar José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Joel Chaparro González	T.U.M. Francisco Pérez Salinas	9/9/2000 23/9/2000 30/9/2000
Quality Systems Assurance	Ofelia Wong Aguilera Guillermo López Huape José Luis Ojeda Elizarrarás Rosalba Hernández Rivera Ma. Concepción Obregon Z.	M. en C. Ma. Milagros González Ruiz	27/9/2000
Optical Emission Mobile Spectrometer Course	Ofelia Wong Aguilera Rosalba Hernández Rivera	Supplier (Spectro)	28/9/2000
Analysis of Press Forming Force	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar José Luis Ojeda Elizarrarás Gerardo Castillo Pérez	Dr. Masato Hirasaka	17/10/2000
Structure and Progressive Dies	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérez José Luis Ojeda Elizarrarás	Dr. Masato HIRASAKA	10/1/2001
Sheet Formability of Steels	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérez José Luis Ojeda Elizarrarás	Dr. Masato HIRASAKA	22/1/2001

2001

Name	C/P's	Speaker	Date
Sheet Formability of Non Ferrous Metal	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérex José Luis Ojeda Elizarrarás	Dr. Masato HIRASAKA	29/1/2001
Analysis of Press Forming Force	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérex José Luis Ojeda Elizarrarás	Dr. Masato HIRASAKA	9/2/2001
Firts AIDS	Joel Chaparro, Mauricio Tello, José Nuñez, Jaime Gonzalez Guillermo López, Baru Vázquez Angel Arellano, Carlos Yomel, César Sánchez, Julio Solano	SINCO, s.a. de c.v.	16/2/2001
Method of Adjusting and Setting for Die	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérex José Luis Ojeda Elizarrarás	Dr. Masato HIRASAKA	23/2/2001
Welding of Super Stainless Steels	Joel Chaparro, Mauricio Tello, José Nuñez, Jaime Gonzalez Guillermo López, Baru Vázquez Angel Arellano, Carlos Yomel, César Sánchez, Julio Solano	Dr. Hiroyuki IWAMOTO	23/2/2001
How to Avoid Hydrogen-Induced Cracking	Joel Chaparro, Mauricio Tello, José Nuñez, Jaime Gonzalez Guillermo López, Baru Vázquez Angel Arellano, Carlos Yomel, César Sánchez, Julio Solano	Dr. Hiroyuki IWAMOTO	28/2/2001
Statics Tools For Validation of Statistics Methods	Rosalba Hernández Rivera Ofelia Wong Aguilera	Dr. Bertram NAGEL	1/3/2001
Heat Treatment for Welding	Joel Chaparro, Mauricio Tello, José Nuñez, Jaime Gonzalez Guillermo López, Baru Vázquez Angel Arellano, Carlos Yomel, César Sánchez, Julio Solano	Dr. Hiroyuki IWAMOTO	2/3/2001

2001

Name	C/P's	Speaker	Date
Basic Selection of Material For Punch And Die	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérez José Luis Ojeda Elizarrarás	Eng. Junichi HIRATA	2/3/2001
The Die & Press Technology of Stamping Parts Maker	Ma. Concepción Obregon Z. Carlos Ramírez Baltazar Rolando Rosales Nava Gerardo Castillo Pérez José Luis Ojeda Elizarrarás	Eng. Junichi HIRATA	6/3/2001
Visual Inspection	Mauricio Tello Cesar Snachez	Hellier (USA)	5/3/2001 9/3/2001
Management Administration	Joel Chaparro José Nuñez	ITESM	6/3/2001
Die Set Control	Carlos Ramírez Baltazar Gerardo Castillo Pérez	Eng. Junichi HIRATA	8/3/2001
Self regulation rule for LPG tank on Vehicle in México	José Nuñez	Eng. Noboru MURASE	22/3/2001
Making Good Parts * Good Die Set * Good Sheet Material * Good Press Machine	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava Saúl Rubio R. Patricia Morales Silva José Alberto Rodríguez C. Bertha Velazco Sánchez	Dr. Masato HIRASAKA	26/4/01
Protective Maintenance of Machine Press	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava Saúl Rubio R. Patricia Morales Silva José Alberto Rodríguez C. Bertha Velazco Sánchez	Dr. Masato HIRASAKA	9/5/2001

2001

Name	C/P's	Speaker	Date
Surface Treatment (1)	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	Dr. Masato HIRASAKA	17/4/01
Desing of Blanking Punch	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	Dr. Masato HIRASAKA	17/5/01
Heat Treatment for Welding	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava Mauricio Tello Rico César Sánchez Pérez	Dr. Masato HIRASAKA	22/5/01
Surface Treatment (2) Method of Surface Hardening	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	Dr. Masato HIRASAKA	30/5/01
Surface Treatment (3) Liquid Carburizing and Cyaniding	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	Dr. Masato HIRASAKA	4/6/2001
Quick Die Change	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava	Dr. Masato HIRASAKA	11/6/2001

2001

Name	C/P's	Speaker	Date
Fundamentals of Corrosion (1) Definition of Corrosion	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	6/6/2001
Galvanic or two-metal corrosion EMF and galvanic series	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	8/6/2001
Selective Leaching	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	12/6/2001



2001

Name	C/P's	Speaker	Date
Hydrogen Damage	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	18/6/01
Pitting Pit Shape and Growth	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	11/6/2001
Stainless Steel HEX Tubes	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Eng. Masaru ENDO	19/6/01
How to make corrosion report  Laboratory test of corrosion & equipment	Carlos Ramírez Baltazar Concepción Obregon Zepeda José Luis Ojeda Elizarrarás Gerardo Castillo Pérez Rolando Rosales Nava César Sánchez Pérez	Eng. Masaru ENDO	27/6/01



2001

Name	C/P's	Speaker	Date
Corrosion Problems in Refinery and Petrochemical Plant	Mauricio Tello Rico Jaime González Sánchez Estela González Caballero Ofelia Wong Aguilera Rosalba Hernández Rivera	Masaru ENDO	2/7/2001
Formability of Sheet Metal Forming	Patricia Morales Silva José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Valentín Herrera Baez Concepción Obregon Zepeda José Alberto Rodríguez Calderon Marco Aurelio González López Bertha Velázco Sánchez	Dr. Naotake YOSHIHARA	6/7/2001
Estimation of Press Forming Force by Flywheel Energy	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	11/7/2001
The Other Estimation Methods for Press Forming Force	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	13/7/01
Estimation of Press Forming Force by Flywheel Energy	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	13/7/01
Fundamentals of Plastic Deformation * Plastic instability * Yield criterion * Effective stress	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	17/7/01
Study of Counter Balance	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	20/7/01

2001

Name	C/P's	Speaker	Date
Press Forming Force Required for Shearing and Bending	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	24/7/01
Press Forming Force Required for Bending, bulging, drawing and Embossing (continued from lecture of July 24th)	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	25/7/01
Safety Protection for Overload in Press Forming Machines	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Naotake YOSHIHARA	27/7/01
Leadership	Concepción Obregon Zepeda Carlos Ramírez Baltazar José Nuñez Alcocer Mauricio Tello Rico Jaime González Sánchez Cesar Sánchez Pérez Estela González Caballero Ofelia Wong Aguilera	Lic. Sergio Ibarra	July-August-September October-November
5s Activity	Ramses Reyes Fuentes Elizabeth Pacheco Vera Angel Arellano Espinoza Saúl Valtierra Méndez José Luis Ojeda Elizarrarás José Luis Ramírez Maldonado Antonio Ramírez Martínez Jaime González Silva Victor Hugo Prieto Luna Fernanda González Pérez Rosalba Hernández Rivera Valentín Herrera Baez Guillermo A. López Huape José Alberto Rodríguez Calderón Bertha Velasco Sánchez	Dr. Masato HIRASAKA	3/8/2001

