

PD-ABN-988
93720

ACTION MEMORANDUM FOR THE DIRECTOR

From: Margaret Kromhout, C/PDM and Evaluation Officer
Through: Letitia K. Butler, DDIR *LK Butler*
Subject: Project Assistance Completion Report (PACR) - LAPROMED Component of the Immunization and ORT for Child Survival Project (520-0339)
Date: November 29, 1996

Action Requested: that you sign below approving the attached PACR.

Discussion: The PACD of the LAPROMED Component of the Immunization and ORT for Child Survival Project (520-0339) was December 31, 1995. The attached PACR was prepared by Dr. Jorge Chang, OHE and reviewed by PDM. It is in accordance with M.O. 3.2: PACD and Project Phase-out Procedures.

Approved: *William Stacy Rhodes* Disapproved: _____

William Stacy Rhodes
Director, USAID/Guatemala-Central American Programs

Attachment:
PACR 520-0339

Drafted:
PO'Connor, C/OHE:
Clearance:
JHussa/PDM:
PMiller/CO:

PO'Connor
JHussa
PMiller

Date: 11/8/96
Date: 11/12/96
Date: 11/13/96

PROJECT ASSISTANCE COMPLETION REPORT

**LAPROMED Component of Project No. 520-0339,
Immunization and Oral Rehydration Therapy (ORT) for Child Survival**

Contract No. 520-0339-C-00-2234 with PATH

I. Project Summary

Date of Authorization: October 10, 1992
PACD (of LAPROMED Component): December 31, 1995
Amount Authorized (LAPROMED Component): \$1,501.522
Amount Obligated (LAPROMED Component): \$1,501,522
Counterpart Contribution:
Implementing Agencies: -Program for Appropriate
Technology in Health (PATH)
-University of San
Carlos/LAPROMED
-Ministry of Health

II. PROJECT DESCRIPTION:

Project Goal and Purpose

The original Project Paper for the Immunization for Child Survival Project was signed in August 1985 with the goal of reducing infant and child mortality by strengthening the national capacity to deliver child survival services. The original project design included a single component to support increased immunization coverage of children under five years. The Project was amended on a number of occasions to add new components: the oral rehydration therapy (ORT) component was added in 1986; the Health/Management Information System (H/MIS) and the Improved Administrative Systems (IAS) components were added in 1987. In 1993, a final component on the control of acute respiratory infections (ARI) was added. The immunization, ORT, H/MIS and IAS components were national in scope; the ARI component has been carried out in selected health areas.

USAID/Guatemala supported the ORT component from its inception through March 16, 1990 at which time the Project was suspended based on mismanagement of USAID project resources. Among the activities supported by the Mission in this initial phase of the project were: health professional training, purchase and distribution of ORS, and the initiation of a local ORS production facility at the University of San Carlos, Faculty of Sciences and Chemistry. While some machinery and raw material were purchased for local ORS production, the actual physical plant, additional equipment and the systems necessary to operate a local ORS production facility had not been completed when the Project was suspended.

The suspension was lifted in mid-1992 with the repayment to USAID by the MOH of all previously questioned costs, thus opening the door for the award to PATH of the LAPROMED contract. The contract with PATH was signed on October 9, 1992 and terminated on December 31, 1995. (The original termination date was August 31, 1994; however, the contract was extended twice at no additional cost - first to March 31, 1995 and later to December 31, 1995.) PATH initiated contract activities by "rescuing" the previously procured equipment at the LAPROMED facility and testing the

available raw materials for quality and expiration date.

This is the first of the Project's major components to be completed. All of the other project components are continuing through August, 1997, and will be reported on in a separate PACR.

III. DESCRIPTION OF PATH CONTRACT OBJECTIVE, SPECIFIC OBJECTIVES AND ACTIVITIES

Contract Objective and Results

The objective of this contract was to fully and quickly complete a local oral rehydration salt (ORS) production plant, LAPROMED, in Guatemala City. The contractor was responsible for establishing and starting-up efficient production, operations and management of the facility. Among the various components supported through this contract were: physical plant remodeling, water system, electricity, air conditioning, and all administrative, marketing and distribution aspects for immediate and sustained production. The finished plant was to conform to recommendations made by the Head of the Department of Registry and Control of Medicines, Supervision Section, of the Ministry of Health as well as to all good manufacturing practices with particular emphasis on quality control. The formula to be used for ORS packets had to conform to World Health Organization standards.

Results: The contract objective was fully met by PATH. The LAPROMED facility was appropriately remodeled, the ORS product, SueroVida, manufactured by LAPROMED meets WHO standards, and both technical and administrative/managerial personnel have been trained.

Specific Contract Objectives and Results Achieved

1. Determine the present availability, distribution and use of ORS packets in Guatemala. (During implementation, this objective was combined with Objective No. 2)
2. Determine the conditions and requirements for an effective ORT program in Guatemala

Results: Both objectives (No. 1 and 2) were fully accomplished through a combination of quantitative and qualitative research activities. Seven private ORS manufacturing companies, 13 NGOs and a sample of health facilities were interviewed in this process. The final result of this process was the development of a brand name (SueroVida) and a packaging design for the ORS product.

3. Assist the University of San Carlos (USAC) by establishing systems and procedures which enable LAPROMED to function independently of USAID and other donors, similar to a private sector supplier, within one year of the initiation of production.

Results: To accomplish this objective, PATH trained all levels of LAPROMED staff in various aspects of production, management, sales and quality control. In addition, PATH produced a series of manuals including: Quality Assurance Audit Manual; Standard Operating Procedures Manual; ORS Quality Control Manual; and the Strategic Sustainability Plan (in Spanish).

4. Determine the specifications for any remaining equipment needed to complete LAPROMED's machinery-equipment needs. Procure, ship, import, install and train LAPROMED personnel in the use of equipment detailed in the contract, and coordinate delivery dates, payment terms and insurance.

Results: This objective was fully implemented. PATH did an outstanding job of supplying the ORS production facility with

appropriate equipment, and in training LAPROMED staff in its use and maintenance.

5. Subcontract a local (Guatemala City) engineering company highly experienced in industrial construction and experienced in sterile or penicillin areas to remodel the area of LAPROMED at USAC in accordance with the recommendations made by the Head of Department of Registry and Control of Medicines, Supervision Section, Ministry of Health.

Results: PATH contracted Pelayo Llarena, a general construction/construction management firm to remodel LAPROMED. The remodeling works were completed on December 15, 1993. Pelayo and Llarena demonstrated an excellent capacity to remodel the facility in a timely manner. The USAID Project Officer tracked the progress of the remodeling activities closely throughout the process, and confirms that the subcontract was successfully implemented.

ORS production started in January, 1994. PATH provided technical assistance in ORS production between January, 1994 and the PACD of the contract. LAPROMED has the capacity to produce up to 2.4 million sachets of ORS per year. The focus of PATH's efforts were in strengthening administrative procedures and establishing a solid basis for quality control.

6. Supervise the work performed by the engineering firm and any other subcontractor employed.

Results: This objective was successfully completed. No major problems were encountered during the implementation of the subcontract with Pelayo and Llarena, or with IDEAS (a firm subcontracted in the area of qualitative research under objectives 1,2).

7. Provide to LAPROMED quality control lab validation, equipment installation, plant validation, troubleshooting, quality assurance audit and quality assurance control sampling phase progression and a marketing and distribution plan.

Results: PATH established both internal and external quality control procedures (product specifications) and the results of quality control tests comply with international standards of WHO and USAID. LAPROMED staff have been trained to continue implementing quality control procedures and to detect variations in international standards for raw materials and finished product. This has prevented the distribution of off-grade product to date.

IV. ANALYSIS OF CONTRACT RESULTS AND RECOMMENDATIONS FOR THE FUTURE

USAID designed the PATH contract to address the "supply side" of the ORS equation. That is, USAID was concerned that the national diarrheal disease control program would never become sustainable unless a domestic capacity to produce ORS was developed. Prior to LAPROMED, the MOH relied almost entirely on donated ORS from major donors, especially USAID and UNICEF. The results accomplished by PATH in developing a sustainable local ORS production capacity are important. LAPROMED is fully capable of meeting all of the potential demand for ORS generated by both the public sector and NGOs. The MOH and USAC/LAPROMED have signed an agreement that the MOH will purchase 80% of its annual ORS requirements from LAPROMED. In 1994 and 1995, the MOH met this commitment. However, in 1996, as described more fully below, the MOH is failing to meet its commitment to purchase ORS from LAPROMED.

Many challenges remain before Guatemala has a fully functioning diarrheal disease control program that includes adequate usage of ORS for the prevention of

dehydration during episodes of childhood diarrhea. Because the PATH contract did not address the demand side of the ORS issue or the logistics systems that are required to move the product from the central level to the local level (communities and health districts), there are a number of challenges that must yet be addressed before ORS use in Guatemala reaches acceptable levels. These future challenges are described below.

1. The results of the 1995 national Demographic and Health Survey (DHS) show that use of ORT in Guatemala continues to be far below predicted (and acceptable) levels. The Project Paper established a target of 60% use of ORT for children with diarrheal disease in the previous 2 weeks. The DHS findings show that only 22% of children were treated with ORT. The national program must develop a stronger program emphasis on demand generation/promotion and logistics in order to increase ORS use.
2. LAPROMED was designed to produce up to 4 million ORS sachets per year. PATH estimated during project start-up phase that LAPROMED would produce at least 2.4 million packets of ORS annually, the estimated amount of ORS the country could absorb based on projections of diarrheal disease incidence and a fully functioning national program for the control of diarrheal disease. PATH furthermore calculated that LAPROMED needed to sell at least 1.8 million sachets of ORS per year to be self-financed (break even).

The "demand side" of the equation continues to be weak (as per DHS findings described above) - thus, the MOH needs to buy less than the predicted amount of ORS.

While it was anticipated that the national program would need about 2 million sachets per year, in fact, the MOH has procured and distributed far less than this original estimate (see Table One). In 1994, the first year of production, LAPROMED produced a total of 990,844 sachets of ORS, selling almost 90% of the total amount produced (mostly to the MOH). In 1995, LAPROMED produced 1,102,723 sachets - again, about half of the original predicted amount, and far less than the amount needed to sustain the production facility. However, of the total amount produced, almost all was sold, with the MOH buying the bulk of the product. Unfortunately, January 1996 brought a devastating transitional period. The new administration has not honored the established agreement between the MOH and LAPROMED. As part of its health sector reform, the MOH is decentralizing procurement of drugs and supplies - including ORS. Now, each health area is responsible for procuring its own ORS. Through mid-September, 1996, LAPROMED's production had dropped to 738,390 sachets, with the MOH purchasing only 13,000 sachets (only one health area has purchased from LAPROMED). LAPROMED has made noteworthy efforts to develop other markets in the face of this situation, with total sales reaching 130,523 sachets by mid-September - far below the necessary amount to maintain a sustainable production facility, but ten times the amount the MOH has purchased thus far this year. In response USAID is facilitating discussions between USAC/LAPROMED and the MOH authorities to rectify the MOH procurement system for ORS. The MOH is considering requiring the Health Areas to procure from LAPROMED. USAID will continue to give this situation close monitoring until it is resolved.

3. None of the principal child survival donors (USAID, PAHO, UNICEF and the European Union) nor the Ministry of Health in Guatemala has supported an extensive program of ORS promotion to increase demand for this important life saving product. Without strong health education/promotion programs implemented at the community level, ORS usage levels will remain low. Donor agencies should join forces with the MOH to promote ORS use at the household/community levels. Due to the prolonged effects of the civil war, most donors and the GOG were not able to implement strong community health programs. The recent progress in Guatemala toward a final peace accord sets the stage to strengthen community-based activities. A multi-

donor effort to support the GOG and NGOs to promote ORS and other high impact child survival interventions is recommended.

