

**Marine Maternity Dress Uniform  
Tunic, Skirt, & Slack  
Technical Report**

**Date: November 30, 1999**

Apparel Technology and Research Center  
California State Polytechnic University, Pomona

20000214 082

Prepared By:  
ATRC staff and  
Lynne Uribe, P.E.  
Uribe & Associates  
Mission Viejo, CA

## DISTRIBUTION STATEMENT AUTHORIZATION RECORD

Title: Marine Maternity Dress Uniform  
Tunic, Skirt, and Slack Technical Report

Authorizing Official: Julie T. Tsao

Agency: DLA Ph. No. 767-1413

☐ Internet Document: URL: \_\_\_\_\_  
(DTIC-OCA Use Only)

Distribution Statement: (Authorized by the source above.)

- ☒ A: Approved for public release, distribution unlimited.
- ☐ B: U. S. Government agencies only. (Fill in reason and date applied). Other requests shall be referred to (Insert controlling office).
- ☐ C: U. S. Government agencies and their contractors. (Fill in reason and date applied). Other requests shall be referred to (Insert controlling office).
- ☐ D: DoD and DoD contractors only. (Fill in reason and date applied). Other requests shall be referred to (Insert controlling office).
- ☐ E: DoD components only. (Fill in reason and date applied). Other requests shall be referred to (Insert controlling office).
- ☐ F: Further dissemination only as directed by (Insert controlling DoD office and date), or higher authority.
- ☐ X: U. S. Government agencies and private individuals or enterprises eligible to obtain export-controlled technical data in accordance with DoD Directive 5230.25.

NOTES: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Joyce Keith  
DTIC Point of Contact

15 Feb 2000  
Date

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                                            |                                            |                                                      |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|------------------------------------------------------|--|
| 1. AGENCY USE ONLY (Leave blank)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                             | 2. REPORT DATE<br>November 30, 1999                        |                                            | 3. REPORT TYPE AND DATES COVERED<br>Technical Report |  |
| 4. TITLE AND SUBTITLE<br>DLA Demonstration - Final Technical Report<br>Marine Maternity Dress Uniform<br>Tunic, Skirt & Slack                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                            |                                            | 5. FUNDING NUMBERS<br><br>SPO100-95-D1012            |  |
| 6. AUTHOR(S)<br>Apparel Technology & Research Center<br>Lynne Uribe, P.E. - Uribe & Associates                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |                                                            |                                            |                                                      |  |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)<br><br>Apparel Technology & Research Center<br>Cal Poly Pomona<br>3801 W. Temple Ave., #45<br>Pomona, CA 91768                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             |                                                            |                                            | 8. PERFORMING ORGANIZATION<br>REPORT NUMBER          |  |
| 9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)<br><br>Defense Logistics<br>MMPRT Room 3135<br>8725 John J. Kingman Road, #2533<br>Fort Belvoir, VA 22060-6221                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             |                                                            |                                            | 10. SPONSORING / MONITORING<br>AGENCY REPORT NUMBER  |  |
| 11. SUPPLEMENTARY NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                                            |                                            |                                                      |  |
| 12a. DISTRIBUTION / AVAILABILITY STATEMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |                                                            |                                            | 12b. DISTRIBUTION CODE                               |  |
| 13. ABSTRACT (Maximum 200 Words)<br><br>The Cal Poly Demo (Demo) was funded by the Defense Logistics Agency's (DLA) Apparel Research Network (ARN) to establish a research and demonstration manufacturing activity. The work of the Demo is in support of the DLA and Defense Supply Center, Philadelphia's (DSCP) requirement to provide apparel items to the military services. The Demo was specifically directed to determine true costs and document problems related to the manufacturing of military apparel items. The Cal Poly Demo produces military items in small quantities and used the Marine Maternity Dress Uniform Tunic, Skirt and Slack as one of its study subjects. This report include sthe findings of the study for the Demo's Year 3 manufacturing of the Marine Maternity Dress Uniform Tunic, Skirt and Slack. |                                                             |                                                            |                                            |                                                      |  |
| 14. SUBJECT TERMS<br>Marine Maternity Dress Uniform Tunic, Skirt and Slack                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |                                                            |                                            | 15. NUMBER OF PAGES<br>123                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                                            |                                            | 16. PRICE CODE                                       |  |
| 17. SECURITY CLASSIFICATION<br>OF REPORT<br>unclassified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 18. SECURITY CLASSIFICATION<br>OF THIS PAGE<br>unclassified | 19. SECURITY CLASSIFICATION<br>OF ABSTRACT<br>unclassified | 20. LIMITATION OF ABSTRACT<br>unclassified |                                                      |  |

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std. Z39-18  
298-102

**Marine Maternity Dress Uniform  
Tunic, Skirt, & Slack  
Technical Report**

**Date: November 30, 1999**

Apparel Technology and Research Center  
California State Polytechnic University, Pomona

Prepared By:  
ATRC staff and  
Lynne Uribe, P.E.  
Uribe & Associates  
Mission Viejo, CA

## Foreword

The Apparel Technology and Research Center (Cal Poly Demo) was funded by the Defense Logistics Agency (DLA) Apparel Research Network (ARN) to establish a demonstration and research manufacturing activity. As part of the ARN program, the work of the Cal Poly Demo is in support of the DLA and the Defense Supply Center, Philadelphia by:

1. Conducting studies on costs and problems associated with the manufacturing of military garments;
2. Manufacturing military garments the DSCP had difficulty placing with commercial businesses;
3. Recruiting new businesses to become military contractors through an incubator production program; and
4. Transferring the lessons learned in the demonstration factory to industry through an industry advisory committee, a newsletter, a Home Page and other events and activities.

During the first three years the following military items were produced and studied by the demonstration factory:

- a. Marine men's short sleeve dress shirt
- b. Marine maternity dress uniform - tunic, skirt, and slack
- c. All service Maternity Battle Dress Uniform - coat and slack

The purpose has been to identify and establish measurements and costs at each manufacturing function level as a basis for implementing continuous improvement to lower production costs, decrease lead times and maintain/increase quality levels.

Individual reports will be completed for each of the items above.

This report is for the Marine maternity dress uniform the Cal Poly Demo produced in support of the DSCP's requirement for a difficult to procure items.

## Executive Summary

### Marine Maternity Dress Uniform – Tunic, Skirt and Slack

As stated in the Foreword, the Cal Poly Demo (Cal Poly) was established as part of the Apparel Research Network (ARN) to be a demonstration and research manufacturing activity to support the Defense Logistics Agency (DLA) and the Defense Supply Center, Philadelphia (DSCP). The DSCP is responsible for the placement of military apparel contracts with commercial apparel manufacturers. The Marine Maternity Dress Uniform (MMDU) contract, composed of three items - a tunic, skirt and slack, is a low volume contract the DSCP had experienced difficulty placing. The Cal Poly Demo assisted the DSCP with production of these items after no commercial producer could be identified.

With the MMDU contract, Cal Poly's objectives were two-fold:

1. Assist the DSCP with understanding the labor hours, costs and issues experienced in the manufacturing of a small government contract.
2. Summarize the costs and labor hours for review by a prospective contractor.

For the first objective, the report in sections 2.0 and 3.1 through 3.7 documented all labor hours, costs and issues experienced in the manufacturing of the MMDU tunic, skirt and slack. The second objective is met in section 4.0 where the labor hours and costs are summarized in three tables:

Table 27: Hierarchy Cost with Labor Breakdown

Table 28: Cost Distribution by Hierarchy Level

Table 29: Labor Hours & Cost Distribution by Labor Grade

From the collected information, Cal Poly's manufacturing costs, excluding material costs and freight, for the MMDU garments are as follows:

Tunic \$21.03

Skirt \$9.62

Slack \$11.94

The majority of cost for the production of the garments (greater than 94%) is attributed to the following three factory hierarchy levels and pre-production:

**Table 1: Highest Cost Contributors**

| Hierarchy Level            | Tunic  |     | Skirt  |     | Slack  |     |
|----------------------------|--------|-----|--------|-----|--------|-----|
|                            | Cost   | %   | Cost   | %   | Cost   | %   |
| Sew, Finish & Inspect      | \$7.85 | 37% | \$5.63 | 59% | \$6.83 | 57% |
| Ship & Invoice             | \$6.68 | 32% | \$1.41 | 15% | \$1.95 | 16% |
| Plan & Initiate Production | \$4.31 | 20% | \$1.05 | 11% | \$1.39 | 12% |
| Pre-Production             | \$1.05 | 5%  | \$0.99 | 10% | \$1.05 | 9%  |

As seen in the previous table and as expected, the sewing represents the most significant cost. However, also illustrated and expected, is that for a low volume contract the indirect costs associated with processing and implementing an order (Ship & Invoice and Plan & Initiate Production in the above table) are significant cost contributors as well.

To further illustrate the relationship between order volume and indirect costs, the below table compares the three garments average order quantities and the percentage of indirect cost contribution:

| Garments | Average Units Per Order | Percent Contribution to Mfg. Cost for Plan & Initiate Production and Ship & Invoice Hierarchy Levels |
|----------|-------------------------|------------------------------------------------------------------------------------------------------|
| Tunic    | 2                       | 54%                                                                                                  |
| Slack    | 9                       | 28%                                                                                                  |
| Skirt    | 15                      | 26%                                                                                                  |

Sewing efficiencies are calculated in Section 3.5, Table 20 and as anticipated for low volume production are lower than 100%, as illustrated below:

Tunic 80.29%  
 Skirt 45.03%  
 Slack 55.79%

For the skirt and slack, the above sew efficiencies are extremely low, even for a low volume production. The efficiencies are due to a varying number of operators performing the sewing operations for these garments.

A summary of the issues identified in the report include:

#### Section 2.0: Pre-Production

- The pre-production phase cost of \$5,962, or \$1.05 per unit, for the MMDU contract could be considered too high for a small manufacturer to incur as an up-front expense.
- Also, many small apparel manufacturers lack the working capital to invest in equipment for cutting and pattern making and therefore, are not able to bid for military contracts.

#### Section 3.1: Plan & Initiate Production

- From actual orders, the quantity of garments ordered is 31% less than the contract's projections.

#### Section 3.2: Manage Raw Materials

- An inventory procedure for trim materials needs to be implemented to avoid running out of supplies and stopping production.

#### Section 3.5: Sew, Finish & Inspect

- As previously presented, the sew efficiencies for the skirt and slack are extremely low. The low efficiencies are attributed to non-continuous work and the problems identified in the previous sections.

#### Section 3.6: Manage Finished Goods Inventory

- Cal Poly held a high inventory of tunics against forecasted orders.

#### Section 3.7: Ship & Invoice

- At contract start, Cal Poly experienced difficulty in locating addresses for shipment based on the shipping code. The problem was resolved when the DSCP listed the shipping codes and addresses on its web site.

Based on the findings, Cal Poly could potentially lower costs by:

1. Implementing an inventory control procedure for trim materials to avoid stopping and re-starting of production.
2. Creating a database to input and monitor actual order quantities and trends to optimize production batches without building excessive inventory.
3. Performing additional engineering studies on the sew activities to improve productivity.

In conclusion, the per unit costs of small volume contracts will be proportionately high because indirect costs are absorbed by fewer units. To help lower indirect costs, information systems for receiving orders, checking raw and finished goods inventory levels, and shipping and invoicing need to be linked within the manufacturing facility. By linking the systems, the manual indirect labor involved with communicating production information could greatly be reduced.



# Table of Contents

|                                                    |           |
|----------------------------------------------------|-----------|
| <b>1.0 INTRODUCTION .....</b>                      | <b>8</b>  |
| 1.1 BACKGROUND AND OBJECTIVES.....                 | 8         |
| 1.2 SCOPE .....                                    | 8         |
| 1.3 METHODOLOGY .....                              | 8         |
| <b>2.0 PRE-PRODUCTION COSTS AND ISSUES.....</b>    | <b>10</b> |
| <b>3.0 PRODUCTION COSTS AND ISSUES.....</b>        | <b>13</b> |
| 3.1 PLAN & INITIATE PRODUCTION .....               | 15        |
| 3.2 MANAGE RAW MATERIAL INVENTORY .....            | 18        |
| 3.3 DEVELOP PATTERNS AND MARKERS .....             | 21        |
| 3.4 SPREAD, CUT AND BUNDLE .....                   | 22        |
| 3.5 SEW, FINISH AND INSPECT .....                  | 24        |
| 3.6 MANAGE FINISHED GOODS INVENTORY .....          | 26        |
| 3.7 SHIP & INVOICE.....                            | 28        |
| <b>4.0 SUMMARY OF LABOR HOURS &amp; COSTS.....</b> | <b>31</b> |
| <b>5.0 CONCLUSIONS .....</b>                       | <b>35</b> |
| <b>APPENDIX A.....</b>                             | <b>37</b> |
| <b>APPENDIX B - MODAPTS REPORTS .....</b>          | <b>48</b> |