2001

Name	C/P's	Speaker	Date
	Ma. Concepción Obregon Zepeda Ma. Milagros González Ruiz Joel Chaparro González María Lourdes Correa Becerra Vicente López Morales Guadalupe Vázquez Calderon Paloma Montes Vargas Rosalba Orduña Mendoza		
The Basis and Application of Heat Treatment	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda	Dr. Masato Hirasaka	8/8/2001
Press Forming (1) Shape Material and Formability of Press Parts Kind of Press Forming	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	14/8/01
Press Forming (2) Principle of Progressive Forming	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	20/8/01
Press Forming (3) Equipment of Progressive Forming	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	21/8/01

2001



Name	C/P's	Speaker	Date
Practical Kaizen (A case Study) "know How" "Know Why"	Joel Chaparro González Milagros González Ruiz Cirilo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	August 2001
Guidline For Company Visit	Joel Chaparro González Milagros González Ruiz Cirilo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	August 2001
Managerial Engineering "Techniques for Improving Quality and Productivity in the Workplace"	Joel Chaparro González Milagros González Ruiz Cirilo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	August 2001
Press Forming (4) Design the Structure of Progressive Die	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	27/8/01
Basics for Consultation on Production Management	Joel Chaparro González Milagros González Ruiz Cirilo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	August 2001

2001

Name	C/P's	Speaker	Date
5's Activities	Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Saúl Rubio Rodríguez Gerardo R. Reyes Fuentes Carlos Yonel Martínez Jaime Gonzalez Silva Mauricio Tello Rico José Nuñez Alcocer Estela Gonzalez Caballero Rosalba Hernández Rivera Ofelia Wong Aguilera	Dr. Masato HIRASAKA	29/8/2001
Practical Kaizen A Case Study	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hajime Suzuki	September 2001
Practical Kaizen Supplementary Materials Some Useful Concepts and Techniques	Joel Chaparro González Milagros González Ruiz Cirilo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	September 2001
Press Forming (6) Strip Layout of Progressive Die	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	3/9/2001
Press Forming (7) Trial of Progressive Die Stationary State Production by Progressive Die	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar	Eng. Hideshi Tsuji	4/9/2001

2001

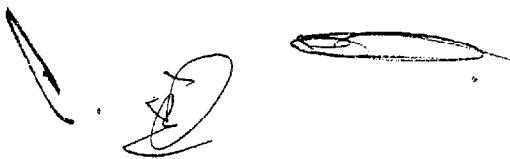
Name	C/P's	Speaker	Date
	Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez		
Introduction to Just in Time (JIT)	Joel Chaparro González Milagros González Ruiz Círculo Noguera Silva Rosalba Hernández Rivera Bertha Velasco Sánchez Irma Morán Chávez Patricia Morales Silva	Eng. Hajime Suzuki	September 2001
Press Forming (8) Technical Considerations for Manufacturing, Adjustment, Tolerance, Minimum Thickness, Radios etc.	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	10/9/2001
Press Forming (9) Lubrication in Progressive Die Set, Types of Lubricants for Shearing, Drawing, Bending	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	11/9/2001
Press Forming (10) Maintenance of Progressive Die	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez	Eng. Hideshi Tsuji	17/9/2001
Press Forming (11) Future Plan of Production by Progressive Die	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Carlos Ramírez Baltazar	Eng. Hideshi Tsuji	18/9/2001

2001












Name	C/P's	Speaker	Date
	Concepción Obregon Zepeda José Alberto Rodríguez Calderón Bertha Velasco Sánchez Saúl Rubio Rodríguez		
Measurement of Dynamic Press Load by Wire Strain Gage	José Luis Ojeda Elizarrarás Rolando Rosales Nava Gerardo Castillo Pérez Concepción Obregon Zepeda Carlos Ramírez Baltazar	Dr. Masato Hirasaka	20/9/2001
The Application of High Strength Steel to Car Body Panels	Concepción Obregon Zepeda Carlos Ramírez Baltazar Rolando Rosales Nava Saúl Rubio Rodríguez José Alberto Rodríguez Calderón	Dr. Tadashi Furubayashi	26/9/2001
Manufacturing Process	Concepción Obregon Zepeda Carlos Ramírez Baltazar Rolando Rosales Nava Saúl Rubio Rodríguez José Alberto Rodríguez Calderón	Dr. Tadashi Furubayashi	27/9/2001
3 Dimensional Sheet Metal Forming Simulation	Concepción Obregon Zepeda Carlos Ramírez Baltazar Rolando Rosales Nava Saúl Rubio Rodríguez José Alberto Rodríguez Calderón	Dr. Tadashi Furubayashi	28/9/2001
Failure Analysis Estimation of number to failure and stress range	Concepción Obregon Zepeda Carlos Ramírez Baltazar Rolando Rosales Nava José Raúl Barrientos Díaz	Dr. Masato Hirasaka	25/10/2001
Failure Analysis Estimation of number to failure and stress range from striations	Concepción Obregon Zepeda Carlos Ramírez Baltazar Rolando Rosales Nava José Raúl Barrientos Díaz	Dr. Masato Hirasaka	23/11/2001

















Annex 27  
List of Curricula and Teaching Materials  
for Seminars and Training Courses















Annex.-27 List of Curricula and Teaching Materials.

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Surface Modification Technology Seminar	Introduction Purpose of Surface Modification Classification of Surface Modification Example Carburizing Induction hardening Shot peening Evaluation Method	 First edition 1998			
Commemorative Seminar of CIDESI Materials and Manufacturing Process	Introduction Materials Process of Manufacture Conclusions	 First edition 1998			
1 <sup>st</sup> Scanning Electron Microscope Seminar 1998	In situ Techniques of Scanning Electron Microscopy Use of SEM as a tool for Failure Analysis Use of SEM in Technology Development Practices of SEM and EDAX				
2 <sup>nd</sup> Scanning Electron Microscope Seminar 1999	Use of SEM for Substrate Analysis Advanced EDAX Techniques in Materials Materials Analysis Practices of SEM and EDAX				
High Strength Sheet for Automotive Exterior Panel & Galling on Press Forming Seminar	Introduction Materials for Automotive Parts Properties of Materials Forming Process	 First edition 1999			
Welding of Titanium Seminar	Introduction Property Un-alloyed Titanium Materials Welding Process Welding Procedure PWHT Inspection Practice at Shop	 First edition 1999			
Application of the Rare Earth Elements in advanced technology Seminar	Introduction Properties of Rare Earth Elements Use of REE Purification of REE Chemical Analysis of REE	 First edition 1999			