4. The MOH continues to suffer from extremely weak administrative systems, including logistics. It is clear that the MOH has limited capacity to distribute the ORS sachets it might purchase from LAPROMED to the 27 health areas of the country. Local logistics systems (distribution of product to health posts and communities within a given health area) are equally weak. Therefore, support must be given to enhance the functioning of logistics systems.
5. When the PATH contract was designed, the MOH had a centralized procurement system. Under this system, the MOH was able to procure all of its ORS directly from LAPROMED. For several years, the MOH included a specific line item in its budget for ORS procurement from LAPROMED. In 1996, the MOH has begun to decentralize many administrative functions - including procurement - to the health area chiefs. Under the new system, the health area chiefs may purchase ORS and other drugs/supplies from a variety of suppliers. Although the LAPROMED product is the "best buy" available (e.g., the least expensive product available in Guatemala that meets WHO standards), there is no guarantee that the health areas will procure from LAPROMED. The MOH is currently analyzing potential solutions to this situation, including either requiring areas to purchase from LAPROMED, or returning to the centralized procurement system. LAPROMED may have to provide transportation of product (door to door delivery) even if it means a price increase, to be more competitive in this regard with the private sector. Even after including the cost of transportation, LAPROMED prices will be highly competitive.
6. PATH and LAPROMED formed an effective partnership whose purpose was to develop a sustainable national capacity to produce an ORS product that meets international (WHO) standards. As of the end of the PATH contract, this partnership proved to be effective. However, USAID should continue to "take the pulse" on the LAPROMED effort. It is conceivable that LAPROMED would benefit from focused, periodic technical assistance to ensure that the project results are sustained over the long term. USAID is analyzing the best mechanisms for monitoring LAPROMED progress over the medium term, and for providing essential technical assistance if required.

In summary, Guatemala is taking an important step forward in developing a sustainable national program for the control of diarrheal disease. The PATH/LAPROMED project focused almost exclusively on the "supply side" or ORS production. With the progress toward to final Peace Accord and recent improvements in security in rural areas, the MOH/GOG and international donors are revitalizing long moribund community health programs. These programs should include special emphasis on logistics systems as well as health education and promotion to increase demand for the product. USAID should continue its discussions with GOG authorities to ensure that the standing agreement between the MOH and LAPROMED is fully honored and implemented. This will ensure that the investments made to date in creating a sustainable ORS production facility are preserved.

V. FINANCIAL REPORT AND AUDITS

Total expenditures by PATH under this contract amounted to \$1,498,137.77. The total amount obligated was \$1,501,522.00. The difference (\$3,384.23) will be deobligated as soon as USAID/G-CAP receives the final advice of charge from USAID/W.

As PATH is a U.S. company it is subject to the audit requirement described in OMB circular A-133. No additional/special audits were carried out in relation to this contract.

Drafted by:
POconnor:
Cleared by:
BLopez/OH&E:
PO'Connor, C/OH&E:
APontaza/FMO:
JHussa/PDM:
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<u>POconnor</u>	Date:	<u>11/8/96</u>
<u>BLopez</u>	Date:	<u>11/7/96</u>
<u>PO'Connor</u>	Date:	<u>11/14/96</u>
<u>APontaza</u>	Date:	<u>11/13/96</u>

Table One

**IMMUNIZATION AND ORAL REHYDRATION THERAPY
SERVICES FOR CHILD SURVIVAL, PROJECT No. 520-0339
PATH'S CONTRACT No. 520-0339-C-00-2234
TABLE 1**

ORS PROCUREMENTS BY YEARS

Year	Lapromed Production	MOH No. ORS	Purchased Quetzales	IGSS No. ORS	Purchased Quetzales	Adamed No. ORS	Purchased Quetzales	NGOs No. ORS	Purchased Quetzales	Others**** No. ORS	Purchased Quetzales	TOTAL	
												No. ORS	Quetzales
1994	990,884	855,319	632,100.00	0	0.00	33,307	24,980.25	3,579	3,579.00	0	0.00	892,205	660,659.25
1995	1,102,723	888,761	707,746.85	50,000	37,500.00	73,147	55,144.25	17,400	15,040.75	0	0.00	1,029,308	815,431.85
1996*	** 738,390	*** 13,000	9,750.00	43,400	36,890.00	66,932	54,833.25	3,800	3,710.00	3,391	3,391.00	130,523	108,574.25
TOTAL	2,831,957	1,757,080	1,349,596.85	93,400	74,390.00	173,386	134,957.75	24,779	22,329.75	3,391.00	3,391.00	2,052,036	1,584,665.35

* January to September 15, 1996

** Only one Health Area has purchase ORS to LAPROMED (Suchitepéquez)

*** A delivery to IGSS for 115,000 additional ORS is in process

**** LAPROMED started marketing to the private sector in 1996.

Annex 1

Program for Appropriate Technology in Health (PATH)
Contract No. 520-0339-C-00-223
Project No. 520-0339

Documents Elaborated by PATH

- 4- Review and Assessment of the LAPROMED facility, University of San Carlos, may 1991.
- 3- General Construction/Construction Management Contract between PATH and Pelayo Llarena, December 31, 1992.
- 1- Assessment of the Guatemala Oral Rehydration Salts (ORS) Market and Marketing Strategy for LAPROMED (Draft), July 1993.
- Manual de Políticas y Lineamientos de Garantía de Calidad, August 1993.
- 2- Sustainability Training Seminar for the LAPROMED Health Project in Guatemala. Technical Cooperation Project (Final Report), September 1993.
- 2- Assessment of the Guatemala Oral Rehydration Salts (ORS) Market, Marketing Strategy for LAPROMED and ORT PROGRAM Analysis. (final version), February 1994.
- 7- Programa de Entrenamiento para Supervisores de Producción y Control de Calidad. Suerovida-RSO, April 1994.
- 13- Inspection and Acceptance of Services and Supplies, April 18, 1994.
- 9- Internal Quality Assurance Audit Protocol (Self Inspection), March, 1995.
- 5- ORS Quality Control Manual, September 1995.
- 8- Standard Operating Procedures Manual, December 1995.
- 11- A Plan for LAPROMED, Form-Fill-Seal Production Sustainability, December 1995.
- 10- Proyección de Ventas para 1996. (Elaborada por Humberto Zardo en 1993 y actualizada por Lic. Luis Galvez de LAPROMED el 16 de Enero de 1996.
- 12- List of non expendable and expendable property for the LAPROMED ORS facility, December 8, 1995. (Licenciado Luis Galvez, and I updated the list with costs of all equipment received by LAPROMED), May 1996.

Annex 2

Program for Appropriate Technology in Health (PATH)
Contract No. 520-0339-C-00-223
Project No. 520-0339

SEMI - ANNUAL REPORTS

- 1- Semi-Annual Substantive and Administrative Report April 1, 1993 -September 30, 1993.
- 2- The Quantitative and Qualitative Report for the Period November 1993-February 1994 for ORS (Suerovida).
- 3- Semi-Annual Substantive and Administrative Report October 1, 1993 -March 31, 1994.
- 4- Semi-Annual Substantive and Administrative Report April 1, 1994 -september 30, 1994.
- 5- Semi-Annual Substantive and Administrative Report October 1, 1994 -May 15, 1995.
- 6- Semi-Annual Substantive and Administrative Report April 1, 1995 -October 31, 1995.
- 7- Final Substantive and Administrative Report, February 27, 1996. (included copy of voucher for processing in USAID/W for the last amount of \$23,268.73. Total expenditures amounted to \$1,498,137.77.

Annex 3

Program for Appropriate Technology in Health (PATH)
Contract No. 520-0339-C-00-223
Project No. 520-0339

TRIP REPORTS

- 1- To develop Project Action Plan, and timeline, october 19-30, 1992.
- 2- To develop Project Action Plan & timeliness, october 14-24, 1992.
- 3- Meet Private sector manufacture/distribution companies to survey their current participation in the ORS market. Contract UNICEF, establish MOH contacts, contact INCAP November 15-24, 1992.
- 4- Review construction work, December 1992.
- 5- Visit ADAMED to conduct a quality assurance audit. November 29 - December 12, 1992.
- 6- Conduct interviews with government and nongovernment agencies. February 10-24, 1993.
- 7- Qualitative research. February 16-24, 1993.
- 8- Finalize terms of the purchase of data from IFS/Assert, meet with MOH and Clapp & Mayne, March 1993.
- 9- To review construction work and begin development of production manuals. March 1-6, 1993.
- 10- To review construction work and progress on production manuals. April 13-17, 1993.
- 11- To review construction work and progress on production manuals, May 24-28, 1993.
- 12- Quantitative, qualitative, and ORT Program work, July 12-23, 1993.
- 13- To conduct seminar and review construction progress August 7-19, 1993.
- 14- Review remodeling, teamwork, batch analyses, and equipment validation, December 6-13, 1993.
- 15- Monitor progress at LAROMED, Jan 10-20, 1994.
- 16- Monitor progress at LAPROMED and conduct quality assurance audit, April 10-19, 1994.
- 17- Monitor progress at LAPROMED and conduct quality assurance audit, July 12-21, 1994.
- 18- Monitor progress at LAPROMED, November 26, December 2, 1994.
- 19- Monitor progress at LAPROMED, May 3-12, 1995.
- 20- Monitor progress at LAPROMED, September 26 through October 4, 1995.

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Annex 4

Program for Appropriate Technology in Health (PATH)
Contract No. 520-0339-C-00-223
Project No. 520-0339

CONTRACT AND AMENDMENTS

1. Contract: Cost reimbursement plus fixed fee contract as contemplated by FAR 16.306.
Total estimated cost \$1,447,134.00, fixed fee \$14,472.00
The total estimated cost and fixed is \$1,461,606.
2. Amendment 1, small technical modifications. Budget was unchanged.
3. Amendment 2, add incremental funding in the amount of \$19,169.00 to fully fund contract. Total Budget was unchanged.
4. Amendment 3, Changes-cost reimbursement contract to include within the Statement of Work, researching, designing, and testing of a new LAPROMED ORS sachet. The Project Budget increased from \$1,461,606 to \$ 1,477,225.
5. Amendment 4, increased the Project Budget from \$1,477,225.00 to \$1,501,522 to permit procurement of additional equipment.
6. Amendment 5, Substitute Sara Jane Tift for Fletcher Knigh Catron effective September 1, 1993. (Technical assistance for marketing and research).
7. Amendment 6, Contract extension from August 31, 1994 through March 31, 1995, at not additional cost.
8. Amendment 7, Contract extension from March 31, 1995 through August 27, 1995.
9. Amendment 8, Contract extension from August 27, 1995 through December 1995. The Project Budget remain \$1,501,522.00. (\$1,487,050.00 Project cost plus 14,471.00 fixed fee). The Final detailed financial statement provided by PATH indicated that the Total expenditures is \$1,498,137.77. This means that the total amount of \$3,384.23 will be deobligated upon USAID/G-CAP received the Advice of Charge from USAID/W.