# List of Tables

|                                                                    |    |
|--------------------------------------------------------------------|----|
| TABLE 1: HIGHEST COST CONTRIBUTORS .....                           | 3  |
| TABLE 2: HOURLY LABOR WAGE & EXPERIENCE LEVEL .....                | 9  |
| TABLE 3: PRE-PRODUCTION COSTS SUMMARY .....                        | 10 |
| TABLE 4: PRE-PRODUCTION COST PER UNIT .....                        | 10 |
| TABLE 5: ACTUAL DELIVERY ORDER DATA .....                          | 13 |
| TABLE 6: AVERAGE QUANTITY ORDERED PER GARMENT .....                | 14 |
| TABLE 7: FOUR MONTH FORECAST BASED ON ACTUAL DELIVERY ORDERS ..... | 14 |
| TABLE 8: UNITS TO BE DELIVERED PER CONTRACT .....                  | 14 |
| TABLE 9: CUTTING DATA .....                                        | 14 |
| TABLE 10: SEWING PRODUCTION DATA.....                              | 14 |
| TABLE 11: MATERIALS LISTING .....                                  | 15 |
| TABLE 12: PLAN & INITIATE PRODUCTION .....                         | 16 |
| TABLE 13: ACTUAL ORDERS VERSUS CONTRACT PROJECTIONS, SUMMARY ..... | 18 |
| TABLE 14: GFM ORDER QUANTITY.....                                  | 19 |
| TABLE 15: MANAGE RAW MATERIALS .....                               | 19 |
| TABLE 16: MARKERS PER UNIT.....                                    | 21 |
| TABLE 17: DEVELOP PATTERNS & MARKERS .....                         | 22 |
| TABLE 18: SPREAD, CUT & BUNDLE.....                                | 23 |
| TABLE 19: EQUIPMENT LISTING .....                                  | 24 |
| TABLE 20: PERCENT EFFICIENCY TO STANDARD.....                      | 25 |
| TABLE 21: PROBLEMS IMPACTING PRODUCTION SUMMARY .....              | 25 |
| TABLE 22: SEW, FINISH & INSPECT.....                               | 26 |

|                                                          |    |
|----------------------------------------------------------|----|
| TABLE 23: APPROXIMATE INVENTORY LEVEL SUPPLY .....       | 26 |
| TABLE 24: FINISHED GOODS INVENTORY .....                 | 27 |
| TABLE 25: COST OF INVENTORY .....                        | 28 |
| TABLE 26: SHIP & INVOICE .....                           | 29 |
| TABLE 27: HIERARCHY COST W/ LABOR BREAKDOWN .....        | 31 |
| TABLE 28: COST DISTRIBUTION BY HIERARCHY LEVEL .....     | 33 |
| TABLE 29: LABOR & COST DISTRIBUTION BY LABOR GRADE ..... | 34 |
| TABLE 30: HIGHEST COST CONTRIBUTORS .....                | 35 |
| TABLE 31: CUT/SPREAD LOG .....                           | 37 |
| TABLE 32: SEW PRODUCTION LOG .....                       | 37 |
| TABLE 33: DELIVERY ORDERS – ACTUAL VS. CONTRACT .....    | 39 |
| TABLE 34: MONTHLY INVENTORY LEVEL .....                  | 39 |
| TABLE 35A, B, C: MATERIAL COST TUNIC, SLACK, SKIRT ..... | 40 |
| TABLE 36: DELIVERY ORDER STATISTICS .....                | 41 |

## List of Figures

|                                            |    |
|--------------------------------------------|----|
| FIGURE 1: FACTORY HIERARCHY .....          | 13 |
| FIGURE 2: PLAN & INITIATE PRODUCTION ..... | 15 |
| FIGURE 3: MANAGE RAW MATERIALS .....       | 18 |
| FIGURE 4: TSS FLOOR LAYOUT .....           | 24 |
| FIGURE 5: SHIP & INVOICE .....             | 28 |

# **1.0 Introduction**

This report is for the Marine Maternity Dress Uniform – Tunic, Skirt and Slack contract.

## **1.1 Background and Objectives**

The Apparel Technology and Research Center (Cal Poly Demo) was funded by the Defense Logistics Agency (DLA) to establish a demonstration and research manufacturing activity to support the DLA and the Defense Supply Center, Philadelphia (DSCP). One area the DSCP requires support in is the placement of military contracts with commercial apparel manufacturers. The Marine Maternity Dress Uniform (MMDU) contract, composed of three items - a tunic, skirt and slack, is a contract the DSCP had experienced difficulty in placing with a commercial producer because of the low volume.

The projected yearly orders were less than 4000 units for all three garments. The DSCP placed the MMDU contract with Cal Poly for the following two objectives:

1. To document, quantitatively and qualitatively by demonstrable samples, all times, procedures, issues and costs encountered in the production of the MMDU.
2. To summarize for a prospective contractor, the costs associated with the low volume production of military contracts.

## **1.2 Scope**

The study scope includes:

1. The summary of findings for the pre-production phase of the contract.
2. The documentation of the direct labor hours, labor costs and issues experienced by Cal Poly in the production of the MMDU.

The time period covered is from Spring 1996 – Summer 1999.

## **1.3 Methodology**

The report results are presented in the below sections:

- 2.0 Pre-Production Hours, Costs and Issues
- 3.0 Production Hours, Costs and Issues
- 4.0 Summary of Labor Hours and Costs

For Section 2.0, the Pre-Production Phase, all information within this report is based on Cal Poly's Indirect Labor Activity Cost Study for a Sample Military Apparel Contract Report<sup>1</sup>.

The information reported in Section 3.0, the production phase, is based on the following:

1. Interviews with Cal Poly's personnel;
2. Cal Poly's reported labor hours, units produced, and units shipped, reference Appendix A;
3. Labor Standards created using TimeQuest for Apparel Manufacturing software program, reference Appendix B.

For establishment of production labor costs the following pay rates from Cal Poly, inclusive of benefits, are used respectively:

**Table 2: Hourly Labor Wage & Experience Level**

| Position                | \$/Hour with Benefits | Experience Level |
|-------------------------|-----------------------|------------------|
| Manufacturing Manager   | \$40.00               | 15+ years        |
| Production Manager      | \$23.81               | 10 years         |
| Production Assistant #1 | \$14.88               | 1 year           |
| Sew Operator            | \$9.00                | Varies           |
| Cutting Operator        | \$10.16               | 8 years          |
| Production Assistant #2 | \$7.12                | 1 year           |
| Machine Technician      | \$23.57               | 27 years         |
| Pattern Maker           | \$35.00               | 15+ years        |

---

<sup>1</sup> The Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, September 21, 1996 can be located on the Apparel Technology & Research Center's web site, <http://ATRC.age.csupomona.edu>.

## 2.0 Pre-Production Costs and Issues

Pursuant to establishing a military contract, the below pre-production expenses are incurred by an apparel manufacturer:

1. Preparation of Specifications
2. Pattern Making
3. Producing of Samples
4. 1<sup>st</sup> Article Approval
5. Establishment of Vendor Relationships for Trim Material

The cost of the activities above are one time and not included under the factory's hierarchy levels defined in sections 3.1 through 3.7 but are to be added to the total cost of the garments in section 4.0.

For the MMDU contract, Cal Poly established a relationship with a commercial manufacturer, Frank Walter Sportswear (FWS), for the pre-production activities of the contract's three garments. Through this relationship, Cal Poly documented all pre-production costs and issues. This information, as previously indicated, can be referenced in the Indirect Labor Activity Cost Study for a Sample Military Apparel Contract Report, submitted September 21, 1996. For this report, the findings of the Indirect Labor Report are summarized.

The indirect labor report calculates a cost of \$5,962.02 for the MMDU pre-production activities and is summarized in the following table.

**Table 3: Pre-Production Costs Summary**

|   | Activity                      | Hours  | Level of Expertise | Cost              |
|---|-------------------------------|--------|--------------------|-------------------|
| 1 | Preparation of Specifications | 14     | Very Experienced   | \$350.00          |
| 2 | Pattern Making                | 3.1    | Experienced        | \$155.00          |
| 3 | Production Coordination       | 28     | Very Experienced   | \$1,818.47        |
| 4 | Cutting Material              | 9.75   | Experienced        | \$247.35          |
| 5 | Production of Samples         | 144.23 | Inexperienced      | \$3,391.20        |
|   |                               |        | <b>Total Cost</b>  | <b>\$5,962.02</b> |

To calculate a per unit cost, the total pre-production cost is divided by the MMDU contract's projected orders of 5,700 garments for 20 months, and is calculated in the following table.

**Table 4: Pre-Production Cost per Unit**

|                                     |                   |
|-------------------------------------|-------------------|
| <b>Total Cost</b>                   | <b>\$5,962.02</b> |
| Contract's Orders to be Delivered   | 5,700             |
| <b>Pre-Production Cost per Unit</b> | <b>\$1.05</b>     |

The issues experienced in the pre-production phase are summarized as follows:

1. Pricing - "Normal practice for pricing is to estimate [the] direct labor costs and multiply by a factor that covers minor overhead and profit. These factors are based on receiving bundles of ready-to-sew materials and production specifications. This project generated much more overhead than is accounted for in the usual factor and is, consequently, invalid and useless for pricing government contracts for military apparel."<sup>2</sup>
2. Military Specifications - "Military specs [specifications] are typically exhaustive and may be difficult for the small manufacturer to convert into production specifications they are used to using in their factory. The specs in this project were riddled with inconsistencies that required 14 hours of expert help to unravel and formulate into usable production spec. In addition, detailed operator instructions are also not provided and so the manufacturing method must be developed by the sewing contractor while making samples."<sup>3</sup> This phase directly contributed to the high cost of Phase 5, Production of Samples, in Table 2.
3. Patterns and Markers - "These were not provided in usable form. The materials provided had to be transformed into usable patterns and markers by a sub-contractor prior to cutting."<sup>4</sup>
4. Coordination with the DSCP - "Coordination with a government agency by floor management at an apparel manufacturer is difficult. Access and availability of immediate answers from government agencies is problematic."<sup>5</sup>

To conclude the pre-production phase, the indirect labor study noted the following:

1. Military Contract Assumptions - "Military contracts generally assume that the contractor will undertake all phases of apparel production from pattern making, to cutting and to sewing. This assumption, however, does not match up with much of Southern California's industry standard practices for small apparel manufacturers. Most manufacturers are specialized in cutting, sewing, or some other phase of apparel manufacturing. A small sewing company, for example, cannot afford the space and overhead of a full-sized cutting operation. They could not keep the cutting area busy enough to justify the overhead. Consequently, in many markets the customer coordinates (or has someone coordinate) manufacturing between small manufacturers [companies] and simply sub-contracts whatever they need. In this study, for example, it was found that Frank Walter Sportswear does not typically do cutting in-house...They receive bundles of already cut pieces which they then assemble."<sup>6</sup>
2. High Pre-Production Cost - The preparation "for production of military apparel is expensive and difficult for a small manufacturer that is used to receiving materials ready to cut or sew...The total up-front cost of \$5,962 is way above industry standard and would not entice a small apparel manufacturer to compete for a contract under normal pricing practices."<sup>7</sup>

The pre-production cost study was completed as a separate activity prior to the actual production of the three items. Pre-production costs were determined according to contract projections

<sup>2</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 4.2.

<sup>3</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 4.3.

<sup>4</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 4.4.

<sup>5</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 4.5.

<sup>6</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 4.1.

<sup>7</sup> Indirect Labor Activity Cost Study for a Sample Military Apparel Contract, section 5.0

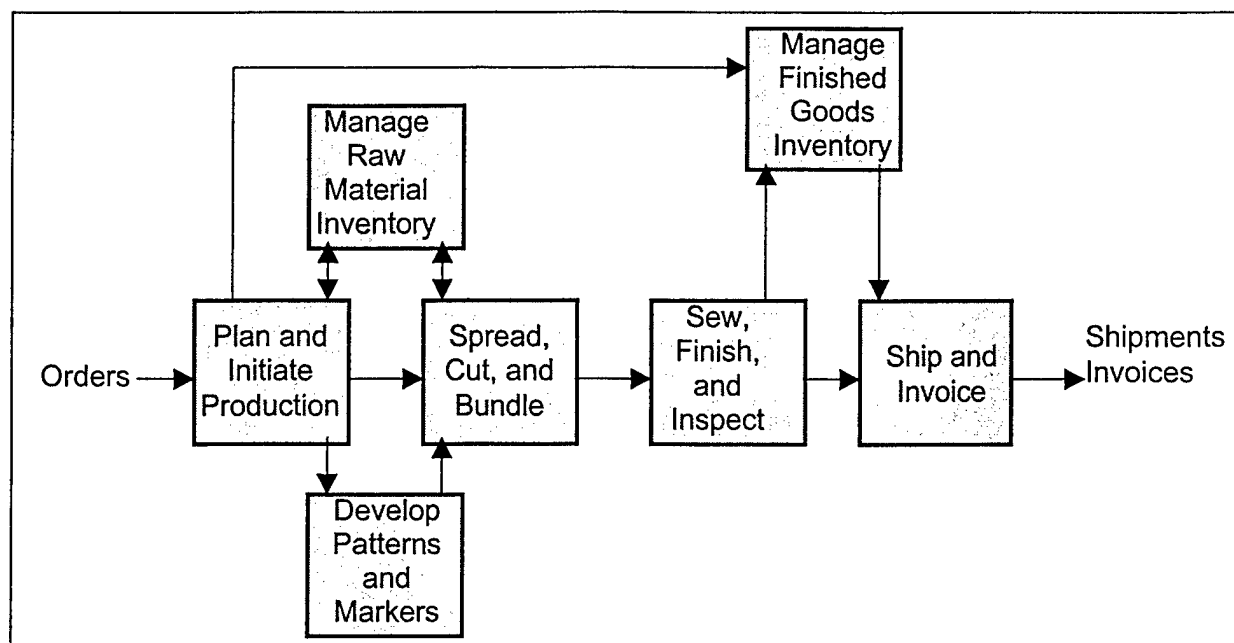
at the time of the study and its publication. As a result pre-production costs were not recalculated because total production for the contract was not yet completed.