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Seminar on Japanese Technology Transfer	Procedure of Failure Investigation <i>Hiroshi Tsukahara</i> Research & development in the small & medium industry <i>Hideo Seino</i> Welding Performance Qualifications <i>Takehiko Akiyama</i>	 First edition 2000			
Seminar on Special Ultrasonic Techniques	Introduction Comparison of SV Wave and SH Wave Method Reason of why surface SH Wave Method, now Example of Application Attention for Application Applicable Method Practical	 First edition 2000			
Non Destructive Test used as a Quality & safety Tool for Industries	Concepts, Advantages & Disadvantages of Non Destructive Testing used for the Pressure Vessel Inspection. Mexican Standards for Industries (Pressure Vessel). How to Prevent Weld Cracking in Pressure Vessel Fabrication.				
Seminar on Quality Assurance for Press Forming Materials	Galling Phenomenom in press forming work Non Destructive Test using for Inspection of Press Forming Materials Work Improvement Characterization of Sheet Forming Selection of Press Work Machine	 First edition 2000			
Seminar on Fatigue and Fracture of Materials (Magnesium Alloys, today and future) Fracture Mechanics Application on the Mechanical Design	Calculation of Minimum Defect Size Calculation of Fracture Stress Fracture in a centre-cracked panel Effect of local crack tip plasticity Design against static failure Failure Analysis of a large Steel Shaft Internal Pressure Fatigue Aluminium Alloy Pressure Vessel	 First edition 2000			
Fundamental Casting Technology on Countermeasure of Casting Defects	Defects of Casting and Countermeasures Types and Characteristics of Casting Defects Defects of Cast Iron Casting Causes Counterplans Pinholes GAS holes by chills External Shrinkage Shrinkage Cavities Open Grain Structure Erosion Scabs	 First edition 2000			

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
<b>Strengthen of Material Testing</b>	Strengthen Method of Steel Solid Solution Strengthening Grain Refinement Transformation Strengthening Precipitation or Dispersion of Hard Particles Cold Working Termomechanical Treatment	 First edition 2000			
<b>Physics of Material Testing</b>	Physics of Material Testing Unit of Mass and Force Unit of Stress Strain Impact Test Determination of R Ultrasonic Flow Detection	 First edition 2000			
<b>Seminar of Press Forming</b>	Galling Phenomenom in press forming work Selection of Press Machine Drawing Steel Sheet Characterization Quenching and Tempering heat Treatment for D2 Tool Steel and Surface Heat Treatment	 First edition 2000			
<b>Analysis of Press Forming Force</b>	Crank Press Speed and Slide Position Change of Forming Force of Crank Press Capacity of Eccentric Load and Concentrated Load Shearing Force Deep Drawing Force Calculation of Center of Forming Force	 First edition 2000			
<b>Seminar of Scaning Electron Microscope</b>	The Eds System ( Basic Principles and Operation Quantitative Analysis of Low-Vacuum Spectra Estudy of Corrosion Process by Scanning Electron Microscope Evaluation of Creep Rupture Time by Microstruc ture for Long-Term Used High Temperature Steel Parts Incremento en la Tenacidad de la Flecha de Mando (No. 2675TUFM) de la Transmisi3n Mod. T-56 Modelo Viper Racing	 First edition 2000			
<b>Evaluation Creep Rupture Time by Microstructure for Long-Term Used High Temperature Steel Parts</b>	Long Term Used High Temperature Steel Parts Evaluation Method of Creep Rupture Time by Microstructure Usual Method by Microstructure Quantitative Method by Microstructure Extrapolation by Larson-Miller Parameter Equipment Testing Material Test Condition of Creep Rupture Microstructure Change of 2.25% Cr-1%Mo Steel Application	 First edition 2000			

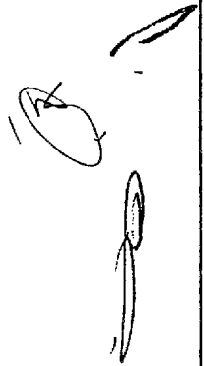
SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Seminar on Press Forming Technology <i>The Die &amp; Press Technology of STAMPING PARTS MAKER</i>  <i>Analyses of Press Forming Force</i>	Technology about die & press * The technology that a part can be produced safely. * The technology to make the part of the high quality. * The technology to make a part by high efficiency. <b>One Element of Technology from making quotation to die manufacturing</b> 1. Technology for making quotation * Material Cost * Press processing cost * Die Cost 2. Die technology which solves a problem in the die design Crank press speed and slide position Change of forming force of crank press. Capacity of eccentric load and concentrated load. Shearing force Deep drawing force Calculation of center of forming force	 First Edition 2001			
Physics of Material Testing	Mass Force and Stress Tensile Test Deformation Route Impact Test Ultrasonic Flow Detection				
Welding of Super Stainless Steel Seminar (CIDESI)	Super Duplex Stainless Steel Super Austenitic Stainless Steel Super Martensitic Steel Concluding Remarks	 First Edition 2001			
Casting Defects Seminar (CINVESTAV, Saltillo)	Various kind of casting defect Various type of gas defect How to improve the quality of casting Radiographic Inspection Recent technical development on computer simulation The application of computer simulation in casting area Examples of Casting Defects	 First Edition 2001			
Fundamental of Fusion Welding Seminar (UAQ) <i>How to Avoid Hydrogen-Induced Cracking</i>	What is Hydrogen-Induced Cracking Some major problems on Hydrogen-Induced Cracking during fabrication Contributing Conditions Avoiding Hydrogen-Induced Cracking Interruption of Heating Cycle Lamellar Tearing	 First Edition 2001			

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
<i>Fundamental of Fision Welding</i>	Welding Process The Metallurgy of Welding Residual Stress and Distortion Heat Treatment Qualification of Welding Procedure and Welder Discontinuities in Fusion Welded Joints	 First Edition 2001			
<b>Welding of Super Stainless Steel Seminar (CIDESI)</b>	Super Duplex Stainless Steel Super Austenitic Stainless Steel Super Martensitic Steel Concluding Remarks	 First Edition 2001			
<b>Corrosion Problems in Refinery and Petrochemical Plant Seminar (Cd. Madero, Tamps/ Salina Cruz, Oax.)</b>	Type of Failures and Deterioration in Refinery/Petrochemical Plants Naphthenic Acid Corrosion Vanadium Attack (oil ash corrosion) Hydrogen Induced Cracking (HIC) Mechanism of Hydrogen induced cracking Sulfide Stress Corrosion Cracking Hydro-Desulfurization Polythionic Acid SCC Hydrogen Attack Corrosion Due to NH4HS	 First Edition 2001			
<b>Evaluation Creep Rupture Time by Microstructure for Long-Term Used High Temperature Steel Parts</b>	Long Term Used High Temperature Steel Parts Evaluation Method of Creep Rupture Time by Microstructure Usual Method by Microstructure Quantitative Method by Microstructure Extrapolation by Larson-Miller Parameter Equipment Testing Material Test Condition of Creep Rupture Microstructure Change of 2.25% Cr-1%Mo Steel Application	 Second Edition 2001			
<b>5s Activities (CIDESI; International Metrology Week)</b>	Definition of 5s * SEIRI * SEITÓN * SEISÓ * SEIKETSU * SHITSUKE 5s History 5s Objective 5s Characteristics 5s Success Systematical Development of 5s Result of 5s Activities				