UNIVERSIDAD DE SAN CARLOS DE GUATEMALA

FACULTAD DE CIENCIAS QUÍMICAS Y FARMACIA

PROGRAMA DE DQC

SUBPROGRAMA DE LAPROMED-SRD

LISTA DE EQUIPO PARA LA FABRICACION DE SUEROVIDA

Obs	Item	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUJESTO	PROVEE FABRIC	P.O.No.
PR	0		ASPIRADORAS	120.2HP	3 Unid.	87.99	263.97	NA	Home B Shopvac	050693
PR	1		ALIMENTADOR	50 kg	1 Unid.	3,992.00	3992	259-B18	Spiroflo Spiroflo	93-0102
PR	2		MONTACARGAS ELÉCTRICAS	1500 lb	1 Unid.	4,663.92	4663.92	1224-T11	Air Mac Big Joe	93-005
PR	3		IMPRESORA LAMINADO ALUMINIO	15.000 sob/lot	1 Unid.	4,663.92	4663.92	MOD.612-2	Excel Pa Norwoo	9301-31
CC	4		ESTABILIZADOR DE 5 KVA	NA	1 Unid.	2,080.00	2,080.00	5323250-8	Sola Ele Sola Ele	93-005
CC	7		CRISTALERIA	ABAJO		ABAJO	ABAJO	ABAJO	VWR VWR	93-006
CC	7	1	PROBETAS GRADUADAS	25 ml	6 paq4	21.30	127.80	24711-273	VWR VWR	93-006
CC	7	2	PROBETAS GRADUADAS	50 ml	6 paq4	24.00	144.00	24711-285	VWR VWR	93-006
CC	7	3	PROBETAS GRADUADAS	100 ml	3 paq4	27.00	81.00	24711-310	VWR VWR	93-006
CC	7	4	PROBETAS GRADUADAS	250 ml	1 paq18	215.75	215.75	24711-320	VWR VWR	93-006
CC	7	5	BEAKERS DE VIDRIO	50 ml	1 paq12	18.35	18.35	13910-121	VWR VWR	93-006
CC	7	6	BEAKERS DE VIDRIO	50 ml	1 paq12	18.35	18.35	13910-143	VWR VWR	93-006
CC	7	7	BEAKERS DE VIDRIO	100 ml	1 paq12	19.50	19.50	13910-165	VWR VWR	93-006
CC	7	8	BEAKERS DE VIDRIO	250 ml	1 paq12	18.35	18.35	13910-201	VWR VWR	93-006
CC	7	9	BEAKERS DE VIDRIO	500 ml	1 paq6	13.85	13.85	13910-245	VWR VWR	93-006
CC	7	10	BEAKERS DE VIDRIO	1000 ml	1 paq6	26.30	26.30	13910-299	VWR VWR	93-006
CC	7	11	MATRAZ ERLNMEYER VIDRIO	50 ml	1 paq12	22.95	22.95	29135-067	VWR VWR	93-006
CC	7	12	MATRAZ ERLNMEYER VIDRIO	125 ml	1 paq12	25.60	25.60	29140-522	VWR VWR	93-006
CC	7	13	MATRAZ ERLNMEYER VIDRIO	250 ml	2 paq12	27.15	54.30	29140-544	VWR VWR	93-006
CC	7	14	MATRAZ ERLNMEYER VIDRIO	500 ml	2 paq6	17.10	34.20	29140-556	VWR VWR	93-006
CC	7	15	MATRAZ ERLNMEYER VIDRIO	1000 ml	1 paq6	28.55	28.55	29140-598	VWR VWR	93-006
CC	7	16	BURETA DE VIDRIO (CLAS)	25 ml	6 Unids.	22.85	137.10	17580-208	VWR VWR	93-006

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BEST AVAILABLE COPY

Obs.	Itm	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO HEPUESTO	PROVEE	FABRIC	P.O.No.
CC	7	17	SOPORTE POLIPROPILENO SUAVE	NA	4 Unids.	63.85	255.40	17563-000	VWA	VWA	93-006
CC	7	18	TERMOMETROS DE AZULERICO	20 A 110C)	3 Unids.	3.25	9.75	61015-066	VWA	VWA	93-006
CC	7	19	TERMOMETROS DE MERCURIO	110 A 400C)	3 Unids.	5.80	17.40	61015-136	VWA	VWA	93-006
CC	7	20	FRASCO CLARO BOCAL ANGOSTA	125 ml	14 Unids.	8.40	117.60	16267-043	VWA	VWA	93-006
CC	7	21	FRASCO CLARO BOCAL ANGOSTA	250 ml	2 paq5	51.60	103.20	16267-065	VWA	VWA	93-006
CC	7	22	FRASCO CLARO BOCAL ANGOSTA	500 ml	2 paq5	63.10	126.20	16267-087	VWA	VWA	93-006
CC	7	23	FRASCO CLARO BOCAL ANGOSTA	1000 ml	2 paq5	107.95	215.90	16267-101	VWA	VWA	93-006
CC	7	24	BARRAS DE AGITACION 2" X 5/16" DIAMETRO	NA	12 Unids.	1.55	18.60	56948-171	VWA	VWA	93-006
CC	7	25	AGITADOR DE VIDRIO 6" X 250 mm	NA	1 paq100	28.35	28.35	59060-080	VWA	VWA	93-006
CC	7	26	LLENADOR PIPETAS HILE 1/2" DIAMETRO	NA	6 Unids.	4.50	27.00	53497-009	VWA	VWA	93-006
CC	7	28	PIPETA VOLUMETRICA	1 ml	2 paq12	22.65	45.30	52965-892	VWA	VWA	93-006
CC	7	29	PIPETA VOLUMETRICA	2 ml	1 paq12	26.80	26.80	52965-872	VWA	VWA	93-006
CC	7	30	PIPETA VOLUMETRICA	10 ml	2 paq12	36.70	73.40	52966-137	VWA	VWA	93-006
CC	7	31	PIPETA DESECHABLE VIDRIO	1 ml	1 caja/1000	76.45	76.45	53281-509	VWA	VWA	93-006
CC	7	32	PIPETA DESECHABLE VIDRIO	5 ml	1 caja/500	66.70	66.70	53281-542	VWA	VWA	93-006
CC	7	33	PIPETA DESECHABLE VIDRIO	10 ml	1 caja/500	72.80	72.80	53281-564	VWA	VWA	93-006
CC	7	34	ESPATULAS DE ACERO INOXIDABLE	NA	4 paq3	8.10	32.40	57940-040	VWA	VWA	93-006
CC	7	35	MATRAZ VOLUMETRICO (TAPON TEFLON)	50 ml	6 Unids.	12.40	74.40	29619-675	VWA	VWA	93-006
CC	7	36	MATRAZ VOLUMETRICO (TAPON TEFLON)	100 ml	12 Unids.	13.20	158.40	29619-676	VWA	VWA	93-006
CC	7	37	MATRAZ VOLUMETRICO (TAPON TEFLON)	250 ml	12 Unids.	16.65	199.80	29619-678	VWA	VWA	93-006
CC	7	38	MATRAZ VOLUMETRICO (TAPON TEFLON)	500 ml	12 Unids.	20.65	247.80	29619-679	VWA	VWA	93-006
CC	7	39	MATRAZ VOLUMETRICO (TAPON TEFLON)	1000 ml	12 Unids.	25.10	301.20	29619-680	VWA	VWA	93-006
CC	7	40	VIDRIO RELOJ 75 mm DIAMETRO	NA	1 paq12	12.95	12.95	66110-043	VWA	VWA	93-006
CC	7	41	PLATO DESECADOR	NA	1 Unids.	35.00	35.00	25038-003	VWA	VWA	93-006
CC	7	42	CRISOL PORCELANA SIN TAPA	50 ml	1 paq12	44.95	44.95	23810-189	VWA	VWA	93-006

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BEST AVAILABLE COPY

Ola.	Ita	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE	FABRIC	P.O.No.
CC	7	43	TAPA CRISOL	50 ml	2 paq's	22.85	45.70	23611-137	VWR	VWR	93-006
CC	7	44	PINZAS PARA CRISOL	NA	2 Unids.	12.90	25.80	62461-000	VWR	VWR	93-006
CC	7	45	TUBO DE VIDRIO NESSLER	50 A 100 ml	5 Unids.	10.25	51.25	66176-347	VWR	VWR	93-006
CC	7	46	TUBOS ENSAYO DESECHABLES	NA	1 paq/1000	39.90	39.90	60826-651	VWR	VWR	93-006
CC	7	47	GRADILLA PARA TUBOS DE ENSAYO	NA	4 Unids.	7.90	31.60	60914-707	VWR	VWR	93-006
CC	7	48	ENFUDO DE VIDRIO NO GRASO	55 mm	2 paq/12	37.09	74.18	30205-068	VWR	VWR	93-006
CC	7	49	PIJETAS	250 ml	2 paq's	6.20	12.40	16651-165	VWR	VWR	93-006
CC	7	50	LAVADOR DE PIPETAS	NA	1 Unids.	108.00	108.00	53595-041	VWR	VWR	93-006
CC	7	51	CANASTA PARA LAVADOR	NA	1 Unids.	61.10	61.10	53596-066	VWR	VWR	93-006
CC	5	52	BALANZA DE HUMEDAD-ORION M2200	200G	1 Unids.	2,060.00	2,060.00	12169-41	VWR	VWR	93-006
CC	6	53	POTENCIOMETRO ORION 720A	NA	1 Unids.	1,067.00	1,067.00	3414-414	VWR	VWR	93-006
CC	6	54	SIN KIT DE ARRANQUE Y ELECTRODOS	NA	NA NA		0.00	NA	NA	NA	NA
CC	7	55	KIT DE ARRANQUE PARA POTENCIOMETRO	NA	1 Unids.	256.00	256.00	31104-384	VWR	VWR	93-006
CC	7	56	ELECTRODO REF ORION 90020	NA	1 Unids.	256.00	256.00	34107-956	VWR	VWR	93-006
CC	7	57	ELECT. SODIO ISE-ORION 9511BN	NA	1 Unids.	256.00	256.00	34113-779	VWR	VWR	93-006
CC	7	58	ELECT. POTASIO ISE ORION 93193N	NA	1 Unids.	1,067.00	1,067.00	34117-519	VWR	VWR	93-006
CC	7	59	ELECT. CLORURO ISE ORION 9517BN	NA	1 Unids.	410.25	410.25	34116-611	VWR	VWR	93-006
CC	10	60	ESTUFA/AGITADOR THERMOLYNE TX7	NA	1 Unids.	220.00	220.00	33921-889	VWR	VWR	93-006
CC		61	CON PLATO CERAMICO	NA	1 Unids.	0.00	0.00	33921-889	VWR	VWR	93-006
CC	9	62	TERMO-HIGROMETRO	NA	2 Unids.	38.60	77.20	35519-047	VWR	VWR	93-006
CC	7	63	DESECADOR (PRUEBA DE SELLADO)	NA	2 Unids.	38.95	77.90	24987-048	VWR	VWR	93-006
CC	7	64	CALIBRADOR VERNIER	NA	1 Unids.	63.65	63.65	19155-148	VWR	VWR	93-006
CC	7	65	AGITADOR MAGNETICO THERMOLYNE	NA	1 Unids.	160.00	160.00	567840-134	VWR	VWR	93-006
CC	7	66	MECHERO BUNSEN	NA	1 Unids.	38.90	38.90	19215-120	VWR	VWR	93-006
CC	7	67	TRIPODE PARA MECHERO BUNSEN	NA	1 Unids.	10.10	10.10	62760-003	VWR	VWR	93-006

Obs.	Itv	Sub.	DESCRIPCION	UNIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRICA	P.O.N.		
CC	7	68	TRIANGULO PARA THERMOC	NA	1	9.20	9.20	52710-027	WWR	WWR	93-006	
CC	7	69	ENCENDEDOR DE GAS	NA	1	13.20	13.20	18385-201	WWR	WWR	93-006	
CC	7	70	PAPEL INDICADOR DE PH	0-14	1	4.80	4.80	60775-702	WWR	WWR	93-006	
CC	7	71	BALANZA ANALITICA OPALIS	210 g	1	2,208.00	2,208.00	M72656	OHAUS		93-006	
PR	7	71	GUANTES HULE PEO	NA	1	CAJA/100	14.90	32917-700	WWR	WWR	93-006	
PR	7	72	GUANTES HULE MEDIANOS	NA	1	CAJA/100	14.90	32917-718	WWR	WWR	93-006	
PR	7	73	GUANTES HULE GRANDES	NA	1	CAJA/100	14.90	32917-730	WWR	WWR	93-006	
PR	7	74	ANTEOJOS DE SEGURIDAD	NA	2	PARES	4.10	33010-000	WWR	WWR	93-006	
PR	7	75	MASCARILLAS DESECHABLES	NA	1	CAJA/20	15.70	56218-002	WWR	WWR	93-006	
CC	7	76	ESPATULA PLASTICO PEQUENA	NA	6	Unids.	5.10	57930-024	WWR	WWR	93-006	
CC	7	77	ESPATULA PLASTICA	NA	6	Unids.	6.50	57930-068	WWR	WWR	93-006	
CC	13		POLARIMETRO	NA	1	Unids.	2,962.00	53850-208	WWR	WWR	93-006	
CC	14		MESAS LIBRES VIERACION	NA	2	Unids.	10,772.68	NA	WWR Intl	WWR Intl	93-006	
CC	15		LAVADERO ACERO INOXIDA BLES	NA	1	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	16		SOORTE PARA LAVADERO	NA	1	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	17		TABLERO SECADO CRISTALERIA	NA	2	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	18		GABINETE PARA CRISTALERIA	NA	1	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	19		GABINETE PARA QUIMICOS	NA	1	Unids.	607.88	56610-356	WWR Intl	WWR Intl	93-006	
CC	20		MOBILIARIO PARA 4 ANALISTAS	NA	1	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	21	1	CAMPANA DE GASES Y ACCESORIOS	NA	1	Unids.	ARRIBA	0.00	NA	WWR Intl	WWR Intl	93-006
CC	21	2	a) GABINETE ACIDO PERCLORICO	NA	1	Unids.	5,334.00	VF7-1204-06	WWR Intl	WWR Intl	93-006	
CC	21	3	b) MOTOR EXTRACTOR	NA	1	Unids.	1,251.00	VF6-3302-C4	WWR Intl	WWR Intl	93-006	
CC	21	4	c) GABINETE ACIDO - BASE	NA	1	Unids.	733.00	VFG-2088-F6	WWR Intl	WWR Intl	93-006	
CC	21	5	d) SOMBRERO AMBIENTAL ESTANDB	NA	1	Unids.	130.00	WCB10	WWR Intl	WWR Intl	93-006	
CC	21	6	e) ADAPTADOR INT EXTRACTOR	NA	1	Unids.	ARRIBA	0.00	VF6-3424-00	WWR Intl	WWR Intl	93-006