Note: Frank Walter Sportswear had planned to produce the MMDU garments after the pre-production phase but went out of business in January 1997. Cal Poly decided to manufacture the MMDU in-house, and is responsible for all manufacturing and shipping processes. Eventually, Cal Poly plans to pass along the contract to a commercial manufacturer.

### 3.0 Production Costs and Issues

Production Costs and Issues are presented based on Cal Poly's factory hierarchy. The seven function levels illustrated in the following diagram represent the factory's structure.

**Figure 1: Factory Hierarchy**



For each of the above functional levels the below items are documented:

- A. Labor Hours & Cost per military garment
- B. Problems \ Solutions \ Comments

To derive a cost per unit, the following order and production statistics are required.

**Table 5: Actual Delivery Order Data**

| # of Delivery Orders                                                                                                                   | Total Units Shipped in 12 months | Average Total Units per Order | Average Units Shipped per Month [(72 orders /12 months) * 26 units] |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------|---------------------------------------------------------------------|
| 72                                                                                                                                     | 1903                             | 26                            | 156                                                                 |
| Garment                                                                                                                                | Total Units Shipped in 12 months | Percent Breakdown             | Average Units Shipped per Month per Garment                         |
| Tunic                                                                                                                                  | 110                              | 6%                            | 9                                                                   |
| Skirt                                                                                                                                  | 1120                             | 59%                           | 92                                                                  |
| Slack                                                                                                                                  | 673                              | 35%                           | 55                                                                  |
| * Data based on delivery orders received from November 1997 – October 1998, reference Appendix A, Table 36: Delivery Order Statistics. |                                  |                               |                                                                     |



**Table 6: Average Quantity Ordered per Garment**

| Item  | Average Total Units per Order | Percent Breakdown | Average Units per Order |
|-------|-------------------------------|-------------------|-------------------------|
| Tunic | 26                            | 6%                | 2                       |
| Skirt | 26                            | 59%               | 15                      |
| Slack | 26                            | 35%               | 9                       |

\* Data based on delivery orders received from November 1997 – October 1998, reference Appendix A, Table 36: Delivery Order Statistics.

**Table 7: Four-Month Forecast Based on Actual Delivery Orders**

| Garment | # of Units per month (ref. Table 5) | # of Units per 4 months |
|---------|-------------------------------------|-------------------------|
| Tunic   | 9                                   | 36                      |
| Skirt   | 92                                  | 368                     |
| Slack   | 55                                  | 220                     |

**Table 8: Units to be Delivered Per Contract**

| Garment | # of Units per 6 months | # of Units per 4 months | # of Units per month |
|---------|-------------------------|-------------------------|----------------------|
| Tunic   | 316                     | 211                     | 53                   |
| Skirt   | 570                     | 380                     | 95                   |
| Slack   | 368                     | 245                     | 61                   |

\* Quantities based on contract SP010095-D-1012/P00017.

**Table 9: Cutting Data**

| Item  | # of Cuts | Total Units Cut | Average Quantity Cut | Average Hours per Unit |
|-------|-----------|-----------------|----------------------|------------------------|
| Tunic | 5         | 601             | 120                  | 0.0469                 |
| Skirt | 6         | 918             | 153                  | 0.0323                 |
| Slack | 4         | 324             | 81                   | 0.0358                 |

\* Reference Appendix A, Table 31 Cut/Spread Log.

**Table 10: Sewing Production Data**

| Item  | # of Runs | Total Units Sewn | Average Run Quantity | Average Hours per Unit |
|-------|-----------|------------------|----------------------|------------------------|
| Tunic | 3         | 110              | 37                   | 0.8727                 |
| Skirt | 8         | 867              | 108                  | 0.6259                 |
| Slack | 6         | 359              | 60                   | 0.7588                 |

\* Reference Appendix A, Table 32 Sew Production Log.

To calculate costs for ordering, handling and holding, raw materials the tunic, skirt and slack are composed of 8, 7 and 7 items, respectively, as illustrated in the following table:

**Table 11: Materials Listing**

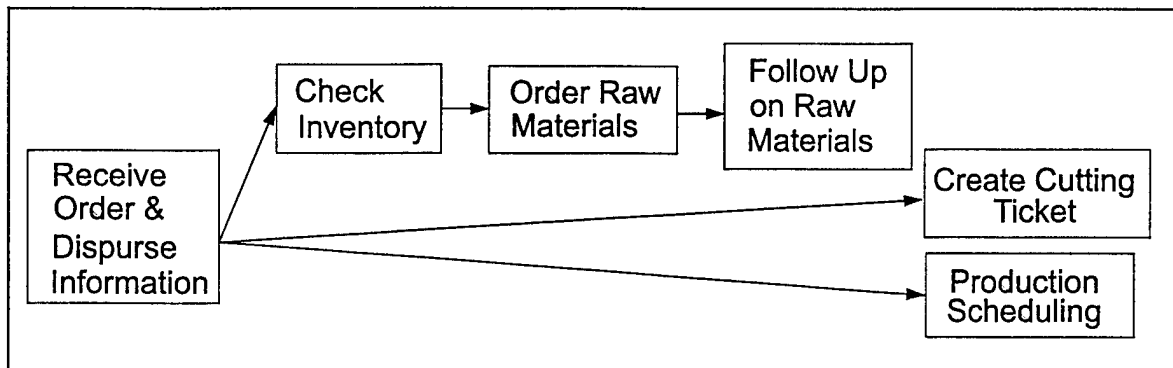
|   | <b>Tunic</b>              |   | <b>Skirt</b>              |   | <b>Slack</b>              |
|---|---------------------------|---|---------------------------|---|---------------------------|
| 1 | Self (Basic Material)     | 1 | Self (Basic Material)     | 1 | Self (Basic Material)     |
| 2 | Interlining               | 2 | Rib                       | 2 | Rib                       |
| 3 | Thread                    | 3 | Thread                    | 3 | Thread                    |
| 4 | Zippers                   | 4 | Elastic                   | 4 | Elastic                   |
| 5 | Fusing                    | 5 | Identification/Care Label | 5 | Identification/Care Label |
| 6 | Identification/Care Label | 6 | Size Label                | 6 | Size Label                |
| 7 | Size Label                | 7 | Bar Code                  | 7 | Bar Code                  |
| 8 | Bar Code                  |   |                           |   |                           |

Garment material costs for the tunic, slack and skirt are \$8.25, \$9.21 and \$8.87 respectively. Breakdowns are in Table 35A, 35 B and 35C in Appendix A.

### 3.1 Plan & Initiate Production

Upon the receipt of a delivery order for the tunic, skirt or slack, the below six steps are followed in the Plan & Initiate Production phase:

**Figure 2: Plan & Initiate Production**



Each of the steps represents a production cost element and is documented in further detail, as shown below:

1. **Receive Initial Order & Disburse Information** - The production manager receives the delivery orders via the Electronic Data Interchange (EDI), version Eagle Translator 4.0. Using EDI, the production manager views the order information on-line and then prints a hard copy of the delivery order to place in a production folder and passes the information to production assistant #1.

2. Check Finished Goods and WIP Inventory – To fulfill the order, production assistant #1 checks the finished goods and work-in-process (WIP) inventory levels on the Automated Supplier Apparel Production web site (ASAP). The results are marked on the hard copy of the delivery order and passed back to the production manager and cutting operator.
3. Check Raw Materials Inventory - The cutting operator determines the quantity of raw materials needed for each ordered garment and checks the raw material inventory for the supplies. The operator reports results back to the production manager.
4. Order Raw Materials - Based on the inventory information the production manager places an order(s) for the needed material(s).
5. Create Cutting Ticket – The production manager completes a cutting ticket (garment, sizes and quantities to be cut) and sends the cutting information to the cutter.
6. Schedule Production – The production manager calculates the sewing hours required and reviews the delivery order shipment dates. Production is then scheduled.

Based on these six cost elements, the labor hours per unit and the costs per unit were derived for the Plan and Initiate Production hierarchy level, as illustrated in the following table:

**Table 12: Plan & Initiate Production**

| <b>Tunic</b> |                                      |                                                    |                      |                     |               |
|--------------|--------------------------------------|----------------------------------------------------|----------------------|---------------------|---------------|
| Step         | Cost Element                         | Calculation                                        | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Receive Order & Disburse Information | (0.25hrs/order * 6% Tunics) / 2 Tunics per order   | 0.0075               | \$23.81             | \$0.18        |
| 2            | Check Finished Goods & WIP Inventory | (0.40 hrs/order * 6%) / 2 Tunics                   | 0.0120               | \$14.88             | \$0.18        |
| 3            | Check Raw Materials Inventory        | 0.08 hrs/item * 8 items / 2 Tunics per order       | 0.3200               | \$10.16             | \$3.25        |
| 4            | Order Raw Materials                  | 0.08 hrs/item * 8 items / 36 Tunics per 4 months   | 0.0178               | \$23.81             | \$0.42        |
| 5            | Create Cutting Ticket                | 0.33 hrs/cut / 120 Tunics/cut                      | 0.0028               | \$23.81             | \$0.07        |
| 6            | Schedule Production                  | 0.25 hrs/run / 28 Tunics/run                       | 0.0089               | \$23.81             | \$0.21        |
|              |                                      | <b>"Tunic" Total</b>                               |                      |                     | <b>\$4.31</b> |
|              |                                      | <b>Labor Grade Totals</b>                          | 0.0370               | \$23.81             | \$0.88        |
|              |                                      |                                                    | 0.0120               | \$14.88             | \$0.18        |
|              |                                      |                                                    | 0.3200               | \$10.16             | \$3.25        |
|              |                                      |                                                    |                      |                     |               |
| <b>Skirt</b> |                                      |                                                    |                      |                     |               |
| Step         | Cost Element                         | Calculation                                        | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Receive Order & Disburse Information | (0.25hrs/order * 59% Skirts) / 15 Skirts per order | 0.0098               | \$23.81             | \$0.23        |

| 2                                                                                                         | Check Finished Goods & WIP Inventory | (0.40 hrs/order * 59%) / 15 Skirts                | 0.0157               | \$14.88             | \$0.23        |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------|----------------------|---------------------|---------------|
| 3                                                                                                         | Check Raw Materials Inventory        | 0.08 hrs/item * 7 items / 15 Skirts per order     | 0.0373               | \$10.16             | \$0.38        |
| 4                                                                                                         | Order Raw Materials                  | 0.08 hrs/item * 7 items / 368 Skirts per 4 months | 0.0015               | \$23.81             | \$0.04        |
| 5                                                                                                         | Create Cutting Ticket                | 0.33 hrs/cut / 153 Skirts/cut                     | 0.0022               | \$23.81             | \$0.05        |
| 6                                                                                                         | Schedule Production                  | 0.25 hrs/run / 108 Skirts/run                     | 0.0023               | \$23.81             | \$0.06        |
|                                                                                                           |                                      | <b>"Skirt" Total</b>                              |                      |                     | <b>\$0.99</b> |
|                                                                                                           |                                      | <b>Labor Grade Totals</b>                         | 0.0158               | \$23.81             | \$0.38        |
|                                                                                                           |                                      |                                                   | 0.0157               | \$14.88             | \$0.23        |
|                                                                                                           |                                      |                                                   | 0.0373               | \$10.16             | \$0.38        |
|                                                                                                           |                                      |                                                   |                      |                     |               |
| <b>Slack</b>                                                                                              |                                      |                                                   |                      |                     |               |
| Step                                                                                                      | Cost Element                         | Calculation                                       | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1                                                                                                         | Receive Order & Disburse Information | (0.25hrs/order * 35% Slacks) / 9 Slacks per order | 0.0097               | \$23.81             | \$0.23        |
| 2                                                                                                         | Check Finished Goods & WIP Inventory | (0.40 hrs/order * 35%) / 9 Slacks                 | 0.0156               | \$14.88             | \$0.23        |
| 3                                                                                                         | Check Raw Materials Inventory        | 0.08 hrs/item * 7 items / 9 Slacks per order      | 0.0622               | \$10.16             | \$0.63        |
| 4                                                                                                         | Order Raw Materials                  | 0.08 hrs/item * 7 items / 220 Slacks              | 0.0025               | \$23.81             | \$0.06        |
| 5                                                                                                         | Create Cutting Ticket                | 0.33 hrs/cut / 81 Slacks/cut                      | 0.0041               | \$23.81             | \$0.10        |
| 6                                                                                                         | Schedule Production                  | 0.25 hrs/run / 45 Slacks/run                      | 0.0056               | \$23.81             | \$0.13        |
|                                                                                                           |                                      | <b>"Slack" Total</b>                              |                      |                     | <b>\$1.39</b> |
|                                                                                                           |                                      | <b>Labor Grade Totals</b>                         | 0.0219               | \$23.81             | \$0.52        |
|                                                                                                           |                                      |                                                   | 0.0156               | \$14.88             | \$0.23        |
|                                                                                                           |                                      |                                                   | 0.0622               | \$10.16             | \$0.63        |
| Note: The Labor Hours used above are estimations provided by Cal Poly's production manager and assistant. |                                      |                                                   |                      |                     |               |

The single issue experienced in the Plan and Initiate Production hierarchy level is documented as follows:

1. Incorrect Contract Forecast – For the three garments, the total units ordered versus the contract's projections were 31% less. The greatest variance is the quantity of tunics actually ordered versus the contract's projections - 55 ordered versus 310 projected, a difference of 464%. These figures are based on data collected during the 12-month period of November 1997 to October 1998 and are summarized in the below table.