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
<b>Press Forming Seminar</b> <b>Instituto Tecnológico de Puebla</b>  <b>Safety Protection for overload in press forming machines</b>	Why overload protectors are necessary? Two types of overload protectors Where are overload protectors How to design shape and dimensions of shear plate An example of desing	●	●		
<b>Preventive Maintenance of Press Machines</b> <b>Universidad Tecnológica de San Juan del Río</b>	Summary Protective Maintenance of Machines Press - Safety Check (check cycle) - Oiler Control - Daily Check	●	●		
<b>Press Forming Technologies Seminar</b> <b>San Luis Potosí, CETECI</b>  <b>Safety Protection for overload in press forming machines</b>	Why overload protectors are necessary? Two types of overload protectors Where are overload protectors How to design shape and dimensions of shear plate An example of desing	●	●		
<b>5s Activities</b> <b>Universidad Tecnológica de San Juan del Río</b>	Definition of 5s * SEIRI * SEITÓN *SEISÓ * SEIKETSU * SHITSUKE  5s History 5s Objective 5s Characteristics 5s Success Systematical Development of 5s Result of 5s Activities	●	●		
<b>Welding Inspection Welders Qualification</b> <b>San Luis Potosí, CETECI</b>	Introduction Definition and Importance of Quality Control Objectives of a Quality Control Program Steps of the Quality Control Program * Personnel Training * Control of Equipment + Fabrication Process * Inspection Before Welding - Base Material - Material - Welding Procedure - Welders Qualification  Cost Control Welders Qualification	●	●	●	
<b>Progressive Die for Press Forming</b>	Products by Press Forming Plasticity of Sheet Metal Material Kinds of Press Forming Single Die and Progressive Die Strip Layout For Progressive Die Progressive Die Structure and Parts Making Productivity and Material Efficiency Improving of Press & Die Technology	●	●		






Handwritten marks and signatures on the left side of the page, including a checkmark and several scribbles.

SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
<p><b>Galling in Press Forming for Various Steel Sheets</b></p> <p><b>Press Working Material Characterization</b></p> <p><b>UAQ (Facultad de Quimica)</b></p>	<p>Fundamental Experiment Cause of Galling Prevention of Galling Lubrication of Press Forming Particle of Wear by Galling Relation Between Blank Strength and Galling Element Relation Between Tool and Blank Relation Between Die-R and Galling Surface Finishing "n" &amp; "r" Values Press Working Some Products Steel Sheets Metal Product Fabrication * Material * Equipment * Process Mechanical Testing * Hardness * Tensile * Ductibility Tensile Test "n" Value "r" Value</p>	<p>●</p> <p>●</p>	<p>●</p> <p>●</p>	<p>●</p>	
<p><b>Progressive Die for Press Forming San Luis Potosi (CETECI)</b></p>	<p>Products by Press Forming Plasticity of Sheet Metal Material Kinds of Press Forming Single Die and Progressive Die Strip Layout For Progressive Die Progressive Die Structure and Parts Making Productivity and Material Efficiency Improving of Press &amp; Die Technology</p>	<p>●</p>	<p>●</p>		
<p><b>Progressive Die for Press Forming Instituto de Fundición y Maquinado de Jalisco</b></p>	<p>Products by Press Forming Plasticity of Sheet Metal Material Kinds of Press Forming Single Die and Progressive Die Strip Layout For Progressive Die Progressive Die Structure and Parts Making Productivity and Material Efficiency Improving of Press &amp; Die Technology</p>	<p>●</p>	<p>●</p>		
<p><b>Progressive Die for Press Forming Instituto Tecnológico de Puebla</b></p>	<p>Products by Press Forming Plasticity of Sheet Metal Material Kinds of Press Forming Single Die and Progressive Die Strip Layout For Progressive Die Progressive Die Structure and Parts Making Productivity and Material Efficiency Improving of Press &amp; Die Technology</p>	<p>●</p>	<p>●</p>		

















SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Productivity and Practical KAIZEN (CIDESI)	What is productivity? Three kinds of Consultation - Management, Productivity and Technical Consultation Practical KAIZEN - Traditional and Practical Approach - Practical Tools - Practical Systems - Practical Approach 1) Critical Issue 2) Pilot area 3) Basics 4) Intensive Effort+ 5) Top Management Commitment An example of Practical Tools (Practical 5s) Ordinary 5s and problems Modification for practical 5s Case Study Steps for Improvement Step 1: Diagnosis Step 2: Improvement 1) Practical Approach 2) Practical Systems 3) Practical Tools Step 3: Result Step 4: Motivation Invitation to Productivity Consultation	●	●		
International Seminar (CIDESI)	-3 Dimensional Sheet Metal Forming Simulation -The Point for Desing of Progressive Die -INTI-CEMEC (Argentina) -SENAI (Brazil) -INACAP (Chile) -Instituto Tecnológico de Costa Rica -Improvement of Production Management -Instrumental Chemical Analysis -"n" & "v" values on press work - Analysis of Defect of Die and Pressed Parts - Failure Analysis of Tube - Friccion Welding Technology - Inspection and Repair of Autothanks - Predicción de Crecimiento de Grietas en Metales por Mecánica de Fractura Asistida por Computadora	●		●	
Engineering International Congress (Instituto Tecnológico de Colima)	Long Term Used High Temperature Steel Parts Evaluation Method of Creep Rupture Time by Microstructure Usual Method by Microstructure	●	●		












SEMINAR NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencias	Computer Presentation	Laboratory Practices
Evaluation Creep Rupture Time by Microstructure for Long-Term Used High Temperature Steel Parts	Quantitative Method by Microstructure Extrapolation by Larson-Miller Parameter Equipment Testing Material Test Condition of Creep Rupture Microstructure Change of 2.25% Cr-1%Mo Steel Application				
JICA's Programs for Mexico (Instituto Tecnológico de Querétaro)					
5s Activities CANACINTRA	Definition of 5s * SEIRI * SEITÓN * SEISÓ * SEIKETSU * SHITSUKE  5s History 5s Objective 5s Characteristics 5s Success Systematical Development of 5s Result of 5s Activities				
4th Seminar on Scanning Electron Microscope (CIDESI)	-Electronic Microscopy Application for Materials -Characteristics of Powder Particles - Celular & Molecular Morphology - Failure Analysis _ Estimation of number and stress range from striations- - Utility of Electron Retrodispersed Images				













COURSE NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Shield Metal Arc Welding Course	Fundamentals of SMAW process Fundamentals of electricity Equipment for welding Materials Applications Joint design and preparation Welding procedures Quality of the weld Safety recommendations	● First edition 1998	●		●
Mechanical Test & Metallography Course	Introduction Fundamental of Mechanical Test Tensile Test Compression Test Hardness Test Impact Test Equipment Fundamental of Metallography Specimen Preparation Determination of Microstructures Microscopy and accessories	● First edition 1998  ● Second edition 1999	●		●
Non Destructive Test Course	Introduction to Non Destructive Test Visual Inspection Liquid Penetrant Examination Magnetic Particle Examination Ultrasonic Examination Radiographic Examination Eddy Current Examination	● First edition 1998  ● Second edition 1999  ● Third edition 2000	●	●	●
Chemical Analysis Course	Fundamentals Wet Chemical Analysis Analysis of Solid Material Safety in Laboratory Quality Control	● First edition 2000	●		●
Eddy Current Test Course	Fundamentals of Eddy Current Applications of Eddy Current Equipment for Eddy Current Examination Techniques Advantages and Limitations	● First edition 1999			



