Obs.	lts	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.N.O.
CC	21	7	f) ADAPTADOR EXTERNO	NA	1 Unids.	ARRIBA	0.00	2C3455	WWR Intl	WWR Intl 93-006
CC	21	8	g) CODOS DE 10 Y 90 GRADOS	NA	2 Unids.	65.00	130.00	1034-90-10	WWR Intl	WWR Intl 93-006
CC	21	9	H) DUCTO PVC 10"x10"	NA	2 Unids.	112.00	224.00	1033-10	WWR Intl	WWR Intl 93-006
CC	21	10	i) REGADERA CHIMENEA 10"	NA	2 Unids.	50.00	100.00	NA	WWR Intl	WWR Intl 93-006
CC	22	1	SOLUCION LIMPIADORA	3000ml	1 Unids.	230.00	230.00	G02655-80	COLE-PARMER	041593
CC	22	2	DILUYENTE CONCENTRADO	3000ml	1 Unids.	200.00	200.00	G02655-83	COLE-PARMER	041593
CC	23		MATERIA PRIMA ORO PARA CO	NA	1 QU	256.65	256.65	NA	JIANIS B	JIANIS B 037093
CC	24		REGADERA Y LAY. ORO DE 99.99%	NA	1 Unids.	558.30	558.30	11443	LAB SA	LAB SA 930061
CC	26	1	FOTOMETRO DE LLAMA	NA	1 Unids.	3,800.00	3,800.00	G-02655-00	COLE-PARMER	93-006
CC	26	2	a) BOMBA DE VACIO	NA	1 Unids.	265.00	265.00	G-07051-40	COLE-PARMER	93-006
CC	26	3	b) REGULADOR DE PROPANO	NA	1 Unids.	135.00	135.00	G-02655-20	COLE-PARMER	93-006
CC	26	4	c) MUFLA	NA	1 Unids.	625.00	625.00	G-02050-50	COLE-PARMER	93-006
PR	27		SISTEMA DE AIRE ACONDICIONADO	NA	1 Unids.	64,415.00	64,415.00	AHU1,CL1,AH	STELLMACH	983-00
PR	28		MATERIAL EMPAQUE (FOIL ALUMI)	NA	1 Unids.	29,684.16	29,684.16	9006	CINCINNATI CON	93-0101
PR	29		EXTRACTOR DE POLVOS	NA	1 Unids.	1,435.00	1,435.00	CAB-405730	DONAL TORIT	93-009
PR	30		MEZCLADOR ROSS	25 PIE3	1 Unids.	17,095.00	17,095.00	42A-25	ENSCO ROSS	93-009
CC	31		LOTE DE REACTIVOS	NA	1 Unids.	10,000.00	10,000.00	VARIOS	DIALE DIALE	93-009
CC	32		REACTIVOS MISCELANEOS	NA	1 Unids.	500.00	500.00	VARIOS	WWR Intl	WWR Intl 93-009
PR	33		LAMPARA CONTRA INSECTOS	NA	2 Unids.	315.00	630.00	808-12-62	SPRAG BLUE M	050793
PR	34		TRANSFORMACION DE LLENADORA (UP)	NA	1 Unids.	10,450.00	10,450.00	NA	UPI UPI	93-006
CC	35		PRUEBAS DE SRO	NA	1 Unids.	102.00	102.00	NA	LAUCK'S TESTIN	040793
CC	36	1	ASSORTED CHEMICALS	NA	1 Unids.	ABAJO	0.00	NA	ALDRIC ALDRIC	049193
CC	36	2	a) THIOACETAMIDA	25 g	1 Unids.	13.50	13.50	16367-8	ALDRIC ALDRIC	049193
CC	36	3	b) CARBONATO DE AMONIO	25 g	1 Unids.	6.40	6.40	20786-1	ALDRIC ALDRIC	049193
CC	36	4	c) CROMATO DE POTASIO	100 g	1 Unids.	15.90	15.90	21661-5	ALDRIC ALDRIC	049193

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Obs. Ite	Sub Ite	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.No.
PR 37		CALCULADORAS	NA	6 Unids.	2.99	17.94	MOD H6-4	BARTEL CASIO	050593
CC 38	1	MAG EQUIPO DE LABORATORIO	NA	1 Unids.	ABAJ0	0.00	NA	COSTA COSTA	051593
CC 38	2	a) STRIPETTES	25 ml	1 CAJA	78.00	78.00	4251	COSTA COSTA	051593
CC 38	3	b) TUBOS DE CENTRIFUGA	NA	1 CAJA	63.00	63.00	3350	COSTA COSTA	051593
PR 39	1	VALVULAS Y BUSHINGS	NA	1 Unids.	0.00	0.00	NA	PRO SA ??	053193
PR 39	2	a) VALVULA BOLA 3/4"	NA	10 Unids.	39.00	390.00	NA	PRO SA ??	053193
PR 39	3	b) BUSHING 3/4 X 1/2	NA	5 Unids.	18.25	91.25	NA	PRO SA ??	053193
PR 39	4	c) NIPLE REY 3/4" SG	NA	5 Unids.	7.55	37.75	NA	PRO SA ??	053193
CC 40	1	QUIMICOS DE LABORATORIO	NA	1 Unids.	ABAJ0	0.00	NA	VWR VWR	053393
PR 40	2	a) DETERGENTE ALCONOX	NA	1 CAJA	95.00	95.00	21835-032	VWR VWR	053393
CC 40	3	b) TUBO DE REPUESTO POLARIMETRO	200 mm	1 Unids.	154.00	154.00	53650-285	VWR VWR	053393
CC 40	4	c) LAMPARA SODIO REP. POLARIMETRO	NA	1 Unids.	230.00	230.00	53650-456	VWR VWR	053393
CC 40	5	d) PAPEL PARA PESAR	3" X 3"	1 CAJA	12.28	12.28	12578-121	VWR VWR	053393
CC 40	6	e) PAPEL PARA PESAR	4" X 4"	1 CAJA	16.65	16.65	12578-165	VWR VWR	053393
CC 40	7	f) SET PEGAS PARA BALANZA	NA	1 Unids.	37.25	37.25	12715-51	VWR VWR	053393
CC 40	8	g) BURETAS	25 ml	3 Unids.	90.00	270.00	53045-244	VWR VWR	053393
PR 41	1	SENSOR DE NIVEL PARA UPI	NA	1 Unids.	675.00	675.00	314B-42-A2	ARTHUR ROBER	054293
PR 42	1	CALCULADORA ESTADISTICA	NA	1 Unids.	19.95	19.95	TL - 34	Univarel TEXAS I	002195
CC 43	1	REPUESTOS PARA FOTOMETRO DE LUMINA	NA	VARIOS	ABAJ0	0.00	NA	COLE PARMER	003995
CC 43	2	ATOMIZADOR/NEBULIZADOR	NA	2 Unids.	254.00	508.00	40027001M	COLE PARMER	003995
CC 43	3	KIT PARA EL TUBO NEBULIZACION	NA	3 Unids.	28.1	84.30	40028001M	COLE PARMER	003995
CC 43	4	TUBO NEBULIZADOR INTERNO	NA	10 Unids.	3.10	31.00	40022003F	COLE PARMER	003995
CC 43	5	ALAMBRES DE LIMPIEZA DEL NEBULIZADOR	NA	3 Unids.	10.70	32.10	10099010K	COLE PARMER	003995
CC 43	6	FILTRO DE SODIO (589 nm)	NA	1 Unids.	86.10	86.10	99905137	COLE PARMER	003995
CC 43	7	FILTRO DE POTASIO (766 nm)	NA	1 Unids.	86.10	86.10	99905138	COLE PARMER	003995

Otg. Itz	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.Nº.
CC 43	8	FUSIBLE 6LO BLO (6 3 A)	NA	6 Unids.	2.95	17.70	00142381K	COLE PARMER	003995
CC 43	9	RECIPIENTES PARA MUESTREAR	NA	1 CAJA	26.50	26.50	00126033X	COLE PARMER	003995
PR 44	1	O-RINGS P'ALIMENTADOR MOD 250	NA	6 Unids.	4.00	24.00	25044	SPIROFLOW	01895
PR 44	2	EMPAQUE ALIMENTADOR TOLVA INTERNA	NA	4 Unids.	8.80	35.20	41045	SPIROFLOW	01895
PR 44	3	EMPAQUE ALIMENTADOR CUBIERTA EXTER	NA	4 Unids.	8.80	35.20	41045	SPIROFLOW	01895
PR 45	1	FILTROS DE REPUESTO PARA EL CUREP CONDICIONADO		VARIOS	VER ABAJ	0.00	NA	STELLMACK	95-0017
PR 45	2	SET DE PREFILTROS	NA	12 CAJAS	308.16	3.697.92	NA	STELLMACK	95-0017
PR 45	3	SET DE FILTROS DE 10"	NA	2 Unids.	468.48	936.96	NA	STELLMACK	95-0017
PR 45	4	SET PARA FILTRO FINAL 190"	NA	1 Unids.	518.40	518.40	NA	STELLMACK	95-0017
PR 46	1	REPUESTOS PARA LA LLENADORA UPI	NA	VARIOS	VER ABAJ	0.00	NA	UPI UPI	94-008
PR 46	1	JUEGO MORDAZAS 9" FRENTE Y ATRAS 9" LARGO		1 Unids.	1050	1,050.00	G30111-ST	UPI UPI	94-008
PR 46	2	BATERIA BACKUP RAM OMRON (3G2A9-BAT07)		1 Unids.	66.75	66.75	1701542	UPI UPI	94-008
PR 46	3	RESISTENCIA 14" 3/8 DIAM 350 W @ 240 VAC	NA	2 Unids.	74.50	149.00	171013-6	UPI UPI	94-008
PR 46	4	RESISTENCIA 8" 3/8 DIAM 350 W 240 VAC	NA	4 Unids.	55.00	220.00	171013-2	UPI UPI	94-008
PR 46	5	TERMOCUPLA THERMISTOR GENERAL (26-230103-305)		6 Unids.	46.98	281.88	171015-1	UPI UPI	94-008
PR 46	6	FUENTE DE VOLTAGE OMRON (3G2A9-PS02)	NA	1 Unids.	430.00	430.00	170002	UPI UPI	94-008
PR 46	7	ENCODER ACCL-COD-R 12 3/4" (12 1/2")	NA	1 Unids.	335.00	335.00	170009	UPI UPI	94-008
PR 46	8	SENSOR DE FIBRA OPTICA (100-1174-1000C)		1 Unids.	345.00	345.00	170012	UPI UPI	94-008
PR 46	9	CABLE DE FIBRA OPTICA (100-1174-1000C)		1 Unids.	55.50	55.50	170013	UPI UPI	94-008
PR 46	10	CONTROL DE TEMPERATURA GENERAL (19-104277-100)		1 Unids.	428.00	428.00	170015	UPI UPI	94-008
PR 46	11	INTERRUPTOR DE PROXIMIDAD (IG3005ANKGATC)		1 Unids.	82.50	82.50	170045	UPI UPI	94-008
PR 46	12	RELAY IDEC (R56A25A AC)		4 Unids.	60.65	242.60	170047	UPI UPI	94-008
PR 46	13	P & B RELAY TEMPORIZADOR (CLE-41-70010)		1 Unids.	87.75	87.75	170050	UPI UPI	94-008
PR 46	14	POTENCIOMETRO DE 5 ETAPAS (35435-110K)		1 Unids.	28.10	28.10	170141	UPI UPI	94-008
PR 46	15	FUSIBLE 30 amp 250 VAC BUCGMAN	NA	3 Unids.	3.22	9.66	170147	UPI UPI	94-008