**Table 13: Actual Orders versus Contract Projections, Summary**

| Garment       | Actual Orders for 12 month period | Average Orders for 6 month period based on Actual | Contract Orders for 6 months | Difference of Actual minus Contract for 6 months | % Difference |
|---------------|-----------------------------------|---------------------------------------------------|------------------------------|--------------------------------------------------|--------------|
| Tunic         | 110                               | 55                                                | 310                          | -255                                             | 464%         |
| Skirt         | 1120                              | 560                                               | 570                          | -10                                              | 2%           |
| Slack         | 673                               | 337                                               | 368                          | -32                                              | 9%           |
| <b>Totals</b> | <b>1903</b>                       | <b>952</b>                                        | <b>1248</b>                  | <b>-297</b>                                      | <b>31%</b>   |

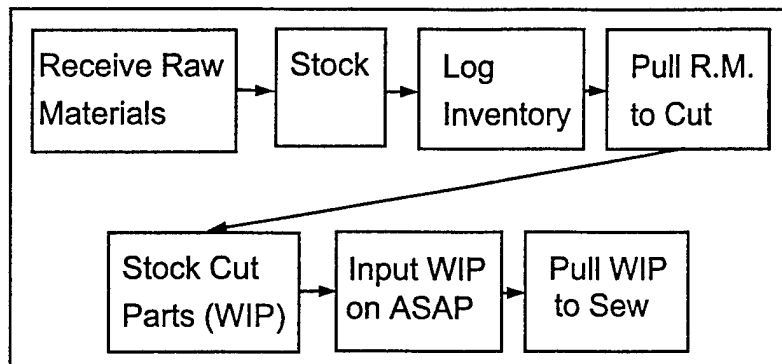
\* Reference Appendix A, Tables 33 & 36: Delivery Orders for data breakdown by size.

At the start of regular production, Cal Poly manufactured the tunics according to the contract's projections. This resulted in a high tunic inventory level of 154 units in January 1998 and Cal Poly stopping all tunic production until November 1998, an eleven-month duration. The stoppage negatively impacted sewing efficiencies.

### 3.2 Manage Raw Material Inventory

Once orders are placed for the raw materials in the Plan and Initiate Production hierarchy level, the Demo performs the following procedure:

**Figure 3: Manage Raw Materials**



Each of the steps represent a production cost element for the Manage Raw Material Inventory hierarchy level and is defined next:

1. Receive Raw Materials - Production assistant #2 receives the raw materials (including government furnished material (GFM)) from the shipper, verifying that the item and the quantity received matches the packing list. No other inspection is performed. Raw materials are received for approximately four months of supply for the three garments, as illustrated in the following table.

**Table 14: GFM Order Quantity**

|                                                        | Yards | Units Ordered* | Total Yards | Yards per Roll | # of Rolls |
|--------------------------------------------------------|-------|----------------|-------------|----------------|------------|
| Tunic                                                  | 1.22  | 36             | 43.92       | 100            | 1.0        |
| Skirt                                                  | 1.33  | 368            | 489.44      | 100            | 5.0        |
| Slack                                                  | 1.44  | 220            | 316.8       | 100            | 4.0        |
| * Units Ordered based on Table 7: Four-Month Forecast. |       |                |             |                |            |

2. Stock Raw Materials - All raw materials and GFM are moved into storage containers by production assistant #2.
3. Inventory Log - Only GFM is logged into inventory. The roll number and quantity received is entered into the logbook.
4. Pull Material for Cutting - The cutting operator obtains the required GFM rolls from inventory and transports the rolls to the spreading table.
5. Stock Cut Parts - After cut and bundle, the cutting operator stocks the prepared parts (work-in-process (WIP)) and reports quantities to production assistant #1.
6. Input WIP on ASAP - Production Assistant #1 inputs the WIP quantities on the Automated Supplier Apparel Production (ASAP) web site.
7. Pull Cut Parts & Trim for Sewing - Production assistant #2 obtains the cut parts and trim supplies from inventory and transports all to the sewing area.

For each of the above cost elements, the labor hours and costs per unit are calculated in the following table:

**Table 15: Manage Raw Materials**

| Tunic |                                |                                                                                                                           |                      |                     |               |
|-------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------|---------------|
| Step  | Cost Element                   | Calculation                                                                                                               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1     | Receive Raw Materials          | $[(0.08 \text{ hrs/item} * 8 \text{ items}) + (0.17 \text{ hrs/roll} * 1 \text{ roll})] / 36 \text{ Tunics per 4 months}$ | 0.0225               | \$7.12              | \$0.1602      |
| 2     | Stock                          | $[(0.08 \text{ hrs/item} * 8 \text{ items}) + (0.08 \text{ hrs/roll} * 1 \text{ roll})] / 36 \text{ Tunics}$              | 0.0200               | \$7.12              | \$0.1424      |
| 3     | Log Inventory, GFM only        | $0.08 \text{ hrs/roll} * 1 \text{ roll} / 36 \text{ Tunics}$                                                              | 0.0022               | \$7.12              | \$0.0158      |
| 4     | Pull Raw Materials for Cutting | $0.06 \text{ hrs/roll} * 1 \text{ roll} / 120 \text{ Tunics}$                                                             | 0.0005               | \$10.16             | \$0.0051      |
| 5     | Stock Cut Parts                | $0.50 \text{ hrs/cut} / 120 \text{ Tunics}$                                                                               | 0.0042               | \$10.16             | \$0.0423      |
| 6     | Input WIP on ASAP              | $0.17 \text{ hrs/cut} / 120 \text{ Tunics}$                                                                               | 0.0014               | \$14.88             | \$0.0211      |
| 7     | Pull Cut Parts & Trim          | $0.25 \text{ hrs/run} / 28 \text{ Tunics/run}$                                                                            | 0.0089               | \$7.12              | \$0.0636      |

|              | for Sewing                       |                                                                                                                             |                      |                     |               |
|--------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------|---------------|
|              |                                  | <b>"Tunic" Total</b>                                                                                                        |                      |                     | <b>\$0.45</b> |
|              |                                  | <b>Labor Grade Totals</b>                                                                                                   | 0.0047               | \$10.16             | \$0.0474      |
|              |                                  |                                                                                                                             | 0.0014               | \$14.88             | \$0.0211      |
|              |                                  |                                                                                                                             | 0.0537               | \$7.12              | \$0.3820      |
|              |                                  |                                                                                                                             |                      |                     |               |
| <b>Skirt</b> |                                  |                                                                                                                             |                      |                     |               |
| Step         | Cost Element                     | Calculation                                                                                                                 | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Receive Raw Materials            | $[(0.08 \text{ hrs/item} * 7 \text{ items}) + (0.17 \text{ hrs/roll} * 5 \text{ rolls})] / 368 \text{ Skirts per 4 months}$ | 0.0038               | \$7.12              | \$0.0273      |
| 2            | Stock                            | $[(0.08 \text{ hrs/item} * 7 \text{ items}) + (0.08 \text{ hrs/roll} * 5 \text{ rolls})] / 368 \text{ Skirts per 4 months}$ | 0.0026               | \$7.12              | \$0.0186      |
| 3            | Log Inventory, GFM only          | 0.08 hrs/roll * 5 roll / 368 Skirts                                                                                         | 0.0011               | \$7.12              | \$0.0077      |
| 4            | Pull Raw Materials for Cutting   | 0.06 hrs/roll * 5 roll/153 Skirts                                                                                           | 0.0020               | \$10.16             | \$0.0199      |
| 5            | Stock Cut Parts                  | 0.50 hrs/cut / 153 Skirts                                                                                                   | 0.0033               | \$10.16             | \$0.0332      |
| 6            | Input WIP on ASAP                | 0.17 hrs/cut / 153 Skirts                                                                                                   | 0.0011               | \$14.88             | \$0.0165      |
| 7            | Pull Cut Parts & Trim for Sewing | 0.25 hrs/run / 108 Skirts/run                                                                                               | 0.0023               | \$7.12              | \$0.0165      |
|              |                                  | <b>"Skirt" Total</b>                                                                                                        |                      |                     | <b>\$0.14</b> |
|              |                                  | <b>Labor Grade Totals</b>                                                                                                   | 0.0052               | \$10.16             | \$0.0531      |
|              |                                  |                                                                                                                             | 0.0011               | \$14.88             | \$0.0165      |
|              |                                  |                                                                                                                             | 0.0098               | \$7.12              | \$0.0701      |
|              |                                  |                                                                                                                             |                      |                     |               |
| <b>Slack</b> |                                  |                                                                                                                             |                      |                     |               |
| Step         | Cost Element                     | Calculation                                                                                                                 | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Receive Raw Materials            | $[(0.08 \text{ hrs/item} * 7 \text{ items}) + (0.17 \text{ hrs/roll} * 4 \text{ rolls})] / 220 \text{ Slacks per 4 months}$ | 0.0060               | \$7.12              | \$0.0427      |
| 2            | Stock                            | $[(0.08 \text{ hrs/item} * 7 \text{ items}) + (0.08 \text{ hrs/roll} * 4 \text{ rolls})] / 220 \text{ Slacks per 4 months}$ | 0.0044               | \$7.12              | \$0.0311      |
| 3            | Log Inventory, GFM only          | 0.08 hrs/roll * 4 rolls / 220 Slacks                                                                                        | 0.0015               | \$7.12              | \$0.0104      |
| 4            | Pull Raw Materials for Cutting   | 0.06 hrs/roll * 4 rolls/81 Slacks                                                                                           | 0.0030               | \$10.16             | \$0.0301      |
| 5            | Stock Cut Parts                  | 0.50 hrs/cut / 81 Slacks                                                                                                    | 0.0062               | \$10.16             | \$0.0627      |
| 6            | Input WIP on ASAP                | 0.17 hrs/cut / 81 Slacks                                                                                                    | 0.0021               | \$14.88             | \$0.0312      |
| 7            | Pull Cut Parts & Trim for Sewing | 0.25 hrs/run / 45 Slacks/run                                                                                                | 0.0056               | \$7.12              | \$0.0396      |
|              |                                  | <b>"Slack" Total</b>                                                                                                        |                      |                     | <b>\$0.25</b> |
|              |                                  | <b>Labor Grade Totals</b>                                                                                                   | 0.0091               | \$10.16             | \$0.0928      |
|              |                                  |                                                                                                                             | 0.0021               | \$14.88             | \$0.0312      |

|  |  |  |        |        |          |
|--|--|--|--------|--------|----------|
|  |  |  | 0.0174 | \$7.12 | \$0.1237 |
|--|--|--|--------|--------|----------|

Note: the Cal Poly production manager bases The above Labor Hours on estimations.

The problem experienced in the Manage Raw Materials hierarchy level is:

1. **Storage Problem** – The MMDU tunic, skirt and slack require a total of 9 additional trim materials, excluding government furnished material, for construction. Reference section 3.0 for the material listing of each garment. For two of the trim materials, the size and bar code labels, 15 types of labels are ordered to account for the 5 different garment sizes. Cal Poly experienced difficulty in the inventory process due to the large variety and quantity of trim materials. No formal inventory accounting system is in place at Cal Poly.

In the spring of 1999, a direct result of Cal Poly's inventory difficulty occurred with a lack of adequate supply for bias seam tape for the tunic. This problem stopped production of the tunic at the bias operation. The impact was lower sewing efficiencies due to additional material handling and stopping/re-starting the tunic sew operations.

As stated in Cal Poly's Maternity Battle Dress Uniform – Technical Report, to resolve the inventory problem Cal Poly needs to develop a procedure for the inventory of the garments' trim materials. The procedure is to include steps for:

- Initially logging the items and quantities received from a vendor.
- Storing the items in individual containers.
- Logging out used quantities.

### 3.3 Develop Patterns and Markers

In section 2.0 – Pre-Production Costs, the expense of developing patterns and markers for the MMDU tunic, slack and skirt is calculated. Within this section, the continual labor costs for the rework of patterns and markers, and the printing of markers per production cut are calculated. From Cal Poly's cutting log for December 1998 – June 1999 (reference Appendix A, Table 31 for complete cutting data), the number of markers per unit is derived for each garment in the below table.

**Table 16: Markers per Unit**

|              | # of Markers<br>Used | Units Cut | Markers per<br>Unit |
|--------------|----------------------|-----------|---------------------|
| <b>Tunic</b> | 23                   | 601       | 0.0383              |
| <b>Skirt</b> | 12                   | 918       | 0.0131              |
| <b>Slack</b> | 9                    | 324       | 0.0278              |

The figures above are used for the labor and cost allocation for the Develop Patterns and Markers hierarchy level. The labor and costs per unit are illustrated in the below table.



**Table 17: Develop Patterns & Markers**

| <b>Tunic</b> |                                |                                          |                             |                            |                      |
|--------------|--------------------------------|------------------------------------------|-----------------------------|----------------------------|----------------------|
| <b>Step</b>  | <b>Cost Element</b>            | <b>Calculation</b>                       | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Print Markers                  | 0.20 hrs/marker * 0.0383 markers/tunic   | 0.0077                      | \$10.16                    | \$0.08               |
| 2            | Rework Tunic Pattern & Grading | 1.5 hrs / 2016 contract est. total units | 0.0007                      | \$35.00                    | \$0.03               |
| 3            | Rework Tunic Markers           | 2.0 hrs / 2016 contract est. total units | 0.0010                      | \$35.00                    | \$0.03               |
|              |                                | <b>"Tunic" Total</b>                     |                             |                            | <b>\$0.14</b>        |
|              |                                | <b>Labor Grade Totals</b>                | 0.0077                      | \$10.16                    | \$0.08               |
|              |                                |                                          | 0.0007                      | \$35.00                    | \$0.03               |
|              |                                |                                          |                             |                            |                      |
| <b>Skirt</b> |                                |                                          |                             |                            |                      |
| <b>Step</b>  | <b>Cost Element</b>            | <b>Calculation</b>                       | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Print Markers                  | 0.20 hrs/marker * 0.0131 markers/skirt   | 0.0026                      | \$10.16                    | \$0.03               |
|              |                                | <b>"Skirt" Total</b>                     |                             |                            | <b>\$0.03</b>        |
|              |                                | <b>Labor Grade Totals</b>                | 0.0026                      | \$10.16                    | \$0.03               |
|              |                                |                                          |                             |                            |                      |
| <b>Slack</b> |                                |                                          |                             |                            |                      |
| <b>Step</b>  | <b>Cost Element</b>            | <b>Calculation</b>                       | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Print Markers                  | 0.20 hrs/marker * 0.0278 markers/slack   | 0.0056                      | \$10.16                    | \$0.06               |
|              |                                | <b>"Slack" Total</b>                     |                             |                            | <b>\$0.06</b>        |
|              |                                | <b>Labor Grade Totals</b>                | 0.0056                      | \$10.16                    | \$0.06               |
|              |                                |                                          |                             |                            |                      |

\* The cutting operator and the pattern maker base Labor hours on estimations.