COURSE NAME	CURRICULA	Teaching Material			
		Text of Semlnar	Transparencies	Computer Presentation	Laboratory Practices
Chemical Analysis Technique Course	Optic Emission Introduction. Specime preparation by spark. Equipment calibration Cleaning & security with emisson optic equipment. Atomic abbsorption analysis.	●  First edition 2000	●		●
Casting Technology Course	Casting Design Computer Simulation Melting & Casting Molding Material & Molding Press Sand Reclamation How to promote the scrap casting decreasing activity	●  First edition 2000	●		
Course of Metallography in Site	Introduction Metallographic Microscope Basic Characteristics Objectives oculars Magnification Resolution Power Specimen selection Specimens preparation Polishing and etching Metallographic replicas Negative & direct replicas Positive or two steps replicas Darkness replicas Determining replicas parameter Grain size determinig Volumetric fraction fases determi ning.	●  First edition 2000	●		●
Radiographic Course Level I	Introduction Basic Characteristics Phisics characteristics Safety in radiology Radiation source. Radiographic films and accesories. Radiographic process. Developed process. Radiographic interpretation evaluation. Practices.	●  First edition 2000	●	●	●

COURSE NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
2 <sup>nd</sup> Basic Course of Material Characterization	<p><i>Chemical Analysis Part</i></p> Materials Clasification. Influence of Alloys elements. Instrumental Chemical Analysis for ferrous alloy. Atomic emission. Plasma emission. Optic emission. X-ray Fluorescence and C and sulfur combustion method. Teoric and practice chemical analysis lecture. <p><i>Metallography part</i></p> Teoric and paractice Metallography lecture. Specimen preparation. Metallographic Microscope. Dehpt welding determining non Inclusion Analysis. Dehpt case determining. Field metallograpich replicas optic theory and practice optic metallographic and scanning electron microscopy. <p><i>Mechanical Test part</i></p> Tensile Test. Bending Test. Hardness Test. Fatigue Test. Impact Test. Welding Mechanical Testing.	  Second edition 2000			
3 <sup>rd</sup> Course of Non Destructive Test at CIDESI	Introduction to Non Destructive Test Visual Inspection Liquid Penetrant Examination Magnetic Particle Examination Ultrasonic Examination Radiographic Examination Eddy Current Examination	  Third edition 2000			
4 <sup>th</sup> Course of Non Destructive Test at Ciudad Madero Tamps.	Introduction to Non Destructive Test Visual Inspection Liquid Penetrant Examination Magnetic Particle Examination Ultrasonic Examination Radiographic Examination Eddy Current Examination	  Third edition 2000			



COURSE NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Engineering's Summer	<b>Electronic Microscopy</b>				
	* Metallography and Electronic Microscopy				
	* Replica				
	* Microanalysis				
	* X-Ray Generation				
	* X-Ray Measurement				
	* Haz sample Interaction	First edition 2000			
<b>Chemical Analysis</b>					
* Concepts					
* Fundaments					
* Espectrometry					
* Espectroscopy					
* Atomic Absorption					
* Plasma Emission Espectrometry	First edition 2000				
* Optic Emission Espectrometry					
* X-Ray Fluorescence Espectrometry					
* Quality Control in Laboratory					
* Safety in Laboratory					
<b>Mechanical Test</b>					
* Introduction					
* Standards					
* Equipment					
* Hardness Test	First edition 2000				
* Tensile Test					
* Impact Test					
<b>Non Destructive Test</b>					
* Visual Inspection					
* Liquid Penetrant					
* Magnetic Particles					
* Industrial Radiography					
* Ultrasonic Inspection	First edition 2000				
* Eddy Currents Inspection					
<b>Welding Process</b>					
* Introduction					
* What is a Welding Process?					
* Types of Welding	First edition 2000				
* Welding Aplication Methods					
<b>Fatigue and Fracture of Materials</b>					
Calculation of Minimum Defect Size					
Calculation of Fracture Stress					
Fracture in a centre-cracked panel					
Effect of local crack tip plasticity					
Design against static failure	First edition 2000				
Failure Analysis of a large Steel Shaft					
Internal Pressure Fatigue					
Aluminium Alloy Pressure Vessel					
<b>3<sup>rd</sup> Basic Course of Material Characterization</b>	<i>Chemical Analysis Part</i>				
	Materials Clasification.				
	Influence of Alloys elements.				

COURSE NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
	Instrumental Chemical Analysis for ferrous alloy. Atomic emission. Plasma emission. Optic emission. X-ray Fluorescence and C and sulfur combustion method. Teoric and practice chemical analysis lecture. <i>Metallography part</i> Teoric and paractice Metallogra- phy lecture. Specimen preparation. Metallographic Microscope. Dehpt welding determining non Inclusion Analysis. Dehpt case determining. Field metallograpich replicas optic theory and practice optic meta- llographic and scanning electron microscopy. <i>Mechanical Test part</i> Tensile Test. Bending Test. Hardness Test. Fatigue Test. Impact Test. Welding Mechanical Testing.	 Second edition 2000			
5 <sup>th</sup> Course of Non Destructive Test at Cd. Madero Tamps.	Introduction to Non Destructive Test Visual Inspection Liquid Penetrant Examination Magnetic Particle Examination Ultrasonic Examination Radiographic Examination Eddy Current Examination	 Third edition 2000			
1 <sup>st</sup> Course of Introduction of Welding Process	Introduction to Welding Process Welding Metallurgy	 First Edition 2000			
Practical Training Course on Casting Design	Definition of Casting Design * Narrow Meaning of Casting Desing * Wide Meaning of Casting Desing Procedure of Practical Casting Design * Basic planning of casting design * Planning of risering *Planning of gating system * Pattern design Some examples of casting design	 First Edition 2001			

COURSE NAME	CURRICULA	Teaching Material			
		Text of Seminar	Transparencies	Computer Presentation	Laboratory Practices
Thickness Measurement by Ultrasonic Course	Fundamental knowledge of Ultrasonic technique Thickness measurement instruments by ultrasonic Measurement Examples of thickness measurement application	 First edition 2001			
5 <sup>th</sup> Basic Course of Material Characterization	<i>Chemical Analysis Part</i> Materials Classification. Influence of Alloys elements. Instrumental Chemical Analysis for ferrous alloy. Atomic emission. Plasma emission. Optic emission. X-ray Fluorescence and C and sulfur combustion method. Teoric and practice chemical analysis lecture. <i>Metallography part</i> Teoric and paractice Metallography lecture. Specimen preparation. Metallographic Microscope. Dehpt welding determining non Inclusion Analysis. Dehpt case determining. Field metallographich replicas optic theory and practice optic metallographic and scanning electron microscopy. <i>Mechanical Test part</i> Tensile Test. Bending Test. Hardness Test. Fatigue Test. Impact Test. Welding Mechanical Testing.	 5th Edition 2001   5th Edition 2001   5th Edition 2001   5th Edition 2001		      	      
6 <sup>th</sup> Course of Non Destructive Test at CIDESI	Introduction to Non Destructive Test Visual Inspection Liquid Penetrant Examination Magnetic Particle Examination Ultrasonic Examination Radiographic Examination Eddy Current Examination	 6th Edition 2001			
Metallography in Situ CIDESI	Optical Metallographic Microscope Introduction Optical Microscope Parts of the Microscope Metallographic Replica Introduction Metallographic Preparation Grinding Polishing				



Annex 28  
Information on Standards & etc.  
Available at CIDESI



Annex- 28 Information on standards & etc. Available at CIDESI.