Qts.	Ita	Sub	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE	FABRIC.	P.O.Nº.
PR	46	16	FUSIBLE 120 V AC Letifusor-AFC 5-AMP	NA	5 Unids.	0.72	3.60	170148	UPI	UPI	94-008
PR	46	17	FUSIBLE 120 V (17AG-1124)	NA	20 Unids.	1.62	32.40	170153	UPI	UPI	94-008
PR	46	18	SENSOR SEGURIDAD (FRENTO) MOTOR HAMILIN 5701		1 Unids.	8.73	8.73	170213	UPI	UPI	94-008
PR	46	19	SENSOR SEGURIDAD (REED) MOTOR HAMILIN 5801)		1 Unids.	21.75	21.75	170214	UPI	UPI	94-008
PR	46	20	SPOT RELAY DAYTON (SK 835E)		1 Unids.	14.90	14.90	170236	UPI	UPI	94-008
PR	46	21	FAJA (5L340)		1 Unids.	17.78	17.78	630596	UPI	UPI	94-008
PR	46	22	FAJA V 5L270 DAYTON		1 Unids.	15.26	15.26	63060	UPI	UPI	94-008
PR	46	23	COJINETES SCHATZ (AF-1622)		8 Unids.	7.50	60.00	64005	UPI	UPI	94-008
PR	46	24	COJINETE SCHATZ (AF-1628)		8 Unids.	7.50	60.00	64004	UPI	UPI	94-008
PR	46	25	CUCHILLAS CELLO (2" 9 6256/19-1) B.G.		12 Unids.	24.60	295.20	B300110-1	UPI	UPI	94-008
PR	46	26	RESORTE DE MICRO 24 PERA UPI		8 Unids.	2.95	23.60	66035	UPI	UPI	94-008
PR	46	27	FL-32-3 FLNG BUSHING 5/16" (1120001)		16 Unids.	3.50	56.00	64058	UPI	UPI	94-008
PR	46	28	5/16x1-1/4" SPOC HO SHOULDER BALL BEARCK		16 Unids.	2.80	44.80	61572	UPI	UPI	94-008
PR	46	29	SUPER 12DD BEARING (COJINETES) J.F. THOMPSON		8 Unids.	47.50	380.00	64040	UPI	UPI	94-008
PR	46	30	CONO DE METAL PARA LATRADO		2 Unids.	85.50	171.00	B00907	UPI	UPI	94-008
PR	46	31	POLEA DE FRENO UPI		1 Unids.	64.25	64.25	621062	UPI	UPI	94-008
PR	46	32	EJE DE BOBINA 31-5/8" LARGO		1 Unids.	159.64	159.64	B20163-1	UPI	UPI	94-008
PR	46	33	PULLEY ASSEMBLY GERBING SPEED CONTROL (515		1 Unids.	330.10	330.10	66007	UPI	UPI	94-008
PR	46	34	KIT DE REPARACION DE PISTON NEUMATICO		1 Unids.	38.75	38.75	NA	UPI	UPI	003895
PR	47	1	IMPRESORA PARA BALANZA OHMCO		1 Unids.	345.00	345.00	11277-670	VWR	OHAUS	025094
PR	47	2	TARJETA DE INTERFASE		1 Unids.	91.85	91.85	NA	VWR	OHAUS	025094
PR	47	3	CABLE DE INTERFASE		1 Unids.	43.75	43.75	NA	VWR	OHAUS	025094
PR	47	4	"BALANZA" ELECTRICO		1 Unids.	24.00	24.00	NA	VWR	OHAUS	025094
PR	48	1	ASPIRADORA 12 GAL. (2HP)		2 Unids.	77.99	155.98	27611	HOME B SHOP V		010995
CC	49	1	CALIBRADOR DE PAPEL CON INDICADOR DIGITAL		1 Unids.	372.20	372.20	543-146	BAILEY	MITUTO	010695

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Obs. Ite	Sub Ite	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.Nº.
CC 48	2	SOPORTE PARA EL CALIBRADOR		1 Unids.	175.20	175.20	7004	BAILEY	MITUTO 010695
CC 48	3	CABLE "SPINDLE" PARA CALIBRACION		1 Unids.	18.75	18.75	540744	BAILEY	MITUTO 010695
CC 48	4	FLAT POINT (10 mm)		1 Unids.	6.08	6.08	10117	BAILEY	MITUTO 010695
CC 48	5	CONVERTIDOR DE SUE AL SIST. METRICO		1 Unids.	4.51	4.51	2AAA011	BAILEY	MITUTO 010695
CC 50	1	SELLO DE HULE PARA CONTROL DE CALIDAD		2 Unids.	11.00	22.00	NA	GAM'S C	NA NA
PR 51	1	HIGROMETROS DE PARED		2 Unids.	74	148.00		?	? ?
PR 51	2	TERMOMETROS CON ESCALA MIN. Y MAX. VALIMO		3 Unids.	46.45	139.35	61-178-121	VWR	VWR 012695
PR 52	1	TABLERO SECADO POLYETHYLENE GRANDE PEQ		1 Unids.	74.6	74.60	H18928-024	VWR	VWR 034495
PR 52	2	TABLERO SECADO POLYETHYLENE GRANDE		1 Unids.	140.4	140.40	H18929-0036	VWR	VWR 034495
PR 53	1	TARIMAS PLASTICAS	4 TONELES	20 Unids.	39.95	799.00	40027001M	QUALITY BIN Co.	034295
PR 54	1	CINTAS IMPRESION IMPRESORA NORWOOD	15,000 SOBREVOLTE	1 CAJA/36	161.68	161.68	172118-600	NORWOOD	034695
CC 55	1	ATOMIZADOR/NEBULIZADOR		1 Unids.	254	254.00	NA	COLE PALMER	035595
CC 56	1	FRASCO VOLUMETRICO 100 ML	PAQUETE	5 Unids.	88.5	442.50	29619-610	VWR	VWR 95-0155
CC 56	2	FRASCO VOLUMETRICO 250 ML	PAQUETE	5 Unids.	110.49	552.45	29619-631	VWR	VWR 95-0155
CC 56	3	FRASCO VOLUMETRICO 500 ML	PAQUETE	4 Unids.	137.04	548.16	29619-642	VWR	VWR 95-0155
CC 56	4	BURETA DE 10 ML LLAVE DE TEFLON	CAJAS	3 Unids.	67.04	201.12	17466-100	VWR	VWR 95-0155
CC 56	5	BUERTA DE 25 ML LLAVE DE TEFLON	CAJAS	3 Unids.	61.44	184.32	17466-121	VWR	VWR 95-0155
CC 56	6	BURETA "RASOREY" DE 50 ML	CAJAS	3 Unids.	78.36	235.08	17466-607	VWR	VWR 95-0155
CC 56	7	DESECADOR TRANSPARENTE 2.50 mm		2 Unids.	50.24	100.48	29967-048	VWR	VWR 95-0155
CC 56	8	PLATO DE DESECACION 230		2 Unids.	31.36	62.72	26039-003	VWR	VWR 95-0155
CC 56	9	PIPETA DE 25 ml		1 Paq/12	90.8	90.80	62967-322	VWR	VWR 95-0155
CC 56	10	PIPETA		1 Paq/12	67.34	67.34	62967-264	VWR	VWR 95-0155
CC 56	11	CRISOL H.F. COORS		1 Paq/12	38.71	38.71	23810-137	VWR	VWR 95-0155
CC 56	12	TAPADERA DE CRISOL COORS		2 Paq/6	22.16	44.32	23811-137	VWR	VWR 95-0155
CC 56	13	BOTELLA DE PÉLAGA. FORMA EQUILIBRADA	PAQUETES	4 PAQUETE	40.53	162.12	16716-045	VWR	VWR 95-0155

Obs. Itm	Sub	Itm	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.No.
CC 56		14	VIDRIO DE RELUJ DE 3 PULGADOS		4 Paq/12	16.61	66.44	66112-107	VWR VWR	95-0155
CC 57		1	REGULADOR DE GAO P FOTOMETRO DE LLAMA		1 Unids.	64.35	64.35	99999-98	COLE PALMER	003495
PR 57		2	KIT DE EMPAQUES PARA PISTON		1 Unids.	54.75	54.75	NA	UPI UPI	015595
PR 57		3	KIT DE EMPAQUES PARA PISTON		1 Unids.	119.85	119.85	NA	UPI UPI	015595
PR 57		4	PISTON PARA LA MAG. LLENADORA		1 Unids.	175.35	175.35	62262	UPI UPI	015595
PR 57		5	MANUAL DE OPERACIONES PARA LLENADORA MARK III		1 Unids.	200.00	200.00	MARK III-1170	UPI UPI	015595
PR 58		1	MASCARILLAS QUIRURGICAS	CAJAS	2 CAJA/100	23.06	46.12	47121	BAXTER HEALTH	029395
PR 59		1	BALANZA DIGITAL TOLEDO 65	300 KG	1 Unids.	1,695.00	1,695.00	2097-0001	PHILLIP TOLEDO	95-0142
PR 59		2	PANTALLA DIGITAL TOLEDO	NA	1 Unids.	895.00	895.00	8510-1001	PHILLIP TOLEDO	95-0142
PR 59		3	IMPRESORA DE BALANZA TOLEDO	NA	1 Unids.	695.00	695.00	8669-0003	PHILLIP TOLEDO	95-0142
PR 59		4	CABLE DE INTERFASE	NA	1 Unids.	55.00	55.00	0900-0236	PHILLIP TOLEDO	95-0142
PR 59		5	CINTA DE IMPRESORA TOLEDO	NA	1 CAJA/6	48.00	48.00	14053600A	PHILLIP TOLEDO	95-0142
PR 59		6	PAPEL DE IMPRESORA TOLEDO	NA	1 CAJA	120.00	120.00	14099200A	PHILLIP TOLEDO	95-0142
CC 60		1	NITRATO DE PLATA	100 G	1 Unids.	365.85	365.85	20,913-9	ALDRICH CHEMI	034995
CC 60		2	CLORURO DE SODIO	100G	1 Unid.	18.60	18.60	20,261-4	ALDRICH CHEMI	034995
CC 60		3	CLORURO DE POTASIO	500G	1 Unid.	20.70	20.70	20,800-0	ALDRICH CHEMI	034995
CC 60		4	GLUCOSA	500G	1 Unid.	11.90	11.90	25,307-3	ALDRICH CHEMI	034995
CC 60		5	ACIDO PERCLOFICO 0.1N	2 litros	1 Unid.	111.40	111.40	31,922-8	ALDRICH CHEMI	034995

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EQUIPO ENTREGADO EN 1988-1989