The problem experienced in the Develop Patterns and Markers hierarchy level is:

1. Low Pocket Placement – Marine Corp personnel indicated the pocket on the tunic was placed to low on the garment as a result the pocket hung lower than the bottom hem. In January 1999, the DSCP approved a pattern change and Cal Poly reduced the size of the pocket and raised the alignment notches on the body of the garment. The problem was corrected with these changes. The pattern maker spent an estimated 1.5 hours correcting the pattern and grading, and 2.0 hours reworking the markers for all the tunic sizes.

### 3.4 Spread, Cut and Bundle

For each cut, one or more markers are used depending upon the number of sizes cut. The three stages of the cutting process are defined below:

1. Spread – Due to the low volume, the marker length and sets of cut parts vary with each cut.
2. Cut - Cal Poly uses Lectra Cutter Machine, Vector 2500.
3. Bundle - The cutting operator prints bundle tickets and places them with each bundle. The bundles are placed in boxes for storage.

To derive a cost for the spread, cut and bundle operation, the labor rates calculated from actual hours and units produced is used and previously illustrated in Table 8: Cutting Data. The labor rates for each garment are calculated to determine the costs for the tunic, slack and skirt.

**Table 18: Spread, Cut & Bundle**

| <b>Tunic</b>                                                                                                                            |                      |                           |                      |                     |               |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|----------------------|---------------------|---------------|
| Step                                                                                                                                    | Cost Element         | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1                                                                                                                                       | Spread, Cut & Bundle | 0.0469 hrs/unit           | 0.0469               | \$10.16             | \$0.48        |
|                                                                                                                                         |                      | <b>"Tunic" Total</b>      |                      |                     | <b>\$0.48</b> |
|                                                                                                                                         |                      | <b>Labor Grade Totals</b> | 0.0469               | \$10.16             | \$0.48        |
| <b>Skirt</b>                                                                                                                            |                      |                           |                      |                     |               |
| Step                                                                                                                                    | Cost Element         | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1                                                                                                                                       | Spread, Cut & Bundle | 0.0323 hrs/unit           | 0.0323               | \$10.16             | \$0.33        |
|                                                                                                                                         |                      | <b>"Skirt" Total</b>      |                      |                     | <b>\$0.33</b> |
|                                                                                                                                         |                      | <b>Labor Grade Totals</b> | 0.0323               | \$10.16             | \$0.33        |
| <b>Slack</b>                                                                                                                            |                      |                           |                      |                     |               |
| Step                                                                                                                                    | Cost Element         | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1                                                                                                                                       | Spread, Cut & Bundle | 0.0358 hrs/unit           | 0.0358               | \$10.16             | \$0.36        |
|                                                                                                                                         |                      | <b>"Slack" Total</b>      |                      |                     | <b>\$0.36</b> |
|                                                                                                                                         |                      | <b>Labor Grade Totals</b> | 0.0358               | \$10.16             | \$0.36        |
| * The labor hours above are based on Cal Poly's cutting operator's log of reported hours and units cut, reference Appendix A, Table 31. |                      |                           |                      |                     |               |

The problem encountered in the Spread, Cut and Bundle hierarchy level is:

1. Small Lot Manufacturing – Due to the small lot size of each of the garments' multiple sizes, the time spent spreading, cutting and bundling becomes proportionately higher. The only way to reduce the cutting cost is to cut more of each size per marker. However, this could result in a high inventory of cut parts.

### 3.5 Sew, Finish and Inspect

Cal Poly produces the MMDU tunic, skirt and slack using the Toyota Sew System (TSS). The TSS was selected for manufacturing the garments because it is the fastest method for producing a finished product. With TSS, a garment is walked through all of the sewing operations. There is no staging of bundles at sew operations. Also, TSS requires the least number of employees. Cal Poly only assigns two sew operators for the manufacturing of the MMDU garments. One sew operator has remained constant with the entire production run of the MMDU contract. The second operator changes and is pulled from one of the other sew teams on an as needed basis. For these reasons, the TSS was determined to be the best method for producing low volume garments with a short 14-day lead-time, as is the case of the MMDU contract.

The layout of the equipment used for production of the MMDU is illustrated and described in the below figure and table.

Figure 4: TSS Floor Layout

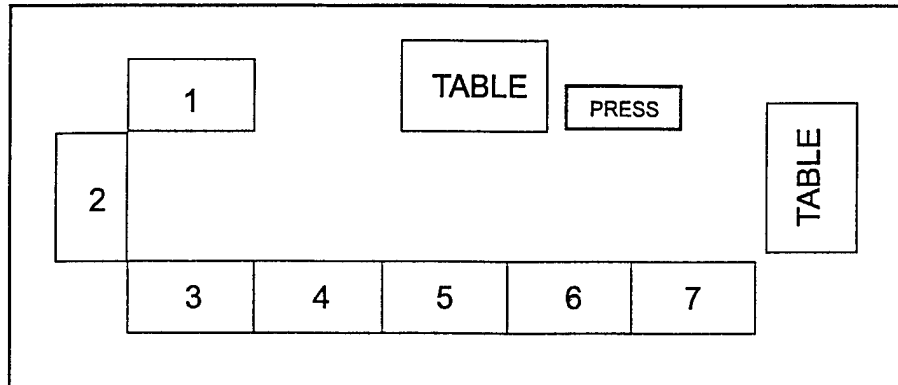


Table 19: Equipment Listing

| Location # | Machine Description  | MFE Name              |
|------------|----------------------|-----------------------|
| 1          | 5 Thread Overlock    | Brother M4-V61-955    |
| 2          | 3 Thread Overlock    | Singer 831U           |
| 3          | Single Needle – Auto | Juki DDL-5550N-7      |
| 4          | Single Needle – Auto | Brother DB2-B737413   |
| 5          | 5 Thread Overlock    | Brother M4-V61-955    |
| 6          | Blind Stitch         | Union Special 376002C |
| 7          | Bar Tack             | Juki LK-1852          |
| Press      | Steam Iron           | Sussman Aqua Gold     |

The maternity tunic has far more construction features including a front pleat/yoke treatment, a zipper and facings, pockets and bartacking. The slack and skirt are plain, pull-on styles with elasticized waists requiring far less construction time.

In the following table the percent efficiency to standard for each garment is calculated.

**Table 20: Percent Efficiency to Standard**

|                                                                                                                                                                                   | SAM's  | SAH's | Actual "Average" Hours (per Reported Hours & Units) | % Efficiency to SAH's |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------|-----------------------|
| Tunic                                                                                                                                                                             | 42.041 | 0.701 | 0.873                                               | 80.29%                |
| Skirt                                                                                                                                                                             | 16.910 | 0.282 | 0.626                                               | 45.03%                |
| Slack                                                                                                                                                                             | 25.398 | 0.423 | 0.759                                               | 55.79%                |
| - Reference Appendix B – For complete documentation of SAM's per operation.<br>- Reference Section 3.0, Table 10 – Sew Production Data for computation of Actual "Average" Hours. |        |       |                                                     |                       |

The low sew efficiencies can be attributed to several factors:

1. Non-continuous Work – Based on the average units per month and the average sew hours per unit (reference tables 6 & 9 in section 3.0), the MMDU contract averages 107.16 sew, finish and inspect labor hours. For the TSS two person team working a combined 80 hours per week, the MMDU contract provides approximately 1.34 weeks of work per month (107.16 divided by 80). This low volume of work does not allow the operators to become 100% efficient.
2. Problems from Previous Sections – The problems identified in the previous sections also directly impact sew efficiencies, and are summarized below.
3. Change in Number of Operators -- Sewing efficiencies for the slack and skirt were less than the tunic because the number of operators producing these items was oftentimes as few as one operator. In addition, the operators were not always the same individuals. The irregularity in the orders caused a lack of stability in the module used to produce the items. Efficiencies on the tunic were higher due to the same operators being used each time to produce the tunics. The more complex garment required operators with experience.

**Table 21: Problems Impacting Production Summary**

| Section                        | Problem                            | Impact on Production                                                                                                                                                                              |
|--------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 Plan & Initiate Production | Incorrect Contract Forecast        | Due to the lack of tunic orders, Cal Poly incurred a high inventory of tunics and stopped production for an eleven-month duration. The lack of continuity results in a loss of sewing efficiency. |
| 3.2 Manage Raw Materials       | Storage Problem for Trim Materials | Lack of bias seam tape for the tunic stopped production, causing an increase in material handling and a loss of sewing efficiency.                                                                |
| 3.4 Spread, Cut, & Bundle      | Small Lot Size                     | Small bundle sizes lower sew efficiencies due to the material handling being divided by a small quantity of units.                                                                                |

To increase production efficiency and reduce costs, each of the issues listed needs to be addressed. For possible solutions to the problems, reference the identified sections in this report.

For the Sew, Finish and Inspect hierarchy cost calculation, the labor rate is based on the actual reported hours and units produced December 1998 – June 1999, reference Appendix A – Table 32: Sew Production Data for further documentation. The labor and costs per unit are shown in the following table:

**Table 22: Sew, Finish & Inspect**

| <b>Tunic</b> |                         |                           |                      |                     |               |
|--------------|-------------------------|---------------------------|----------------------|---------------------|---------------|
| Step         | Cost Element            | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Sew, Finish and Inspect | 0.8727 hrs/unit           | 0.8727               | \$9.00              | \$7.85        |
|              |                         | <b>"Tunic" Total</b>      |                      |                     | <b>\$7.85</b> |
|              |                         | <b>Labor Grade Totals</b> | 0.8727               | \$9.00              | \$7.85        |
|              |                         |                           |                      |                     |               |
| <b>Skirt</b> |                         |                           |                      |                     |               |
| Step         | Cost Element            | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Sew, Finish and Inspect | 0.6259 hrs/unit           | 0.6259               | \$9.00              | \$5.63        |
|              |                         | <b>"Skirt" Total</b>      |                      |                     | <b>\$5.63</b> |
|              |                         | <b>Labor Grade Totals</b> | 0.6259               | \$9.00              | \$5.63        |
|              |                         |                           |                      |                     |               |
| <b>Slack</b> |                         |                           |                      |                     |               |
| Step         | Cost Element            | Calculation               | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1            | Sew, Finish and Inspect | 0.7588 hrs/unit           | 0.7588               | \$9.00              | \$6.83        |
|              |                         | <b>"Slack" Total</b>      |                      |                     | <b>\$6.83</b> |
|              |                         | <b>Labor Grade Totals</b> | 0.7588               | \$9.00              | \$6.83        |
|              |                         |                           |                      |                     |               |

\* Labor rates are above are based on reported production hours and units, reference Appendix A, Table 32 – Sew Production Data.

### 3.6 Manage Finished Goods Inventory

For the MMDU contract, Cal Poly maintained an inventory for the three garments. The average monthly inventory levels and approximate number of months of supply are reported below:

**Table 23: Approximate Inventory Level Supply**

| Garment                                                                                                                                                                                                                                                             | Actual Orders per Month | Ave. Monthly Inventory Level | Approximate # of Months of Supply |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|-----------------------------------|
| Tunic                                                                                                                                                                                                                                                               | 9                       | 126                          | 14.00                             |
| Skirt                                                                                                                                                                                                                                                               | 92                      | 135                          | 1.47                              |
| Slack                                                                                                                                                                                                                                                               | 55                      | 56                           | 1.02                              |
| <ul style="list-style-type: none"> <li>For computation of Actual Orders per Month, reference Section 3.0, Table 5: Actual Delivery Order Data.</li> <li>For computation of Average Monthly Inventory Level, reference Table 34: Monthly Inventory Level.</li> </ul> |                         |                              |                                   |

The cost elements of the Manage Finished Goods Inventory hierarchy level are attributed to the following:

1. The stocking and logging of the garments in Cal Poly's inventory by production assistant #2.
2. The inputting of the inventory figures on the Automated Supplier Apparel Production (ASAP) web site by production assistant #1.