TECHNICAL BOOKS ( PROJECT)	CIDESI's BOOKS
39	2200 TITLES IN 4500 VOLUMES
<b>Standards &amp; Codes</b>	
<ol style="list-style-type: none"> <li>1. ASTM. Metal Test Methods &amp; Analytical Procedure</li> <li>2. Pressure Vessel Code ASME, Sec. V, 1995</li> <li>3. Pressure Vessel Code ASME, Sec. VIII, 1995</li> <li>4. Pressure Vessel Code ASME, Sec. IX, 1995</li> <li>5. Structural Welding Code AWS DI. 1 1998</li> <li>6. Certification of Welding Inspector AWS QC-1-88</li> <li>7. ANSI/ASNT CP-189. 1998 Certification of Non Destructive Testing Personnel. Specification for Pipeline API specification 5L, 1995</li> <li>9. ISO-9712. 1992 Certification of Non Destructive Testing Personnel</li> <li>10. Specification &amp; Approval of Welding Procedure</li> <li>11. SAE Hand Book 98 edition</li> <li>12. ASME Code Sec. II A 98 edition</li> <li>13. ASME Code Sec. II B</li> <li>14. ASME Code Sec. II C</li> <li>15. ASME Code Sec. II D</li> <li>16. 1999 Anual Book of ASTM Standards               <ul style="list-style-type: none"> <li>* Section 1. Iron and steel products (7 volumes)</li> <li>* Section 2. Nonferrous metal products (5 volumes)</li> <li>* Section 3. Metals Test Methods &amp; Analytical Proceudres (6 volumes)</li> </ul> </li> <li>17. ES411 ASTM METALS</li> <li>18. ES415 ASTM PLASTICS</li> <li>19. ES418 ASTM General Test Methods</li> <li>20. NOM</li> <li>21. NMX</li> </ol> <p style="text-align: right; margin-right: 50px;"><b>Mexican Standards (D.G.N)</b></p>	

Annex 29  
Record of Promotional Activities  
of the Project

Three handwritten signatures or initials are present at the bottom of the page. The first is a simple, slanted mark. The second is a more complex, circular scribble. The third is a horizontal, wavy line.

## Annex.- 29 Record of Promotional Activities of the Project

1998-2001

### 1.- Project Presentation Brochure

Name of Publication: JICA-CIDESI Technical Cooperation Program  
Frequency : Annual  
No. Of Copies per Issue: 2,000 copies  
No. Of Issues Published: 4 issues  
Distribution: Government Agencies, Private rganizations, Local Government Units, State Universities  
Colleges, Seminar/Training Course Participants

No. Of Issues per Year: 1998 August  
1999 August  
2000 September  
2001 September

### 2. Project Periodical

Name of Publication: Small and Medium Scale Industries  
Frequency: Quarterly from 2001  
No. Of Copies per Issue: 1,000 copies  
No. Of Issues Published: 4 issues  
Distribution: Government Agencies, Private Organizations (Small and Medium Scale Industries),  
Local Government Units, State Universities/Colleges, Seminar/Training Course  
Participants

No. Of Issues per Year: 2000  
2001 April/September/November

### 3. International Seminar

Poster August  
Pamphlet August

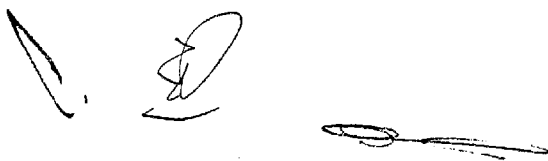
### 4. Project WEBSITE

Date of Launched Online: Feb. 10, 2001  
No. Of Visitors: 24,700 (February-September)  
Informational Content of Project Website  
\* What is JICA, What is CIDESI, and Brief History of the Project  
\* JICA Technical Cooperation System, and Objective and Action Area of the Project  
\* External Service Offerings for thr Industry and List of Laboratory Facilities  
\* List of Seminar/Training Courses  
\*Schedule of Seminar/Training Course Offerings for the Year

### 5. News Clippings

No. Of Press Releases: 9  
Name of Newspapers: "Diario de Querétaro"  
Reportero Industrial Magazine  
TV/Radio Interviews: 7  
Radio ACIR, Radio Querétaro, Respuesta Radiofónica, TVQ.

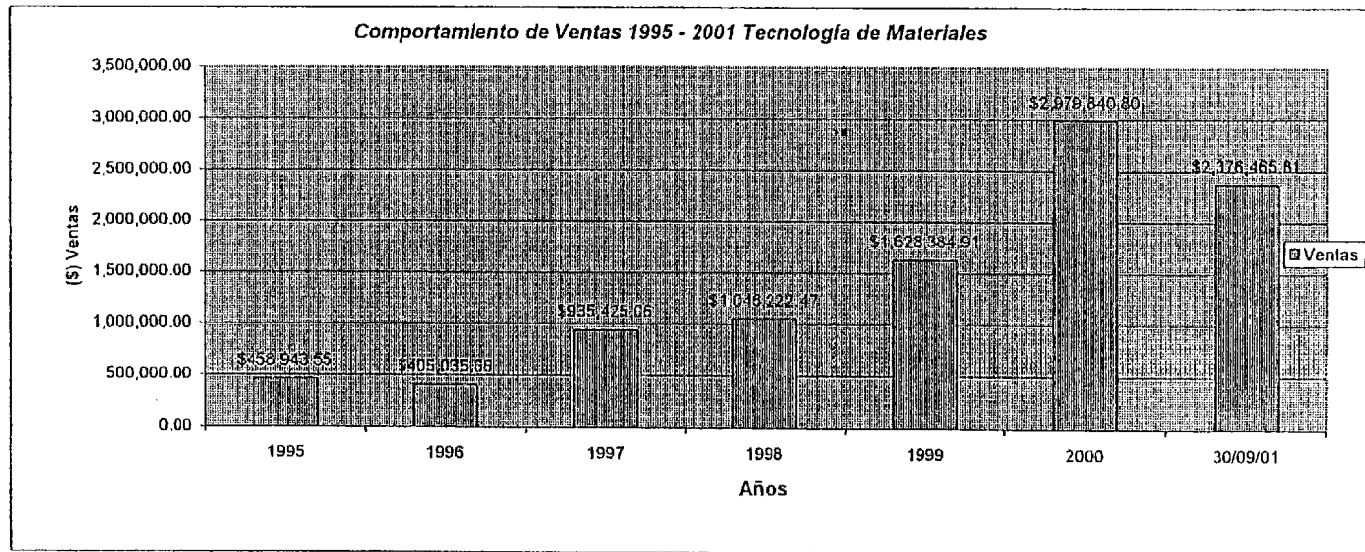
Annex 30  
Annual Income of Material Technology  
Department from 1998  
to September, 2001

Handwritten signatures and marks, including a checkmark, a circled 'D', and a horizontal line.