Obs. Ite	Sub Ite	DESCRIPCION	CAPACIDAD	CANTIDAD	PRECIO UNITARIO \$	PRECIO TOTAL \$	NUMERO REPUESTO	PROVEE FABRIC	P.O.No.
PR 61	1	BALANZA MECANICA TOLEDO	200 LIBR	1 Unid.	1,112.00	1,112.00	7100616.7	PHILIPS	TOLEDO
PR 61	2	BANDAS TRANSPORTADORAS	NA	2 Unid.	1,346.50	2,693.00	NO INDICA	PHILLIPS	MORRIS
PR 61	3	COMPRESOR DE AIRE	300PSI	1 Unid.	1,966.00	1,966.00	3Z494A-2	BARTELLS	
PR 61	4	CUCHARONES DE ACERO INOXIDABLE	2 PULG	3 Unid.	141.00	423.00	NA	HORIZON	TRADING Co.
PR 61	5	CUCHARONES DE ACERO INOXIDABLE	3 PULG	3 Unid.	147.00	441.00	NA	HORIZON	TRADING Co.
PR 61	6	CUCHARONES DE ACERO INOXIDABLE	4 PULG	3 Unid.	153.00	459.00	NA	HORIZON	TRADING Co.
PR 61	7	CUCHARONES DE ACERO INOXIDABLE	4.53 PULG	3 Unid.	161.00	483.00	NA	HORIZON	TRADING Co.
PR 61	8	RECIPIENTES DE ACERO INOXIDABLE	100 LITROS	4 Unid.	1,285.00	5,140.00	SSD-100	HORIZON	TRADING Co.
PR 61	9	HORNOS DE SECADO	250 LITROS	2 Unid.	24,941.00	49,882.00	NA	HORIZON	TRADI GRUEN
PR 61	10	LLENADORA SEMIAUTOMATICA	18 GALONES	1 Unid.	15,910.00	15,910.00	B-300	HORIZON	TRADI AFI
PR 61	11	MONTA CARGAS MECANICO	4,500 LIBRAS	1 Unid.	635.00	635.00	NA	HORIZON	TRADI YALE
PR 61	12	LLENADORA AUTOMATICA MARK III	40 SOBRESJMIN	1 Unid.	50,452.00	50,452.00	S-N 1170	UPI	UPI
PR 61	13	MEZCLASOR DE TONEL	200 LITROS	1 Unid.	4,960.00	4,960.00	NA	HORIZON	TRADING Co.
PR 61	14	TAMIZADOR ROUSSEL	25 KILOS	1 Unid.	6,267.00	6,267.00	NA	HORIZON	TRADING Co.
PR 61	15	TAMIZADOR HOMES.	25 LITROS	1 Unid.	9,492.80	9,492.80	NA	HORIZON	TRADING Co.
TOTAL						376,017.62			

OBSERVACIONES:

- * PR = SE ENCUENTRA EN EL AREA DE PRODUCCION DE SRO
- * CC = SE ENCUENTRA EN EL AREA DE CONTROL DE CALIDAD DE SRO
- * LISTA ELABORADA EN BASE A INFORMACION PROPORCIONADA POR PATH/AID
- * Lic. Luis Galvez Sanchinelli. Jefe de Planta de SRO/ MAYO 1996
- * C:\OPRO\DATA\LIST AID.WO1

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ANNEX 5

EQUIPMENT LIST FOR LAPROMED ORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO NO.
0		Vacuum cleaner	12G, 2HP	3 each	\$87.99	N/A	Home Builders	Shopvac	050693
1		In-feeder	n/a	1 each	\$3,892.00	258-B18	Spiroflow	Spiroflow	93-0102
2		Lift truck	n/a	1 each	\$3,325.00	1524-T11	Air Mac	Big Joe IBH	93-0055
3		Coding device	n/a	1 each	\$4,663.92	MODEL 812-2	Excel Packaging	Norwood	93-0131
4		5 kVA stabilizer	n/a	1 each	\$2,080.00	6323250-8	Sola Electric	Sola Electric	93-0054
7		Glassware	see below	1 each	see below	see below	VWR	VWR	93-0065
7	1	Graduated cylinders	25 ml	6 pkg of 4	\$21.30	24711-273	VWR	VWR	93-0065
7	2	Graduated cylinders	50 ml	6 pkg of 4	\$24.00	24711-295	VWR	VWR	93-0065
7	3	Graduated cylinders	100 ml	3 pkg of 4	\$27.00	24711-310	VWR	VWR	93-0065
7	4	Graduated cylinders	250 ml	1 case of 18	\$215.75	24711-320	VWR	VWR	93-0065
7	5	Glass beakers	30 ml	1 pkg of 12	\$18.35	13910-121	VWR	VWR	93-0065
7	6	Glass beakers	50 ml	1 pkg of 12	\$18.35	13910-143	VWR	VWR	93-0065
7	7	Glass beakers	100 ml	1 pkg of 12	\$19.50	13910-165	VWR	VWR	93-0065
7	8	Glass beakers	250 ml	1 pkg of 12	\$18.35	13910-201	VWR	VWR	93-0065
7	9	Glass beakers	600 ml	1 pkg of 6	\$13.85	13910-245	VWR	VWR	93-0065
7	10	Glass beakers	1000 ml	1 pkg of 6	\$26.30	13910-289	VWR	VWR	93-0065
7	11	Erlenmeyer glass flasks	50 ml	1 pkg of 12	\$22.95	29135-067	VWR	VWR	93-0065
7	12	Erlenmeyer glass flasks	125 ml	1 pkg of 12	\$25.60	29140-522	VWR	VWR	93-0065
7	13	Erlenmeyer glass flasks	250 ml	2 pkg of 12	\$27.15	29140-544	VWR	VWR	93-0065
7	14	Erlenmeyer glass flasks	500 ml	2 pkg of 6	\$17.10	29140-566	VWR	VWR	93-0065
7	15	Erlenmeyer glass flasks	1000 ml	1 pkg of 6	\$28.55	29140-588	VWR	VWR	93-0065
7	16	Clear glass burette	25 ml	6 each	\$22.85	17590-208	VWR	VWR	93-0065
7	17	Burette support, polypropylene C-P	n/a	4 each	\$63.85	17683-000	VWR	VWR	93-0065
7	18	Mercury thermometers (20 to 110C)	n/a	3 each	\$3.25	61015-056	VWR	VWR	93-0065
7	19	Ditto (10 to 400C)	n/a	3 each	\$5.80	61015-136	VWR	VWR	93-0065
7	20	Clear glass, narrow mouth	125 ml	14 each	\$8.40	16267-043	VWR	VWR	93-0065
7	21	Clear glass, narrow mouth	250 ml	2 cs of 6	\$51.60	16267-065	VWR	VWR	93-0065
7	22	Clear glass, narrow mouth	500 ml	2 pkg of 6	\$63.10	16267-087	VWR	VWR	93-0065
7	23	Clear glass, narrow mouth	1000 ml	2 pkg of 6	\$107.95	16267-101	VWR	VWR	93-0065
7	24	Stirring bars, 2" x 5/16"	n/a	12 each	\$1.55	58948-171	VWR	VWR	93-0065
7	25	Glass stirrer 6 x 250 mm	n/a	1 pkg of 100	\$28.35	59060-080	VWR	VWR	93-0065
7	26	Pipette filler, natural rubber	n/a	6 each	\$4.50	53497-009	VWR	VWR	93-0065
7	27	Volumetric pipetter	1 ml	2 pkg of 12	\$22.65	52965-892	VWR	VWR	93-0065
7	28	Volumetric pipetter	2 ml	1 pkg of 12	\$22.65	52965-917	VWR	VWR	93-0065
7	29	Volumetric pipetter	5 ml	1 pkg of 12	\$26.80	52965-972	VWR	VWR	93-0065
7	30	Volumetric pipetter	10 ml	2 pkg of 12	\$36.70	52966-137	VWR	VWR	93-0065
7	31	Disposable glass pipettes	1 ml	1 cs of 1000	\$76.45	53281-509	VWR	VWR	93-0065
7	32	Disposable glass pipettes	5 ml	1 cs of 500	\$66.70	53281-542	VWR	VWR	93-0065
7	33	Disposable glass pipettes	10 ml	1 cs of 500	\$72.80	53281-564	VWR	VWR	93-0065

EQUIPMENT LIST FOR LAPROMETORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO NO
7	34	Spatulas-stainless steel	n/a	4 pkg of 3	\$8.10	57940-040	VWR	VWR	93-006
7	35	Volumetric flask with teflon lid	50 ml	6 each	\$12.40	29619-675	VWR	VWR	93-006
7	36	Volumetric flask with teflon lid	100 ml	12 each	\$13.20	29619-676	VWR	VWR	93-006
7	37	Volumetric flask with teflon lid	250 ml	12 each	\$16.65	29619-678	VWR	VWR	93-006
7	38	Volumetric flask with teflon lid	500 ml	12 each	\$20.65	29619-679	VWR	VWR	93-0
7	39	Volumetric flask with teflon lid	1000 ml	12 each	\$25.10	29619-680	VWR	VWR	93-006
7	40	Watch glasses 75 mm diameter	n/a	1 pkg of 12	\$12.95	66110-043	VWR	VWR	93-006
7	41	Desiccator Plate	n/a	1 each	\$35.00	25038-003	VWR	VWR	93-006
7	42	Porcelain crucible without lid	50 ml	1 pkg of 12	\$44.95	23810-189	VWR	VWR	93-006
7	43	Crucible cover	50 ml	2 pkg of 6	\$22.85	23811-137	VWR	VWR	93-006
7	44	Crucible tongs	n/a	2 each	\$12.90	62481-000	VWR	VWR	93-006
7	45	Nessler tube - glass (50-100ml)	n/a	5 each	\$10.25	66176-347	VWR	VWR	93-006
7	46	Disposable test tubes, glass	n/a	1 cs of 1000	\$30.90	60825-651	VWR	VWR	93-0065
7	47	Test tube rack for above tubes	n/a	4 each	\$7.90	60914-707	VWR	VWR	93-0065
7	48	Glass funnel 60 degree	55 mm	2 pkg of 12	\$37.09	30205-068	VWR	VWR	93-0065
7	49	Wash bottles	250 ml	2 pkg of 6	\$6.20	16651-165	VWR	VWR	93-0065
7	50	Pipette washer	n/a	1 each	\$108.10	53595-041	VWR	VWR	93-0065
7	51	Basket for above	n/a	1 each	\$61.10	53596-066	VWR	VWR	93-0065
5	52	Moisture Balance - Ohaus MB200	n/a	1 each	\$2,060.00	12169-041	VWR	VWR	93-0065
6	53	PH/ISE Meter - Orion 720A	n/a	1 each	\$1,067.00	34104-414	VWR	ORION	93-0065
6	54	without starter kit, includes electrodes	n/a	n/a	n/a	n/a	n/a	n/a	93-0065
7	55	Starter kit for PH Meter	n/a	1 each	\$256.00	34104-394	VWR	VWR	93-0065
7	56	Reference Electrode - Orion 90020	n/a	1 each	\$256.00	34107-956	VWR	VWR	93-0065
7	57	Sodium Electrode ISE - Orion 8611BN	n/a	1 each	\$256.00	34113-779	VWR	VWR	93-0065
7	58	Potassium Electrode ISE - Orion 9319BN	n/a	1 each	\$1,067.00	34117-519	VWR	VWR	93-0065
7	59	Chloride Electrode ISE - Orion 9617BN	n/a	1 each	\$410.25	34116-811	VWR	VWR	93-0065
10	60	Hot-Plate Stirrer - Thermolyne 7X7	n/a	1 each	\$220.00	33921-889	VWR	VWR	93-006
	61	with ceramic plate	n/a	n/a	n/a	n/a	n/a	n/a	93-0065
9	62	Therm-Hygrometer	n/a	2 each	\$38.60	35519-047	VWR	VWR	93-0065
7	63	Seal Testing Apparatus, Dessicator	n/a	2 each	\$38.95	24987-048	VWR	VWR	93-0065
7	64	Vernier Caliper	n/a	1 each	\$63.65	19155-148	VWR	VWR	93-0065
7	65	Magnetic Stirrer - Thermolyne	n/a	1 each	\$160.00	58940-034	VWR	VWR	93-0065
7	66	Bunsen Burner	n/a	1 each	\$38.90	18215-120	VWR	VWR	93-0065
7	67	Tripod Stand for Bunsen Burner	n/a	1 each	\$10.10	62760-003	VWR	VWR	93-0065
7	68	Triangle for stand	n/a	1 pkg of 10	\$9.20	62710-027	VWR	VWR	93-0065
7	69	Gas lighter	n/a	1 each	\$13.10	18385-201	VWR	VWR	93-0065
7	70	pH-Indicator paper range 0-14	n/a	1 15' roll	\$4.80	60775-702	VWR	VWR	93-0065
7	71	Rubber gloves, small	n/a	1 box of 100	\$14.90	32917-700	VWR	VWR	93-0065
7	72	Rubber gloves, medium	n/a	1 box of 100	\$14.90	32917-718	VWR	VWR	93-0065