The labor and cost per unit are illustrated in the following table:

**Table 24: Finished Goods Inventory**

| <b>Tunic</b> |                         |                               |                             |                            |                      |
|--------------|-------------------------|-------------------------------|-----------------------------|----------------------------|----------------------|
| <b>Step</b>  | <b>Cost Element</b>     | <b>Calculation</b>            | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Stock Finished Goods    | 0.0048 hrs/unit               | 0.0048                      | \$7.12                     | \$0.0342             |
| 2            | Input Inventory on ASAP | 0.0833 hrs/ 28 units/sew run  | 0.0030                      | \$14.88                    | \$0.0443             |
|              |                         | <b>"Tunic" Total</b>          |                             |                            | <b>\$0.08</b>        |
|              |                         | <b>Labor Grade Totals</b>     | 0.0048                      | \$7.12                     | \$0.0342             |
|              |                         |                               | 0.0030                      | \$14.88                    | \$0.0443             |
| <b>Skirt</b> |                         |                               |                             |                            |                      |
| <b>Step</b>  | <b>Cost Element</b>     | <b>Calculation</b>            | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Stock Finished Goods    | 0.0048 hrs/unit               | 0.0048                      | \$7.12                     | \$0.0342             |
| 2            | Input Inventory on ASAP | 0.0833 hrs/ 108 units/sew run | 0.0008                      | \$14.88                    | \$0.0115             |
|              |                         | <b>"Skirt" Total</b>          |                             |                            | <b>\$0.05</b>        |
|              |                         | <b>Labor Grade Totals</b>     | 0.0048                      | \$7.12                     | \$0.0342             |
|              |                         |                               | 0.0008                      | \$14.88                    | \$0.0115             |
| <b>Slack</b> |                         |                               |                             |                            |                      |
| <b>Step</b>  | <b>Cost Element</b>     | <b>Calculation</b>            | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Stock Finished Goods    | 0.0048 hrs/unit               | 0.0048                      | \$7.12                     | \$0.0342             |
| 2            | Input Inventory on ASAP | 0.0833 hrs/ 45 units/sew run  | 0.0019                      | \$14.88                    | \$0.0275             |
|              |                         | <b>"Slack" Total</b>          |                             |                            | <b>\$0.06</b>        |
|              |                         | <b>Labor Grade Totals</b>     | 0.0048                      | \$7.12                     | \$0.0342             |
|              |                         |                               | 0.0019                      | \$14.88                    | \$0.0275             |

\* The Labor Hours used above are estimations provided by Cal Poly's production manager.

The following issues were experienced within the Finished Goods Inventory hierarchy level.

1. High Tunic Inventory – As stated in the Plan & Initiate Production Hierarchy, section 3.1, due to an incorrect forecast Cal Poly built a large inventory of tunics. Based on ordering data, it was calculated in Table 22 that there was a 14-month supply of tunics.

These units represent both a physical cost and an opportunity cost for Cal Poly. The physical cost is the material cost and the labor hours spent to produce the tunics, and is illustrated in the following table:

**Table 25: Cost of Inventory**

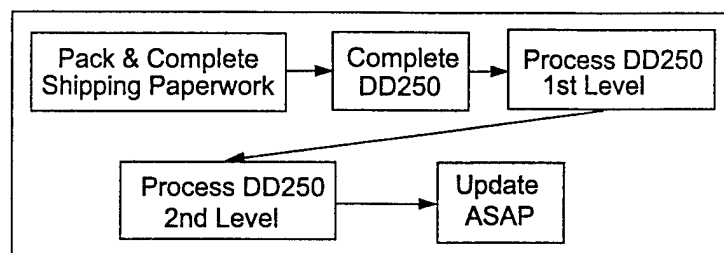
|                                                                                        | Cost/Unit | Ave. Monthly Inventory Level | Total Cost        |
|----------------------------------------------------------------------------------------|-----------|------------------------------|-------------------|
| Materials' Cost                                                                        | \$8.25    | 126                          | \$1,039.50        |
| 3.4 Cut                                                                                | \$0.48    | 126                          | \$60.48           |
| 3.5 Sew, Finish & Inspect                                                              | \$7.85    | 126                          | \$989.10          |
|                                                                                        |           | <b>Total</b>                 | <b>\$2,089.08</b> |
| * For Materials' Cost breakdown, reference Appendix A, Table 35 – Material Cost Tunic. |           |                              |                   |

The opportunity cost is the loss of the production hours spent producing the tunics that could have been used to produce other money generating garments. The additional risk of carrying inventory with a low turnover rate, 14 months for the tunic, is that the product may become obsolete and costs are never recovered. In this particular case, the DSCP consumed all of the old style tunic before placing orders for the new style.

### 3.7 Ship & Invoice

For the MMDU contract, Cal Poly performs the steps illustrated in the following figure to ship and invoice the tunic, skirt and slack:

**Figure 5: Ship & Invoice**



Each of the steps above represents a cost element in the Ship and Invoice hierarchy level and are defined in further detail below:

1. Pack & Complete Shipper Paperwork - Production assistant #2 packs the final shipment boxes, secures the boxes with tape, identifies shipping addresses and completes shipping paperwork.
2. Complete DD250 – Production manager completes all fields on the DD250 form.
3. Process DD250, 1<sup>st</sup> Level - Cal Poly's military accounts administrator reviews the DD250, signs off on the production batch sheet, logs the order into a spreadsheet, posts the order to

the Cal Poly's internal financial ledger, copies the DD250 for filing and sends the original DD250 to Foundation for billing.

4. Process DD250, 2<sup>nd</sup> Level - The Cal Poly Demo Director reviews and signs off the DD250.
5. Update Inventory on ASAP – Production Assistant #2 updates finished goods inventory on the Automated Supplier Apparel Production (ASAP) web site.

The following table illustrates the labor hours and costs per unit for each of the defined cost elements for the Ship and Invoice hierarchy level.

**Table 26: Ship & Invoice**

| <b>Tunic</b> |                                   |                                       |                             |                            |                      |
|--------------|-----------------------------------|---------------------------------------|-----------------------------|----------------------------|----------------------|
| <b>Step</b>  | <b>Cost Element</b>               | <b>Calculation</b>                    | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Pack & Complete Shipper Paperwork | 0.0843 Hrs/unit                       | 0.0843                      | \$7.12                     | \$0.6002             |
| 2            | Complete DD250                    | 0.1667 Hrs/Shipment / 2 tunics/order  | 0.0834                      | \$23.81                    | \$1.9846             |
| 3            | Process DD250, 1st Level          | 0.33 hrs/shipment / 2                 | 0.0165                      | \$19.67                    | \$0.3246             |
| 4            | Process DD250, 2nd Level          | 0.08 hrs/shipment / 2                 | 0.0400                      | \$78.69                    | \$3.1476             |
| 5            | Input Inventory on ASAP           | 0.0833 hrs/shipment / 2               | 0.0417                      | \$14.88                    | \$0.6198             |
|              |                                   | <b>"Tunic" Total</b>                  |                             |                            | <b>\$6.68</b>        |
|              |                                   | <b>Labor Grade Totals</b>             | 0.0400                      | \$78.69                    | \$3.1476             |
|              |                                   |                                       | 0.0834                      | \$23.81                    | \$1.9846             |
|              |                                   |                                       | 0.0165                      | \$19.67                    | \$0.3246             |
|              |                                   |                                       | 0.0417                      | \$14.88                    | \$0.6198             |
|              |                                   |                                       | 0.0843                      | \$7.12                     | \$0.6002             |
|              |                                   |                                       |                             |                            |                      |
| <b>Skirt</b> |                                   |                                       |                             |                            |                      |
| <b>Step</b>  | <b>Cost Element</b>               | <b>Calculation</b>                    | <b>Labor Hours per Unit</b> | <b>Labor Rate per Hour</b> | <b>Cost per Unit</b> |
| 1            | Pack & Complete Shipper Paperwork | 0.0843 Hrs/unit                       | 0.0843                      | \$7.12                     | \$0.6002             |
| 2            | Complete DD250                    | 0.1667 Hrs/Shipment / 15 skirts/order | 0.0111                      | \$23.81                    | \$0.2646             |
| 3            | Process DD250, 1st Level          | 0.33 hrs/shipment / 15                | 0.0022                      | \$19.67                    | \$0.0433             |
| 4            | Process DD250, 2nd Level          | 0.08 hrs/shipment / 15                | 0.0053                      | \$78.69                    | \$0.4197             |
| 5            | Input Inventory on ASAP           | 0.0833 hrs/shipment / 15              | 0.0056                      | \$14.88                    | \$0.0826             |
|              |                                   | <b>"Skirt" Total</b>                  |                             |                            | <b>\$1.41</b>        |
|              |                                   | <b>Labor Grade Totals</b>             | 0.0053                      | \$78.69                    | \$0.4197             |
|              |                                   |                                       | 0.0111                      | \$23.81                    | \$0.2646             |
|              |                                   |                                       | 0.0022                      | \$19.67                    | \$0.0433             |
|              |                                   |                                       | 0.0056                      | \$14.88                    | \$0.0826             |
|              |                                   |                                       | 0.0843                      | \$7.12                     | \$0.6002             |
|              |                                   |                                       |                             |                            |                      |



| Slack                                                                                                 |                                   |                                      |                      |                     |               |
|-------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------|----------------------|---------------------|---------------|
| Step                                                                                                  | Cost Element                      | Calculation                          | Labor Hours per Unit | Labor Rate per Hour | Cost per Unit |
| 1                                                                                                     | Pack & Complete Shipper Paperwork | 0.0843 Hrs/unit                      | 0.0843               | \$7.12              | \$0.6002      |
| 2                                                                                                     | Complete DD250                    | 0.1667 Hrs/Shipment / 9 slacks/order | 0.0185               | \$23.81             | \$0.4410      |
| 3                                                                                                     | Process DD250, 1st Level          | 0.33 hrs/shipment / 9                | 0.0037               | \$19.67             | \$0.0721      |
| 4                                                                                                     | Process DD250, 2nd Level          | 0.08 hrs/shipment / 9                | 0.0089               | \$78.69             | \$0.6995      |
| 5                                                                                                     | Input Inventory on ASAP           | 0.0833 hrs/shipment / 9              | 0.0093               | \$14.88             | \$0.1377      |
|                                                                                                       |                                   | <b>"Slack" Total</b>                 |                      |                     | <b>\$1.95</b> |
|                                                                                                       |                                   | <b>Labor Grade Totals</b>            | 0.0089               | \$78.69             | \$0.6995      |
|                                                                                                       |                                   |                                      | 0.0185               | \$23.81             | \$0.4410      |
|                                                                                                       |                                   |                                      | 0.0037               | \$19.67             | \$0.0721      |
|                                                                                                       |                                   |                                      | 0.0093               | \$14.88             | \$0.1377      |
|                                                                                                       |                                   |                                      | 0.0843               | \$7.12              | \$0.6002      |
| * The Labor Hours used above are estimations provided by Cal Poly's production manager and assistant. |                                   |                                      |                      |                     |               |

The only problem experienced in the Ship & Invoice hierarchy level follows.:

1. Address Availability – At the start of the MMDU contract the addresses for the destination codes were not easily available. This was a frustration because the MMDU are custom ordered and shipped to many different locations around the world. DSCP eliminated the problem in Fall of 1998 by the providing the addresses on its web site.

## 4.0 Summary of Labor Hours & Costs

Based on the previous sections 2.0 and 3.1 through 3.7, the below table is created illustrating the Hierarchy Costs with Labor Breakdown for the MMDU tunic, skirt and slack.

**Table 27: Hierarchy Cost w/ Labor Breakdown**

| Tunic   |                                 |                                      |             |                                     |                                         |
|---------|---------------------------------|--------------------------------------|-------------|-------------------------------------|-----------------------------------------|
| Section | Cost Element                    | Total Hours per Unit per Labor Grade | \$ per Hour | Total Cost per Unit per Labor Grade | Total Cost per Unit per Hierarchy Level |
| 2.0     | Pre-Production                  | ---                                  | ---         | \$1.0500                            | \$1.05                                  |
| 3.1     | Plan & Initiate Production      | 0.0370                               | \$23.81     | \$0.8799                            | \$4.31                                  |
|         |                                 | 0.0120                               | \$14.88     | \$0.1786                            |                                         |
|         |                                 | 0.3200                               | \$10.16     | \$3.2512                            |                                         |
| 3.2     | Manage Raw Materials            | 0.0047                               | \$10.16     | \$0.0474                            | \$0.45                                  |
|         |                                 | 0.0014                               | \$14.88     | \$0.0211                            |                                         |
|         |                                 | 0.0537                               | \$7.12      | \$0.3820                            |                                         |
| 3.3     | Develop Patterns & Markers      | 0.0077                               | \$10.16     | \$0.0778                            | \$0.14                                  |
|         |                                 | 0.0017                               | \$35.00     | \$0.0608                            |                                         |
| 3.4     | Spread, Cut & Bundle            | 0.0469                               | \$10.16     | \$0.4765                            | \$0.48                                  |
| 3.5     | Sew, Finish & Inspect           | 0.8727                               | \$9.00      | \$7.8543                            | \$7.85                                  |
| 3.6     | Manage Finished Goods Inventory | 0.0048                               | \$7.12      | \$0.0342                            | \$0.08                                  |
|         |                                 | 0.0030                               | \$14.88     | \$0.0443                            |                                         |
| 3.7     | Ship & Invoice                  | 0.0400                               | \$78.69     | \$3.1476                            | \$6.68                                  |
|         |                                 | 0.0834                               | \$23.81     | \$1.9846                            |                                         |
|         |                                 | 0.0165                               | \$19.67     | \$0.3246                            |                                         |
|         |                                 | 0.0417                               | \$14.88     | \$0.6198                            |                                         |
|         |                                 | 0.0843                               | \$7.12      | \$0.6002                            |                                         |
|         | <b>Tunic Total</b>              | <b>1.6313</b>                        | <b>---</b>  | <b>\$21.0347</b>                    | <b>\$21.03</b>                          |
|         | <b>Tunic Total + Materials</b>  |                                      |             |                                     | <b>\$29.28</b>                          |