**CENTRO DE INGENIERIA Y DESARROLLO INDUSTRIAL**  
**DIRECCIÓN ADMINISTRATIVA**  
**COMPORTAMIENTO DE VENTAS DE TECNOLOGÍA DE MATERIALES**

PROY.	CONCEPTO	Tecnología de Materiales						
		1994	1996	1997	1998	1999	2000	30/09/01
4012	SERV. ESPECIALIZADOS EN SOLDADURA Y ENSAYOS NO DESTRUCT.	310,530.18	187,284.45	802,080.04	526,130.77	642,880.97	845,177.57	494,302.27
4013	CURSO DE LIQS. PENETRANTES, PART. MAG., ULTR. Y DORR. EDDY					360.00		
4015	SERVICIOS ESPECIALIZADOS EN ANÁLISIS QUÍMICOS	70,946.78	132,152.40	200,720.51	251,566.07	435,032.00	449,281.79	378,415.78
4016	SERVICIOS ESPECIALIZADOS EN METALOGRAFÍA	25,898.07	20,500.42	49,226.00	72,556.00	259,222.40	229,836.00	179,432.00
4017	SERVICIOS ESPECIALIZADOS EN PRUEBAS MECÁNICAS	36,567.52	54,098.39	52,198.51	103,928.83	168,455.60	285,799.00	467,759.83
4038	CURSO "SELECCIÓN DE ACEROS"		11,000.00					
4128	CURSO DE INSPECCION POR ULTRASONIDO NIVEL I	7,500.00		15,600.00				
4137	DESARROLLO E IMPLEMENTACIÓN DE UN SISTEMA DE CALIDAD ISO-9000	7,500.00		15,600.00		1,739.14		
4211	CURSO PRINCIPIOS METALÚRGICOS DE PROCESO DE LAMINACIÓN				16,600.00			
4212	CURSO RADIOGRAFÍA IND. NIVEL IA				21,402.00			
4272	CURSO ABIERTO EN SOLDADURA POR EL PROC. DE ELECTRODO RECUB				27,000.00	-8,000.00		
4273	CURSO AUDITOR DE CALIDAD				7,040.00	4,800.00		
4274	CURSO ABIERTO DE CONSTRUCCIONES SOLDADAS				10,500.00			
4278	IMPLEMENTACIÓN DE SISTEMA DE CALIDAD ISO-9002				5,000.00			
4282	CURSO: LÍQUIDOS PENETRANTES NI Y II				4,500.00			
4314	PROCEDIMIENTO CAPACITACIÓN, CALIF. Y CERTIFICACIÓN					78,224.00		
4353	CURSO DE CONSTRUCCIONES SOLDADAS					24,120.00		
4360	CURSO DE SOLDADURA					18,400.00		
4363	CURSO DE SOLDADURA POR EL PROCESO REC.					3,150.00		
4416	CURSO ABIERTO DE SOLDADURA						12,000.00	
4421	CURSO: FUNDAMENTOS DE FUNDICIÓN						13,521.79	
4422	CURSO: SOLDADURA POR EL ROC. MIG						15,000.00	
4427	CURSO FUNDAMENTOS DE METALURGIA PARA SOLDADORES						15,000.00	
4434	CURSO METALOGRAFÍA DE CAMPO						45,683.05	
4453	CURSO DE SOLDADURA POR EL PROCESO REVESTIDO						17,500.00	
4456	DESARROLLO DE ROBOT PARA LA INSPECC. DE ESPESORES DE PA.						245,111.50	
4471	CURSO LÍQUIDOS PENETRANTES NI Y II						7,400.00	
4475	SERVICIOS DE ENSAYOS EN TENSIÓN						68,000.00	
4496	CURSO ABIERTO EN SOLDADURA POR EL PROCETIG						10,000.00	
4499	CURSO DE SOLDADURA						22,900.00	
4501	CURSO DE SOLDADURA POR PROCESO DE ARCO ELÉCTRICO						22,900.00	
4502	CURSO DE SOLDADURA POR ARCO ELÉCTRICO						25,800.00	
4504	CURSO ABIERTO DE ESTRUCTURAS SOLDADAS						13,050.00	
4512	CURSO DE SOLDADURA POR EL PROC. RECUBIERTO						2,000.00	
4513	CURSO DE SOLDADURA CON ELECTRO ELECTRICODE TUXTEN0						22,800.00	
4517	CURSO SOLDADURA OXIACIETILENICA DE ACEROS							22,800.00
4518	CURSO DE SOLDADURA POR EL PROCESO TTG						22,900.00	
4519	CURSO CONSTRUCCIONES SOLDADAS						25,000.00	
4523	CURSO PROPIEDADES FÍSICAS Y MECÁNICAS DE MATERIALES FERR.						17,500.00	
4526	CURSO SOLDADURA POR EL PROCESO TIG.							22,900.00
4531	CURSO AVANZADO DE SOLDADURA POR EL PROC. TIG.							22,900.00
4537	CURSO DE SOLDADURA POR ARCO ELÉCTRICO							7,500.00
4540	CURSO PROPIEDADES FÍSICAS Y MECÁNICAS DE MATERIALES FERR.						24,700.00	-4,200.00
4541	CURSO ULTRASONIDO NIII						42,000.00	
4542	CURSO MEDICIÓN DE DUREZA Y ANA. QUIM.						16,800.00	
4543	CURSO MANEJO DE MIZ 40						42,000.00	
4544	CAPACITACIÓN EN TÉCNICAS DE ANAL. QUIM. DE ALEACIONES META						60,000.00	
4547	CURSO DE INTRODUCCION A LOS ENSAYOS NO DESTRUCTIVOS							5,313.92
4558	CURSO ADITOR DEL SISTEMA DE CALIDAD							13,800.00
4560	CURSO SOLDADURA POR ARCO ELEC. CON MICRO ALAMBRE PROTEGIDO							27,900.00
4566	CURSO DE TÉCNICAS DE ANÁLISIS QUÍMICOS INSTRUMENTAL							2,804.35
4574	CURSO SOLDADURA DE LOS ACEROS INOXIDABLES							3,478.00
4583	CURSO LÍQUIDOS PENETRANTES 1 Y 2							3,750.00

PROY.	CONCEPTO	Tecnología de Materiales						
		1995	1996	1997	1998	1999	2000	30/09/01
4585	CURSO DE SOLDADURA POR EL PROCESO TIG							3,000.00
4587	CURSO EN SOLDADURA POR EL PROC. SMAW							21,725.00
4600	CURSO ULTRASONICO N I							47,500.00
4601	CURSO CARACTERIZACIÓN DE MATERIALES							9,674.00
4602	CURSO SOLDADURA DE ALRACIONES RESIT. A LA CORROSION							40,000.00
4605	CURSO ACTUALIZACIÓN DE NORMA ISO-9000							1,600.00
4606	CURSO INTRODUCCIÓN A LOS END							7,174.00
4608	CURSO ULTRASONIDO N1							49,500.00
4609	CURSO SOLDADURA POR ARCO ELÉCTRICO POR MICROALAMBRE PROT.							30,000.00
4626	CURSO METALOGRAFÍAS DE CAMPO Y REPLICAS METALOGRÁFICAS							9,641.74
4632	CURSO LÍQUIDOS PENETRANTES N1 Y 2							7,500.00
4635	CURSO SOLDADURA POR ARCO ELEC. CON MICRO ALAMBRE							25,000.00
4638	CURSO DE SOLDADURA POR ARCO ELÉCTRICO CON AMICRO ALAMBRE							24,000.00
4642	CURSO CONTROL DE CALIDAD DE SOLDADURAS							7,573.92
4643	CURSO DUREZA DE MATERIALES							23,500.00
4651	CURSO PARTÍCULAS MAGNÉTICAS I Y II							7,500.00
4653	CURSO DE SOLDADURA POR EL PROCESO DE ELECTRODO							9,720.00
4654	CURSO DE SOLDADURA POR ARCO ELECTRÓNICO CON MICROALAMBRE							24,225.00
4658	CURSO DE PARTÍCULAS MAGNÉTICAS							10,000.00
4660	CURSO DE SOLDADURA POR EL PROCESO DE TIG.							12,000.00
4661	CURSO DE SOLDADURA POR EL PROCESO DE TIG.							24,225.00
4662	CURSO ULTRASONIDO N2							47,500.00
4664	CURSO CONSTRUCCIONES SOLDADAS							12,150.00
5031	VERANO DE LA INGENIERÍA						260,000.00	
5037	SEGUNDO VERANO DE LA INGENIERÍA							140,000.00
5039	OPTIMIZACIÓN DE CORTE DE TEJIDO DE PUNTO							132,800.00
<b>TOTALES</b>		<b>458,943.55</b>	<b>405,035.86</b>	<b>935,425.08</b>	<b>1,046,222.47</b>	<b>1,828,384.91</b>	<b>2,979,840.80</b>	<b>2,378,465.81</b>