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EQUIPMENT LIST FOR LAPROMED ORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO N
7	73	Rubber gloves, large	n/a	1 box of 100	\$14.90	32917-730	VWR	VWR	93-000
7	74	Safety goggles	n/a	2 pair	\$4.10	33010-000	VWR	VWR	93-000
7	75	Disposable masks	n/a	1 box of 20	\$15.70	56219-002	VWR	VWR	93-000
7	76	Plastic spatula, small	n/a	6 each	\$5.10	57930-024	VWR	VWR	93-000
7	77	Plastic spatula	n/a	6 each	\$6.50	57930-068	VWR	VWR	93-000
13		Polarimeter	n/a	1 each	\$2,962.00	53650-208	VWR	VWR	93-000
14		Vibration-free table	n/a	2 each	\$10,772.68	n/a	VWR Intl	VWR Intl	93-008
15		Stainless steel sink	n/a	1 each	see above	n/a	VWR Intl	VWR Intl	93-000
16		Sink stand	n/a	1 each	see above	n/a	VWR Intl	VWR Intl	93-000
17		Glassware rack	n/a	2 each	see above	n/a	VWR Intl	VWR Intl	93-000
18		Glassware storage cabinet	n/a	1 each	see above	n/a	VWR Intl	VWR Intl	93-000
19		Chemical storage cabinet	n/a	1 each	\$607.68	56610-356	VWR Intl	VWR Intl	93-000
20		Furniture for 4 analysis	n/a	1 each	see above	n/a	VWR Intl	VWR Intl	93-000
21	1	Fume hood cabinet and accessories:	n/a	1 each	see above	n/a	VWR Intl	VWR Intl	93-000
21	2	a) Perchloric fume hood	n/a	1 each	\$5,334.00	VF7-1204-OS	VWR Intl	VWR Intl	93-000
21	3	b) Motor Blower	n/a	1 each	\$1,251.00	VF5-3302-C4	VWR Intl	VWR Intl	93-000
21	4	c) Acid Base Cabinet	n/a	1 each	\$733.00	VFG-2088-F6	VWR Intl	VWR Intl	93-000
21	5	d) Weather Cap, Style B	n/a	1 each	\$130.00	WCB10	VWR Intl	VWR Intl	93-000
21	6	e) Fan Inlet Adapter	n/a	1 each	per above	VF5-3424-00	VWR Intl	VWR Intl	93-000
21	7	f) Outlet Adapter	n/a	1 each	per above	2C3455	VWR Intl	VWR Intl	93-000
21	8	g) 10" 90 degree Elbows	n/a	2 each	\$65.00	1034-90-10	VWR Intl	VWR Intl	93-000
21	9	h) PVC Duct, 10" x 10"	n/a	2 each	\$112.00	1033-10	VWR Intl	VWR Intl	93-000
21	10	i) Coupling Washdown 10"	n/a	2 each	\$50.00	n/a	VWR Intl	VWR Intl	93-000
22	1	Cleaning Solution	3000 ml	1 each	\$230.00	G02655-80	Cole-Parmer	Cole-Parmer	041593
22	2	Diluent Concentrate	3000 ml	1 each	\$200.00	G02655-83	Cole-Parmer	Cole-Parmer	041593
23		ORS raw material	n/a	1 each	\$256.65	n/a	Jianis Brothers	Jianis Brothers	0370
24		Safety shower and eye washer	n/a	1 each	\$558.30	11443	Lab Safety Supply	Lab Safety Supply	93-000
26	1	Flame-photometer	n/a	1 each	\$3,800.00	G-02655-00	Cole-Parmer	Cole-Parmer	93-000
26	2	a) Vacuum/pressure pump	n/a	1 each	\$265.00	G-07061-40	Cole-Parmer	Cole-Parmer	93-000
26	3	b) Propane regulator	n/a	1 each	\$135.00	G-02655-20	Cole-Parmer	Cole-Parmer	93-000
26	4	c) Muffle benchtop furnace	n/a	1 each	\$625.00	G-02050-50	Cole-Parmer	Cole-Parmer	93-000
27		Air Conditioner	n/a	1 each	\$64,415.00	AHU1, CU1, AH2, AH3	Stellmach	Stellmach	93-0071
28		Packaging Material - New Foil	n/a	1 each	\$29,684.16	9006	Cincinnati Converters		93-0101
29		Dust extractor	n/a	1 each	\$1,435.00	Drawing CAB-40573091	Donaldson	Torit	93-0095
30		Mixer	25 cu ft	1 each	\$17,095.00	42A-25	Ensco	Ross	93-0094
31		Lot reagents	n/a	1 each	\$10,000.00	various chemicals	DIALE	DIALE	93-0097
32		Miscellaneous reagents	n/a	1 each	\$500.00	various chemicals	VWR Intl	VWR Intl	93-0098
33		Insect killer	n/a	2 each	\$315.00	808-12-62	Sprague	Blue Max	050793
34		UPI conversion - parts	n/a	1 each	\$10,450.00	n/a	UPI	UPI	93-0082

EQUIPMENT LIST FOR LAPROMED ORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO NUMBER
35		ORS testing	n/a	1 each	\$102.00	n/a	Lauck's Testing	n/a	04079
36	1	Assorted chemicals	n/a	1 each	see below	n/a	Aldrich	Aldrich	04919
36	2	a) Thioacetamide	25g	1 each	\$13.50	16,367-8	Aldrich	Aldrich	04919
36	3	b) Ammonium Carbonate	25g	1 each	\$6.40	20,786-1	Aldrich	Aldrich	04919
36	4	c) Potassium Chromate	100g	1 each	\$15.90	21,661-5	Aldrich	Aldrich	04919
37		Calculators	n/a	6 each	\$2.99	Model HS-4	Bartells	Casio	05059
38	1	More lab equipment	n/a	1 each	see below	n/a	Costar	Costar	05159
38	2	a) Stripettes	25ml	1 case	\$78.00	4251	Costar	Costar	0515
38	3	b) Centrifuge tubes	n/a	1 case	\$63.00	3350	Costar	Costar	0515
39	1	Valves, Bushings	n/a	1 each	n/a	n/a	Pro Sales	??	05319
39	2	a) 3/4" Ball valve SS NPT	n/a	10 each	\$39.00	n/a	Pro Sales	??	05319
39	3	b) 3/4" x 1/2" SS Bushing	n/a	5 each	\$18.25	n/a	Pro Sales	??	05319
39	4	c) 3/4" SS King Nipple	n/a	5 each	\$7.55	n/a	Pro Sales	??	05319
40	1	Lab Chemicals	n/a	1 each	see below	n/a	VWR	VWR	05339
40	2	a) Alconox detergent	n/a	1 each	\$95.00	21835-032	VWR	VWR	05339
40	3	b) Polarimeter measuring tube	200mm	1 each	\$154.00	53650-285	VWR	VWR	05339
40	4	c) Sodium lamp	n/a	1 each	\$230.00	53650-456	VWR	VWR	05339
40	5	d) Weighing paper	3" x 3"	1 each	\$12.28	12578-121	VWR	VWR	05339
40	6	e) Weighing paper	4" x 4"	1 each	\$16.65	12578-165	VWR	VWR	05339
40	7	f) Balance weightset	n/a	1 each	\$37.25	12715-51	VWR	VWR	05339
40	8	g) Pipettes	25 ml	3 each	\$90.00	53045-244	VWR	VWR	05339
41	1	Level Sensor	n/a	1 each	\$675.00	314B-A2-A2	Arthur Forsyth	Robert Shaw	054293

EQUIPMENT LIST FOR LAPROMED ORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO NO.
42	1	Statistical calculator	EA	1	\$19.95	TI-34	University Bookstore	Texas Instruments	002195
43	1	Spare Parts for Flame Photometer	n/a		see below	n/a	Cole-Parmer	Cole-Parmer	003995
43	2	Atomizer/nebulator	EA	2	\$254.00	40027001M	Cole-Parmer	Cole-Parmer	003995
43	3	Nebulizer tube kit	EA	3	\$28.10	40028001J	Cole-Parmer	Cole-Parmer	003995
43	4	Nebulizer inlet tube	pack	10	\$3.10	40022003F	Cole-Parmer	Cole-Parmer	003995
43	5	Nebulizer cleaning wires	pack	3	\$10.70	10099010K	Cole-Parmer	Cole-Parmer	003995
43	6	Sodium filter (589.6 nm)	EA	1	\$86.10	98905137	Cole-Parmer	Cole-Parmer	003995
43	7	Potassium filter (768 nm)	EA	1	\$86.10	98905138	Cole-Parmer	Cole-Parmer	003995
43	8	Slo-blo fuse (6.3A)	EA	6	\$2.95	00142361K	Cole-Parmer	Cole-Parmer	003995
43	9	Sample pots	EA	1	\$26.50	00126033X	Cole-Parmer	Cole-Parmer	003995
44	1	O-rings for model 258 conveyer	EA	6	\$4.00	25044	Spiroflow	Spiroflow	010895
44	2	Gasket for inlet hopper contact	EA	4	\$8.80	41045	Spiroflow	Spiroflow	010895
44	3	Gasket for outlet-cover plate contact	EA	4	\$8.80	41045	Spiroflow	Spiroflow	010895
45	1	Replacement Filters for Air Conditioner	n/a		see below	n/a	Stellmack	Stellmack	95-0017
45	1	Prefilter set	set	12	\$308.16	n/a	Stellmack	Stellmack	95-0017
45	2	60% filter set	set	2	\$468.48	n/a	Stellmack	Stellmack	95-0017
45	3	Final filter set (90%)	set	1	\$518.40	n/a	Stellmack	Stellmack	95-0017
46	1	Spare Parts for Form-Fill-Seal Machine	n/a		see below	n/a	UPI	UPI	94-0089
46	1	9" Set endseals front and rear	EA	1	\$1,050.00	C30111-ST	UPI	UPI	94-0089
46	2	Omron Ram backup battery (3G2A9-BAT07)	EA	1	\$66.75	1701542	UPI	UPI	94-0089
46	3	Cartridge heater 14", 3/8dia. 350-@ 240-VAC	EA	2	\$74.50	171013-6	UPI	UPI	94-0089
46	4	Cartridge heater 8", 3/8dia. 350-W 240-VAC	EA	4	\$55.00	171013-2	UPI	UPI	94-0089
46	5	Fenwal thermistor probe (28-230103-305)	EA	6	\$46.98	171015-1	UPI	UPI	94-0089
46	6	Omron power supply (3G2A3-PS221)	EA	1	\$430.00	170002	UPI	UPI	94-0089
46	7	Encoder accu-coder 712-O-N (712/360/1)	EA	1	\$335.00	170009	UPI	UPI	94-0089
46	8	Fiber optic sensor (7063AFR4X4NLX ATC)	EA	1	\$345.00	170012	UPI	UPI	94-0089
46	9	Fiber optic bundle (70632701100 ATC)	EA	1	\$55.50	170013	UPI	UPI	94-0089
46	10	Fenwal temperature control (19-404277-100)	EA	1	\$428.00	170015	UPI	UPI	94-0089
46	11	Proximity switch (IG3005ANKG ATC)	EA	1	\$82.50	170045	UPI	UPI	94-0089
46	12	IDEC solid state relay (RSSA25A-AC)	EA	4	\$60.65	170047	UPI	UPI	94-0089
46	13	P & B time delay relay (CLF-41-70010)	EA	1	\$87.75	170050	UPI	UPI	94-0089
46	14	3-turn potentiometer (3543S-1 10K)	EA	1	\$28.10	170141	UPI	UPI	94-0089
46	15	NON30 Fuse 30AMP 250VAC bussman	EA	3	\$3.22	170147	UPI	UPI	94-0089
46	16	120V Fuse AC Littlefuse (AGC 3-AMP)	EA	5	\$0.72	170153	UPI	UPI	94-0089
46	17	120V Fuse (3AG-1/2A)	EA	20	\$1.62	170153	UPI	UPI	94-0089
46	18	Reed actuator hamlin (5701)	EA	1	\$8.73	170213	UPI	UPI	94-0089
46	19	Reed switch hamlin (5801)	EA	1	\$21.75	170214	UPI	UPI	94-0089
46	20	Spot relay dayton (5X835)	EA	1	\$14.90	170236	UPI	UPI	94-0089
46	21	Belt (5L340)	EA	1	\$17.78	630596	UPI	UPI	94-0089
46	22	V belt 5L270 dayton	EA	1	\$15.26	63060	UPI	UPI	94-0089
46	23	Bearing schatz (AF-1622)	EA	8	\$7.50	64005	UPI	UPI	94-0089
46	24	Bearing schatz (AF-1628)	EA	8	\$7.50	64004	UPI	UPI	94-0089