| Skirt   |                            |                                      |             |                                     |                                         |
|---------|----------------------------|--------------------------------------|-------------|-------------------------------------|-----------------------------------------|
| Section | Cost Element               | Total Hours per Unit per Labor Grade | \$ per Hour | Total Cost per Unit per Labor Grade | Total Cost per Unit per Hierarchy Level |
| 2.0     | Pre-Production             | ---                                  | ---         | \$1.0500                            | \$1.05                                  |
| 3.1     | Plan & Initiate Production | 0.0158                               | \$23.81     | \$0.3768                            | \$0.99                                  |
|         |                            | 0.0157                               | \$14.88     | \$0.2341                            |                                         |
|         |                            | 0.0373                               | \$10.16     | \$0.3793                            |                                         |
| 3.2     | Manage Raw Materials       | 0.0052                               | \$10.16     | \$0.0531                            | \$0.14                                  |
|         |                            | 0.0011                               | \$14.88     | \$0.0165                            |                                         |
|         |                            | 0.0098                               | \$7.12      | \$0.0701                            |                                         |
| 3.3     | Develop Patterns & Markers | 0.0026                               | \$10.16     | \$0.0266                            | \$0.03                                  |

|     |                                 |               |            |                 |                |
|-----|---------------------------------|---------------|------------|-----------------|----------------|
| 3.4 | Spread, Cut & Bundle            | 0.0323        | \$10.16    | \$0.3282        | \$0.33         |
| 3.5 | Sew, Finish & Inspect           | 0.6259        | \$9.00     | \$5.6331        | \$5.63         |
| 3.6 | Manage Finished Goods Inventory | 0.0048        | \$7.12     | \$0.0342        | \$0.05         |
|     |                                 | 0.0008        | \$14.88    | \$0.0115        |                |
| 3.7 | Ship & Invoice                  | 0.0053        | \$78.69    | \$0.4197        | \$1.41         |
|     |                                 | 0.0111        | \$23.81    | \$0.2646        |                |
|     |                                 | 0.0022        | \$19.67    | \$0.0433        |                |
|     |                                 | 0.0056        | \$14.88    | \$0.0826        |                |
|     |                                 | 0.0843        | \$7.12     | \$0.6002        |                |
|     | <b>Skirt Total</b>              | <b>0.8600</b> | <b>---</b> | <b>\$9.2958</b> | <b>\$9.62</b>  |
|     | <b>Skirt total + Materials</b>  |               |            |                 | <b>\$18.49</b> |

| Slack   |                                 |                                      |             |                                     |                                         |
|---------|---------------------------------|--------------------------------------|-------------|-------------------------------------|-----------------------------------------|
| Section | Cost Element                    | Total Hours per Unit per Labor Grade | \$ per Hour | Total Cost per Unit per Labor Grade | Total Cost per Unit per Hierarchy Level |
| 2.0     | Pre-Production                  | ---                                  | ---         | \$1.0500                            | \$1.05                                  |
| 3.1     | Plan & Initiate Production      | 0.0219                               | \$23.81     | \$0.5214                            | \$1.39                                  |
|         |                                 | 0.0156                               | \$14.88     | \$0.2315                            |                                         |
|         |                                 | 0.0622                               | \$10.16     | \$0.6322                            |                                         |
| 3.2     | Manage Raw Materials            | 0.0091                               | \$10.16     | \$0.0928                            | \$0.25                                  |
|         |                                 | 0.0021                               | \$14.88     | \$0.0312                            |                                         |
|         |                                 | 0.0174                               | \$7.12      | \$0.1237                            |                                         |
| 3.3     | Develop Patterns & Markers      | 0.0056                               | \$10.16     | \$0.0565                            | \$0.06                                  |
| 3.4     | Spread, Cut & Bundle            | 0.0358                               | \$10.16     | \$0.3637                            | \$0.36                                  |
| 3.5     | Sew, Finish & Inspect           | 0.7588                               | \$9.00      | \$6.8292                            | \$6.83                                  |
| 3.6     | Manage Finished Goods Inventory | 0.0048                               | \$7.12      | \$0.0342                            | \$0.06                                  |
|         |                                 | 0.0019                               | \$14.88     | \$0.0275                            |                                         |
| 3.7     | Ship & Invoice                  | 0.0089                               | \$78.69     | \$0.6995                            | \$1.95                                  |
|         |                                 | 0.0185                               | \$23.81     | \$0.4410                            |                                         |
|         |                                 | 0.0037                               | \$19.67     | \$0.0721                            |                                         |
|         |                                 | 0.0093                               | \$14.88     | \$0.1377                            |                                         |
|         |                                 | 0.0843                               | \$7.12      | \$0.6002                            |                                         |
|         | <b>Slack Total</b>              | <b>1.0597</b>                        | <b>---</b>  | <b>\$11.9445</b>                    | <b>\$11.94</b>                          |
|         | <b>Slack Total + Materials</b>  |                                      |             |                                     | <b>\$21.15</b>                          |

The next table, Cost Distribution by Hierarchy Level, illustrates the percent contribution for each hierarchy to the garments' total cost:

**Table 28: Cost Distribution by Hierarchy Level**

| Tunic   |                                 |                |                 |
|---------|---------------------------------|----------------|-----------------|
| Section | Hierarchy Level                 | Cost per Unit  | % of Total Cost |
| 2.0     | Pre-Production                  | \$1.05         | 4.99%           |
| 3.1     | Plan & Initiate Production      | \$4.31         | 20.49%          |
| 3.2     | Manage Raw Materials            | \$0.45         | 2.14%           |
| 3.3     | Develop Patterns & Markers      | \$0.14         | 0.66%           |
| 3.4     | Spread, Cut & Bundle            | \$0.48         | 2.27%           |
| 3.5     | Sew, Finish & Inspect           | \$7.85         | 37.35%          |
| 3.6     | Manage Finished Goods Inventory | \$0.08         | 0.37%           |
| 3.7     | Ship & Invoice                  | \$6.68         | 31.75%          |
|         | <b>Total</b>                    | <b>\$21.03</b> | <b>100%</b>     |

| Skirt   |                                 |               |                 |
|---------|---------------------------------|---------------|-----------------|
| Section | Hierarchy Level                 | Cost per Unit | % of Total Cost |
| 2.0     | Pre-Production                  | \$1.05        | 10.91%          |
| 3.1     | Plan & Initiate Production      | \$0.99        | 10.29%          |
| 3.2     | Manage Raw Materials            | \$0.14        | 1.45%           |
| 3.3     | Develop Patterns & Markers      | \$0.03        | 0.28%           |
| 3.4     | Spread, Cut & Bundle            | \$0.33        | 3.41%           |
| 3.5     | Sew, Finish & Inspect           | \$5.63        | 58.56%          |
| 3.6     | Manage Finished Goods Inventory | \$0.05        | 0.47%           |
| 3.7     | Ship & Invoice                  | \$1.41        | 14.66%          |
|         | <b>Total</b>                    | <b>\$9.62</b> | <b>100%</b>     |

| Slack   |                                 |                |                 |
|---------|---------------------------------|----------------|-----------------|
| Section | Hierarchy Level                 | Cost per Unit  | % of Total Cost |
| 2.0     | Pre-Production                  | \$1.05         | 8.79%           |
| 3.1     | Plan & Initiate Production      | \$1.39         | 11.60%          |
| 3.2     | Manage Raw Materials            | \$0.25         | 2.07%           |
| 3.3     | Develop Patterns & Markers      | \$0.06         | 0.47%           |
| 3.4     | Spread, Cut & Bundle            | \$0.36         | 3.05%           |
| 3.5     | Sew, Finish & Inspect           | \$6.83         | 57.20%          |
| 3.6     | Manage Finished Goods Inventory | \$0.06         | 0.52%           |
| 3.7     | Ship & Invoice                  | \$1.95         | 16.34%          |
|         | <b>Total</b>                    | <b>\$11.94</b> | <b>100%</b>     |

The final table, Labor & Cost Distribution by Pay Grade, summarizes the labor hours spent by each pay grade in the manufacturing of the MMDU garments. Also, calculated is the percent contribution of each pay grade to the garment's cost.

**Table 29: Labor & Cost Distribution by Labor Grade**

| Tunic                   |                      |                        |             |                |                 |
|-------------------------|----------------------|------------------------|-------------|----------------|-----------------|
| Position                | Labor Hours per Unit | % of Total Labor Hours | \$ per Hour | Cost per Unit  | % of Total Cost |
| Pre-Production          | ---                  | ---                    | ---         | \$1.05         | 5%              |
| Cal Poly Demo Director  | 0.0400               | 2%                     | \$78.69     | \$3.15         | 15%             |
| Production Manager      | 0.1203               | 7%                     | \$23.81     | \$2.86         | 14%             |
| Production Assistant #1 | 0.0580               | 4%                     | \$14.88     | \$0.86         | 4%              |
| Accounts Administrator  | 0.0165               | 1%                     | \$19.67     | \$0.32         | 2%              |
| Cutting Operator        | 0.3792               | 23%                    | \$10.16     | \$3.85         | 18%             |
| Sew Operator            | 0.8727               | 53%                    | \$9.00      | \$7.85         | 37%             |
| Production Assistant #2 | 0.1428               | 9%                     | \$7.12      | \$1.02         | 5%              |
| Pattern Maker           | 0.0017               | 0%                     | \$35.00     | \$0.06         | 0%              |
| <b>Total</b>            | <b>1.6313</b>        | <b>100%</b>            |             | <b>\$21.03</b> | <b>100%</b>     |

| Skirt                   |                      |                        |             |               |                 |
|-------------------------|----------------------|------------------------|-------------|---------------|-----------------|
| Position                | Labor Hours per Unit | % of Total Labor Hours | \$ per Hour | Cost per Unit | % of Total Cost |
| Pre-Production          | ---                  | ---                    | ---         | \$1.05        | 11%             |
| Cal Poly Demo Director  | 0.0053               | 1%                     | \$78.69     | \$0.42        | 4%              |
| Production Manager      | 0.0269               | 3%                     | \$23.81     | \$0.64        | 7%              |
| Production Assistant #1 | 0.0232               | 3%                     | \$14.88     | \$0.34        | 4%              |
| Accounts Administrator  | 0.0022               | 0%                     | \$19.67     | \$0.04        | 0%              |
| Cutting Operator        | 0.0775               | 9%                     | \$10.16     | \$0.79        | 8%              |
| Sew Operator            | 0.6259               | 73%                    | \$9.00      | \$5.63        | 59%             |
| Production Assistant #2 | 0.0989               | 12%                    | \$7.12      | \$0.70        | 7%              |
| Pattern Maker           | 0.0000               | 0%                     | \$35.00     | \$0.00        | 0%              |
| <b>Total</b>            | <b>0.8600</b>        | <b>100%</b>            |             | <b>\$9.62</b> | <b>100%</b>     |

| Slack                   |                      |                        |             |                |                 |
|-------------------------|----------------------|------------------------|-------------|----------------|-----------------|
| Position                | Labor Hours per Unit | % of Total Labor Hours | \$ per Hour | Cost per Unit  | % of Total Cost |
| Pre-Production          | ---                  | ---                    | ---         | \$1.05         | 9%              |
| Cal Poly Demo Director  | 0.0089               | 1%                     | \$78.69     | \$0.70         | 6%              |
| Production Manager      | 0.0404               | 4%                     | \$23.81     | \$0.96         | 8%              |
| Production Assistant #1 | 0.0288               | 3%                     | \$14.88     | \$0.43         | 4%              |
| Accounts Administrator  | 0.0037               | 0%                     | \$19.67     | \$0.07         | 1%              |
| Cutting Operator        | 0.1127               | 11%                    | \$10.16     | \$1.15         | 10%             |
| Sew Operator            | 0.7588               | 72%                    | \$9.00      | \$6.83         | 57%             |
| Production Assistant #2 | 0.1065               | 10%                    | \$7.12      | \$0.76         | 6%              |
| Pattern Maker           | 0.0000               | 0%                     | \$35.00     | \$0.00         | 0%              |
| <b>Total</b>            | <b>1.0597</b>        | <b>100%</b>            |             | <b>\$11.94</b> | <b>100%</b>     |

## 5.0 Conclusions

This report's purpose is to illustrate what costs are incurred by a low volume manufacturing facility for a small government contract. From the collected information, Cal Poly's manufacturing costs, excluding material costs and freight, for the MMDU garments are as follows:

Tunic \$21.03  
Skirt \$9.62  
Slack \$11.94

The majority of cost for the production of the garments (greater than 94%) is attributed to the following three factory hierarchy levels and pre-production:

**Table 30: Highest Cost Contributors**

| Hierarchy Level            | Tunic  |     | Skirt  |     | Slack  |     |
|----------------------------|--------|-----|--------|-----|--------|-----|
|                            | Cost   | %   | Cost   | %   | Cost   | %   |
| Sew, Finish & Inspect      | \$7.85 | 37% | \$5.63 | 59% | \$6.83 | 57% |
| Ship & Invoice             | \$6.68 | 32% | \$1.41 | 15% | \$1.95 | 16% |
| Plan & Initiate Production | \$4.31 | 20% | \$1.05 | 11% | \$1.39 | 12% |
| Pre-Production             | \$1.05 | 5%  | \$0.99 | 10% | \$1.05 | 9%  |

As seen in the above table and as expected, the sewing represents the most significant cost. However, also illustrated and expected, is that for a low volume contract the indirect costs associated with processing and implementing an order (Ship & Invoice and Plan & Initiate Production in the above table) are significant cost contributors.