Annex 31  
List of Japanese Study Teams  
Dispatched by JICA





## Annex.- 31 List of Japanese Study Teams Dispatched by JICA

### I Dispatch of Mission

#### 1.- Preliminary Study

	(February 24, 1997 - March 12, 1997)
(1) Makoto Yamashita	Leader
(2) Mitsuru Motoi	Technical Cooperation Program
(3) Hiroshi Tsukahara	Technology Transfer Program
(4) Hiroshi Tsukahara	Non Destructive Test
(5) Yuichi Endo	Coordinator
(6) Yasumasa Ito	Interpreter

#### 2.- Supplementary Study Team

	(July 7, 1997 - August 9, 1997)
(1) Makoto Yamashita	Leader
(2) Kensuke Tasaka	Technical Cooperation Program
(3) Hiroshi Tsukahara	Technology Transfer Program
(4) Yoshiro Matsuyama	Non Destructive Test
(5) Hideo Seno	Chemical Analysis
(6) Yuichi Endo	Coordinator
(7) Yasumasa Ito	Interpreter

#### 3.- Implementation Study

	(November 11, 1997 - November 20, 1997)
(1) Kazuhiro Yoneda	Leader
(2) Takehisa Fujie	Technology Transfer Planning
(3) Hiroshi Tsukahara	Instrument and Machinery Planning
(4) Yuichi Endo	Coordinator
(5) Yasuhiro Yokosawa	Project Cooperation Planning
(6) Keiko Suzuki	Interpreter

#### 4.- Equipment Planning Team

	( December 8, 1997 - December 18, 1997)
(1) Toshimichi Chisaka	Leader
(2) Yuichi Endo	Coordinator

#### 5.- Management Consultation Team (Handing Over Ceremony)

	(September 18, 1998 - September 22, 1998)
(1) Kazuo Tanigawa	Leader

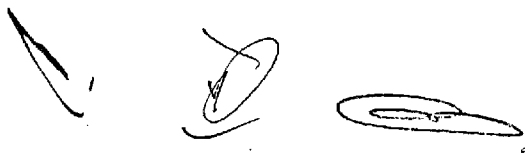
#### 6.- Management Consultation Team

	( October 11, 1998 - October 21, 1998)
(1) Makoto Yamashita	Leader
(2) Teruhisa Yano	Technical Cooperation Program
(3) Takehisa Fujie	Technology Transfer Program
(4) Shiro Kitazawa	Project Management
(5) Reiko Furukawa	Intepreter

#### 7.- Advisory Team

	(January 15, 2000 - January 25, 2000)
(1) Kyoko Kuwajima	Leader
(2) Tsukasa Saito	Technology Transfer Program
(3) Hironori Kimura	Cooperation Training
(4) Yuri Tsuru	Intepreter

Annex 32  
Expenses by the Japanese Side

Three handwritten signatures or initials are located at the bottom left of the page. The first is a simple, slanted line. The second is a more complex, circular scribble. The third is a horizontal, elongated scribble.

## Annex 32-Expenses by the Japanese Side

(Unit: Thousand Yen)

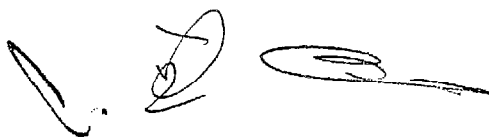
Japanese Fiscal Year	96	97	98	99	2000	2001	Total
Dispatch of Experts		34,118	132,438	148,991	90,605	(80,000)	417,916
Acceptance of C/P in Japan		1,759	3,318	2,626	1,776	(1,800)	11,279
Provision of Machinery and Equipment		167,502	16,053	9,042	592	13,709	206,898
Local Cost Support		2,191	2,755	6,705	4,451	7,431	23,533
Dispatch of Study Team	4,758	6,206	4,149	3,329	0.00	7,497	25,939

**Grand Total: 685,565**

Note: Expenses in Japanese Fiscal Year 2001 include estimate.

(○○○)=Estimate

Annex 33  
Spare Parts List and Suppliers List

Handwritten signatures or initials in black ink, consisting of three distinct marks.

**Annex 33.- Spare Parts List and Suppliers List**

Equipment	Supplier
Universal Testing Machine	FAL, S.A. De C.V.
Scannin Electron Microscope	Philips
Rockwell Hardness Tester	CIENTEC
Microhardness Tester Vickers &Knoop	CIENTEC
Small Universal Testing Machine	Harry Mazal
Brinell Hardness Tester	Cientec
Portable X-Ray System	AEISA
Fluorescence Xray Spectrometer	PONA
Atomic Absorption Spectrometer	VARIAN
Optical Emission Spectrometer	SPECTRO
Magnetic Particle Testing Apparatus	Grupo CTT
Sample Polishing Machine	LECO
Microwave Sample Polishing Machine	Perkin Elmer
Electrolyte Polisher and Eteher	Microanalysis
Sample Mounting Press	LECO
Ultrasonic Testing Apparatus	LLOG
Weld Defect Samples	Grupo CTT
Portable Eddy Current Testing Apparatus	Grupo CTT
Impact Test Machine	CIENTEC
Standards And Literature	
Standard Sample	SPECTRO
Copying Machine	Excellent Office & Service
Electronic Board	Excellent Office & Service
Facsimile	Excellent Office & Service
Van-type Vehicle	CHEVROLET
Minipress	PONA
Mini mill	PONA
Minifuse	PONA
Extensometers	Harry Mazal
Software (X-ray clasification)	Phillips
Standards SRM	SPECTRO
Eddy current probes	Grupo CTT
Paquete de rueda de 8"	LECO
Portable equipment for magnetic testing	AEISA
Second color monitor for SEM	Philips
Visual Flaw Specimen Set	A.J. Tecnología
Flexible yoke for magnetic particle inspection	A.J. Tecnología
Higrotermographe	EQUIPAR
Litepro 425 Infocus system	Microcomputación
PY/AU Alloy crucible for minifuse	PONA
Econoline Vehicle	FORD
Electric Screen	A.V. Asesores
Ultrasonic Tichkness/failure detector	CTT
Abrasive Cutter/Abrasive Discs	Microanálisis
Extensometers	FAL, S.A. De C.V.
Amplificator for Extensometers	FAL, S.A. De C.V.
Calibrator for Extensometers	FAL, S.A. De C.V.
Video boroscope	AEISA
Fatigue Testing Machine	CTT