EQUIPMENT LIST FOR LAPROMED ORS FACILITY

Item	Sub Item	DESCRIPTION	CAPACITY	QTY	UNIT PRICE	PART NUMBER	SUPPLIER	MANUFACTURER	PO NO.
46	25	Knife blade cello (9 inch, 9.625c/c, 10-1/8LG	EA	12	\$24.60	B30110-1	UPI	UPI	94-0089
46	26	Spring compres. spring engineers	EA	8	\$2.95	66035	UPI	UPI	94-0089
46	27	FL-32-3 Fing bushing 5/16ID x 7/128OD x 3/	EA	16	\$3.50	64058	UPI	UPI	94-0089
46	28	5/16 x 1-1/4" Spoc. HD. shoulder bolt, black	EA	16	\$2.80	61572	UPI	UPI	94-0089
46	29	Super 12DD bearing 3/4" Thompson	EA	8	\$47.50	64040	UPI	UPI	94-0089
46	30	Film cone	EA	2	\$85.50	B00807	UPI	UPI	94-0089
46	31	Brake pulley	EA	1	\$64.25	S21062	UPI	UPI	94-0089
46	32	Film ross shaft 31-5/8" long	EA	1	\$159.74	B20163-1	UPI	UPI	94-0089
46	33	Pulley assembly gerbing speed control (515	EA	1	\$330.10	66007	UPI	UPI	94-0089
46	34	Pneumatic piston repair kit	KIT	1	\$38.75	n/a	UPI	UPI	003895
47	1	Printer, application, dot matrix	EA	1	\$345.00	11277-670	VWR	Ohaus Corp.	025094
47	2	Interface card	EA	1	\$91.85	n/a	VWR	Ohaus Corp.	025094
47	3	Cable	EA	1	\$43.75	n/a	VWR	Ohaus Corp.	025094
47	4	Electrical balance	EA	1	\$24.00	n/a	VWR	Ohaus Corp.	025094
48	1	Vacuum cleaner (12 gal cap., 2 hp)	EA	2	\$77.99	27811	Home Builders	Shop Vac	010995
49	1	Digimatic dial indicator	EA	1	\$372.20	543-146	E.F. Bailey	Mitutoyo	010695
49	2	Dial gauge stand	EA	1	\$175.20	7004	E.F. Bailey	Mitutoyo	010695
49	3	Spindle cable	EA	1	\$18.75	540744	E.F. Bailey	Mitutoyo	010695
49	4	Fiat point (10 mm)	EA	1	\$6.08	10117	E.F. Bailey	Mitutoyo	010695
49	5	Converter from SAE to metric	EA	1	\$4.51	21AAA011	E.F. Bailey	Mitutoyo	010695
50	1	Rubber stamp for QC lab	EA	2	\$11.00	n/a	Sam's Club	n/a	
51	1	Sodium electrode for ph/ion meter	EA	1	\$355.00	34113-779	VWR	VWR	
51	2	Hydro thermometers, dual-scale, digital	EA	2	\$74.00	35519-047	VWR	VWR	
51	3	Min-Max thermometers, dual-scale	EA	3	\$45.00	61-178-121	VWR	VWR	
51	4	Ultrasonic cleaner	EA	1	\$300.00	21812-175	VWR	VWR	

*cancelled
PAP Form
PATH. dated
May 23, 1991*

Jose

LAPEQUIP.WQ1
4/25/95

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A N N E X 6-A

IMMUNIZATION AND ORAL REHYDRATION THERAPY SERVICES
FOR CHILD SURVIVAL PROJECT, No. 520-0339

PROGRAM FOR APPROPRIATE TECHNOLOGY IN HEALTH (PATH)
Contract No. 520-0339-C-00-22344-7

- b. Review commitments and disbursements under individual commitment documents
The PATH's commitment and expenditures of US \$1,501,522.00 is detailed below:

Budget Plan Code	Appropriation Symbol	Committed	US Dollar Expenditures	Balance
LDAA-86-25520-CG-1	72-11M102	400,307.00	400,307.00	0.00
LDCA-87-25520-KG-1	72 x 1021	359,085.00	359,085.00	0.00
LDCA-87-25520-KG-1	72 x 1021	742,130.00	1,406,789.41	94,732.59
T O T A L US \$		1,501,522.00	1,406,789.41	94,732.59

MACS's information dated 04-26-96 indicated last disbursement made on July 1995. Advice of charge of PATH's contract is pending from August to December 1995.

The last financial report from PATH indicated a cumulative expenses of \$1,498,137.77 as of December 1995. USAID/G-CAP is pending to receive advice of charge from USAID/W for the total amount of \$91,348.36 which is the total Project expenditures expect according to information provided by PATH. Upon received the last advice of charge, USAID/G-CAP through RCO will prepare a contract amendment decreasing the amount of \$3,384.23.

A N N E X 6-B

IMMUNIZATION AND ORAL REHYDRATION THERAPY SERVICES
FOR CHILD SURVIVAL PROJECT, No. 520-0339

PROGRAM FOR APPROPRIATE TECHNOLOGY IN HEALTH (PATH)
Contract No. 520-0339-C-00-22344-7

1. Financial and Administrative Close-out:

- a. Review all active USAID-financed contracts to ascertain what, if any, amounts remain to be billed and paid.

Following is the detailed information of PATH's Contract Financial Statement As of December 95.

PATH FINAL FINANCIAL REPORT
US Dollar

ITEM	Current Expenses	Cumulative Expenses	Budget
Salary	2,524.07	260,764.48	270,353.00
Fringe Benefit	678.24	138,017.87	139,610.00
Consultants	6,010.00	30,399.30	28,492.00
Travel	1,558.19	82,611.23	81,579.00
Other Direct Costs	(1,885.78)	107,248.21	110,655.00
Equipment / materials	10,187.58	242,955.37	239,092.00
Contracted Services	500.00	1,671.19	1,171.00
Subcontracts	0.00	367,794.21	363,787.00
G & A	3,466.05	251,842.86	252,311.00
TOTAL	23,038.35	1,483,304.72	1,487,050.00
FIXED FEE	230.38	14,833.05	14,472.00
GRAND TOTAL US	23,268.73	1,498,137.77	1,501,522.00

PROJECT ASSISTANCE COMPLETION REPORT
USAID/G-CAP

**IMMUNIZATION AND ORAL REHYDRATION THERAPY SERVICES FOR CHILD
SURVIVAL PROJECT No. 520-0339**

**CONTRACT No. 520-0339-C-00-2234-07 FOR TECHNICAL ASSISTANCE IN THE DEVELOPMENT
OF LOCAL CAPACITY FOR PRODUCTION OF ORAL REHYDRATION SALTS (ORS)**

I. Introduction

Amendment No. 2 of the Project, dated July 31, 1986, added a component for Oral Rehydration Therapy (ORT) infant/child morbidity and mortality to reduce infant child morbidity and mortality throughout Guatemala due to or correlated with diarrheal disease. The purpose of this component was to increase to 60 % the use of oral rehydration salts use in children under five years age suffering diarrhea. USAID/G-CAP contracted the Program for Appropriate Technology in Health (PATH), under Contract No. 520-0339-C-00-2234-07 since October 10, 1992 through December 31, 1995 to provide technical assistance to the Laboratory for Medical products (LAPROMED), at the Chemical Sciences and Pharmacy Faculty, San Carlos University (USAC), Guatemala to produce high quality oral rehydration packages following WHO norms. An agreement signed between the Ministry and USAC clearly established that the MOH was responsible to promote and distribute the ORS in 27 Health Areas. LAPROMED have been producing more than enough ORS packages to supply the MOH's needs. During years 1994 and 1995 the MOH procured more or less half of the amounts established in the agreement; however, in 1996 the MOH is not honoring the agreement with LAPROMED.

II. Project Status

The work related with production facilities, quality processes, equipment and the final production of salts was completed, currently the LAPROMED's production facilities could compete, in terms of ORS production, with any national or international laboratory. However, several actions will be required to improve ORS use in kids affected by diarrheal diseases. Distribution and marketing of salts is one of the first and most important issues currently affecting LAPROMED. The MOH's policy related with procurement of supplies drastically change this year. This year the MOH initiated the decentralization of its procurement mechanisms, the health areas are now empower to buy their own supplies. In the particular case of ORS procurement, the process is getting to complicated, 27 areas are now responsible to procure ORS instead of the one office at the central level.

During the first ten months of 1996 the health areas are now showing any interest in buying from LAPROMED, instead it seems that health area chiefs are buying from other vendors at higher prices. With the political decisions taken by the MOH LAPROMED is facing a huge challenge to sell its production, first LAPROMED lacks of transportation to place the product in each of the 27 health areas of the country; second, LAPROMED is not registered as a "proveedor calificado" before the Ministry of Finances, the reason is that LAPROMED is part of San Carlos University, thus MOF did not accept LAPROMED as "proveedor calificado" because it has not an OWNER, which is the first condition to get MOF approval to become provider of the public sector; third, in the agreement signed between the MOH and LAPROMED, the MOH committed itself to buy 80% of LAPROMED's production, the MOH is not honoring the agreement. LAPROMED will require technical assistance to develop their marketing and negotiation skills and look

for other potential clients to assure Project sustainability.

In an effort to expand the number of clients, LAPROMED is selling ORS to the Guatemalan Social Security Institute (IGSS) which has become the LAPROMED's most important client, however, IGSS requirements do not allow LAPROMED to reach its break even point to secure sustainability. LAPROMED will continue producing ORS for ADAMED (a private sector firm) and is taken some steps to sell ORS packages to NGOs.

III. Project Accomplishments and recommendations

PATH fully supported LAPROMED and completed the tasks related to its contract which included: remodeling of facilities, installation of ORS production equipment, establishment of quality control measures norms and monitoring, training of LAPROMED's staff. However, the following recommendation should be considering to improve the current achievements:

1. Provide Technical assistance to reinforce and consolidate quality control systems for ORS production.
2. Keep verifying adequateness of storing and management of raw materials.
3. Monitoring for adequate application of quality norms during production process.
4. Support the implementation of external quality control of the terminated product (probably with ADAMED).
5. Verify that LAPROMED is applying all administrative process for elaboration of annual plans, production control, sales control, maintenance, re-training, production costs adjustment studies and meetings for problem solving.
6. Strengthening LAPROMED's capacity for social marketing and negotiation skills to increase potential clients.
7. Develop a strategy towards sustainability of LAPROMED. This strategy might consider improving production process of ORS, adjustment and reduction of production costs.

IV. Financial Report

The total expenditures were \$1,498,137.77 of the \$1,501,522.00 obligated in the contract with PATH. The remaining \$3,384.23 shall be deobligate upon USAID/G-CAP receive the advice of charge from USAID/W.

V. Audit

PATH is a U.S. Firm subject to Office Management Budget (OMB) Circular A-133 regulations. The follow up is done by OP/W.

VI. Project Accomplishments

The remodeling of facilities were completed despite the barriers encountered, the equipment for production was procurement and installed, LAPROMED's staff received training to secure high quality of production.

Standard operating procedures were implemented, a manual for ORS quality control

was developed, a quality audit protocol was developed, the mechanism to developed annual action plans was set.

LAPROMED has produced a total amount of 2,093,567 ORS packets and has sold 1,981,518 ORS, earning Q1,509,189.60.

The MOH distributed 673,00 ORS in 1995 and only 77,000 as of April 30, 1996 to the health areas. Approximately 300,00 ORS is remaining in the DGSS's warehouse.

Promotion and distribution of ORS at the community level is still low. The MOH will need to improve promotion and distribution at the community level to decrease morbidity and mortality caused by diarrheal diseases.

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