To further illustrate the relationship between order volume and indirect costs, the below table compares the three garments average order quantities and the percentage of indirect cost contribution:

| Garments | Average Units Per Order | Percent Contribution to Mfg. Cost for Plan & Initiate Production and Ship & Invoice Hierarchy Levels |
|----------|-------------------------|------------------------------------------------------------------------------------------------------|
| Tunic    | 2                       | 54%                                                                                                  |
| Slack    | 9                       | 28%                                                                                                  |
| Skirt    | 15                      | 26%                                                                                                  |

Sewing efficiencies, as anticipated for low volume production, are lower than 100%. The sewing efficiencies calculated in Section 3.5, Table 20 are:

Tunic 80.29%  
Skirt 45.03%  
Slack 55.79%

For the skirt and slack, the above sew efficiencies are extremely low, even for low volume production.

Based on the findings, Cal Poly could lower total costs by:

1. Implementing an inventory control procedure for trim materials to avoid stopping and re-starting of the production process.
2. Creating a database to input and monitor actual order quantities and trends to optimize production batches without building excessive inventory.
3. Performing additional engineering studies on the sew activities to improve productivity.

In conclusion, the per unit costs of small volume contracts will be proportionately high because indirect costs are absorbed by fewer units. To help lower indirect costs, information systems for receiving orders, checking raw and finished goods inventory levels, and shipping and invoicing need to be linked within the manufacturing facility. By linking the systems, the manual (indirect) labor involved with communicating production information can be greatly reduced.

## Appendix A

The following data tables were obtained from Cal Poly's production logs for the stated time period.

**Table 31: Cut/Spread Log**

| Tunic Cut/Spread Log |       |       |              |
|----------------------|-------|-------|--------------|
| Date/Cut             | Pcs   | Hours |              |
| Jan99 #2040          | 76    | 5.5   |              |
| Feb99 #2051          | 161   | 7.42  |              |
| Mar99 #2057          | 121   | 5.17  |              |
| Mar99 #2065          | 137   | 6.17  |              |
| May99 #2070          | 106   | 3.92  | Ave Hrs/unit |
| Totals               | 601   | 28.18 | 0.046888519  |
| Ave Cut Qty          | 120.2 |       |              |
|                      |       |       |              |
|                      |       |       |              |
| Skirt Cut/Spread Log |       |       |              |
| Date/Cut             | Pcs   | Hours |              |
| Dec-98               | 132   | 3.5   |              |
| Jan99 #2039          | 40    | 1.5   |              |
| Jan99 #2041          | 10    | 1.17  |              |
| Feb99 #2050          | 328   | 8.92  |              |
| Mar99 #2060          | 100   | 2.92  |              |
| Apr99 #2068          | 308   | 11.67 | Ave Hrs/unit |
| Totals               | 918   | 29.68 | 0.032331155  |
| Ave Cut Qty          | 153   |       |              |
|                      |       |       |              |
|                      |       |       |              |
| Slack Cut/Spread Log |       |       |              |
| Date/Cut             | Pcs   | Hours |              |
| Feb99 #2049          | 232   | 6.42  |              |
| May99 #2069          | 50    | 2     |              |
| May99 #2073          | 32    | 2.5   |              |
| Jun99 #2074          | 10    | 0.67  | Ave Hrs/unit |
| Totals               | 324   | 11.59 | 0.035771605  |
| Ave Cut Qty          | 81    |       |              |

**Table 32: Sew Production Log**

| Tunic Sew Production Log |     |       |              |
|--------------------------|-----|-------|--------------|
| Date                     | Pcs | Hours |              |
| Nov-98                   | 71  | 50.5  |              |
| Jan-99                   | 6   | 7     |              |
| May-99                   | 33  | 38.5  |              |
|                          |     |       | Ave Hrs/unit |



|                                                                   |            |              |                     |
|-------------------------------------------------------------------|------------|--------------|---------------------|
| <b>Totals</b>                                                     | 110        | 96           | 0.87272727          |
| <b>Ave Run Qty.</b>                                               | 27.5       |              |                     |
| * Data is from Cal Poly's Monthly Reports for stated time period. |            |              |                     |
|                                                                   |            |              |                     |
| <b>Skirt Sew Production Log</b>                                   |            |              |                     |
| <b>Date</b>                                                       | <b>Pcs</b> | <b>Hours</b> |                     |
| Mar-98                                                            | 131        | 65           |                     |
| Apr-98                                                            | 165        | 72           |                     |
| May-98                                                            | 13         | 13           |                     |
| Jun-98                                                            | 190        | 85           |                     |
| Jul-98                                                            | 86         | 43.15        |                     |
| Aug-98                                                            | 78         | 70           |                     |
| Sep-98                                                            | 124        | 130          |                     |
| Oct-98                                                            | 80         | 64.5         |                     |
|                                                                   |            |              | <b>Ave Hrs/unit</b> |
| <b>Totals</b>                                                     | 867        | 542.65       | 0.62589388          |
| <b>Ave Run Qty.</b>                                               | 108.375    |              |                     |
| * Data is from Cal Poly's Monthly Reports for stated time period. |            |              |                     |
|                                                                   |            |              |                     |
| <b>Slack Sew Production Log</b>                                   |            |              |                     |
| <b>Date</b>                                                       | <b>Pcs</b> | <b>Hours</b> |                     |
| Mar-98                                                            | 39         | 35           |                     |
| Apr-98                                                            | 45         | 40           |                     |
| May-98                                                            | 37         | 39.5         |                     |
| Jun-98                                                            | 97         | 86           |                     |
| Jul-98                                                            | 72         | 44           |                     |
| Aug-98                                                            | 0          | 0            |                     |
| Sep-98                                                            | 0          | 0            |                     |
| Oct-98                                                            | 0          | 0            |                     |
| Nov-98                                                            | 69         | 27.9         |                     |
|                                                                   |            |              | <b>Ave Hrs/unit</b> |
| <b>Totals</b>                                                     | 359        | 272.4        | 0.75877437          |
| <b>Ave Run Qty.</b>                                               | 44.875     |              |                     |
| * Data is from Cal Poly's Monthly Reports for stated time period. |            |              |                     |

**Table 33: Delivery Orders – Actual vs. Contract**

| Tunic         |                                         |                                                         |                                 |                                                        |
|---------------|-----------------------------------------|---------------------------------------------------------|---------------------------------|--------------------------------------------------------|
| Size          | Actual Orders<br>for 12 month<br>period | Average Orders<br>for 6 month period<br>based on Actual | Contract Orders for<br>6 months | Difference of Actual<br>minus Contract for 6<br>months |
| X Small       | 0                                       | 0                                                       | 20                              | -20                                                    |
| Small         | 13                                      | 7                                                       | 46                              | -39                                                    |
| Medium        | 41                                      | 21                                                      | 145                             | -124                                                   |
| Large         | 52                                      | 26                                                      | 99                              | -73                                                    |
| X Large       | 4                                       | 2                                                       | 0                               | 2                                                      |
| <b>Totals</b> | <b>110</b>                              | <b>56</b>                                               | <b>310</b>                      | <b>-254</b>                                            |

| Skirt         |                                         |                                                         |                                 |                                                        |
|---------------|-----------------------------------------|---------------------------------------------------------|---------------------------------|--------------------------------------------------------|
| Size          | Actual Orders<br>for 12 month<br>period | Average Orders<br>for 6 month period<br>based on Actual | Contract Orders for<br>6 months | Difference of Actual<br>minus Contract for 6<br>months |
| X Small       | 52                                      | 26                                                      | 15                              | 11                                                     |
| Small         | 212                                     | 106                                                     | 120                             | -14                                                    |
| Medium        | 524                                     | 262                                                     | 285                             | -23                                                    |
| Large         | 332                                     | 166                                                     | 135                             | 31                                                     |
| X Large       | 0                                       | 0                                                       | 15                              | -15                                                    |
| <b>Totals</b> | <b>1120</b>                             | <b>560</b>                                              | <b>570</b>                      | <b>-10</b>                                             |

| Slack         |                                         |                                                         |                                 |                                                        |
|---------------|-----------------------------------------|---------------------------------------------------------|---------------------------------|--------------------------------------------------------|
| Size          | Actual Orders<br>for 12 month<br>period | Average Orders<br>for 6 month period<br>based on Actual | Contract Orders for<br>6 months | Difference of Actual<br>minus Contract for 6<br>months |
| X Small       | 57                                      | 29                                                      | 26                              | 3                                                      |
| Small         | 136                                     | 68                                                      | 86                              | -18                                                    |
| Medium        | 280                                     | 140                                                     | 125                             | 15                                                     |
| Large         | 199                                     | 100                                                     | 125                             | -26                                                    |
| X Large       | 1                                       | 1                                                       | 6                               | -6                                                     |
| <b>Totals</b> | <b>673</b>                              | <b>337</b>                                              | <b>368</b>                      | <b>-32</b>                                             |

**Table 34: Monthly Inventory Level**

|        | Tunic | Skirt | Slack |
|--------|-------|-------|-------|
| Jan-98 | 154   | 179   | 119   |
| Feb-98 | 137   | 54    | 65    |
| Mar-98 | 125   | 68    | 13    |
| Apr-98 | 125   | 108   | 6     |
| May-98 | 125   | 98    | 39    |
| Jun-98 | 125   | 245   | 105   |
| Jul-98 | 102   | 207   | 122   |
| Aug-98 | 102   | 212   | 39    |

|                   |     |     |    |
|-------------------|-----|-----|----|
| Sep-98            | 102 | 179 | 22 |
| Oct-98            | 110 | 66  | 7  |
| Nov-98            | 180 | 66  | 75 |
| Average per Month | 126 | 135 | 56 |

**Table 35A: Material Cost Tunic**

| Materials Used    | Volume of Measure | Cost per Item | Volume Used per Tunic | Total Cost    |
|-------------------|-------------------|---------------|-----------------------|---------------|
| Fabric (GFM)      | yards             | \$5.81        | 1.22                  | \$7.09        |
| Interlining       | yards             | \$0.95        | 0.34                  | \$0.32        |
| Zippers           | each              | \$0.30        | 1                     | \$0.30        |
| Buttons           | each              | \$0.02        | 4                     | \$0.08        |
| Care Label        | each              | \$0.03        | 1                     | \$0.03        |
| Plastic Bag       | each              | \$0.07        | 1                     | \$0.07        |
| Product ID. Label | each              | \$0.01        | 1                     | \$0.01        |
| Fusing            | each              | \$0.35        | 1                     | \$0.35        |
|                   |                   |               | <b>Total</b>          | <b>\$8.25</b> |

**Table 35B: Material Cost Slack**

| Materials Used    | Volume of Measure | Cost per Item | Volume Used per Tunic | Total Cost    |
|-------------------|-------------------|---------------|-----------------------|---------------|
| Fabric (GFM)      | yards             | \$5.81        | 1.44                  | \$8.37        |
| Rib trim          | yards             | \$3.75        | 0.16                  | \$0.60        |
| Elastic           | each              | \$0.14        | 0.96                  | \$0.13        |
| Care Label        | each              | \$0.03        | 1                     | \$0.03        |
| Plastic Bag       | each              | \$0.07        | 1                     | \$0.07        |
| Product ID. Label | each              | \$0.01        | 1                     | \$0.01        |
|                   |                   |               | <b>Total</b>          | <b>\$9.21</b> |

**Table 35C: Material Cost Skirt**

| Materials Used    | Volume of Measure | Cost per Item | Volume Used per Tunic | Total Cost    |
|-------------------|-------------------|---------------|-----------------------|---------------|
| Fabric (GFM)      | yards             | \$5.81        | 1.33                  | \$7.73        |
| Rib trim          | yards             | \$3.75        | 0.24                  | \$0.90        |
| Elastic           | yards             | \$0.14        | 0.96                  | \$0.13        |
| Care Label        | each              | \$0.03        | 1                     | \$0.03        |
| Plastic Bag       | each              | \$0.07        | 1                     | \$0.07        |
| Product ID. Label | each              | \$0.01        | 1                     | \$0.01        |
|                   |                   |               | <b>Total</b>          | <b>\$8.87</b> |

**Table 36: Delivery Order Statistics**

| Delivery Order No. | Date of Order | Item  | Size    | No. of Units | Price/Unit paid to Cal Poly |
|--------------------|---------------|-------|---------|--------------|-----------------------------|
| 0242               | 11/17/97      | Tunic | Small   | 1            | \$32.82                     |
| 0242               | 11/17/97      | Tunic | Med     | 1            | \$32.82                     |
| 0242               | 11/17/97      | Tunic | Large   | 10           | \$32.82                     |
| 0242               | 11/17/97      | Slack | Small   | 5            | \$17.80                     |
| 0242               | 11/17/97      | Slack | Med     | 2            | \$17.80                     |
| 0242               | 11/17/97      | Slack | Large   | 1            | \$17.80                     |
| 0242               | 11/17/97      | Skirt | Med     | 14           | \$16.30                     |
| 0242               | 11/17/97      | Skirt | Large   | 12           | \$16.30                     |
| 0245               | 11/20/97      | Tunic | Med     | 7            | \$32.82                     |
| 0245               | 11/20/97      | Tunic | Large   | 1            | \$32.82                     |
| 0245               | 11/20/97      | Slack | Small   | 6            | \$17.80                     |
| 0245               | 11/20/97      | Slack | Med     | 11           | \$17.80                     |
| 0245               | 11/20/97      | Slack | Large   | 11           | \$17.80                     |
| 0245               | 11/20/97      | Skirt | Small   | 3            | \$16.30                     |
| 0245               | 11/20/97      | Skirt | Med     | 4            | \$16.30                     |
| 0245               | 11/20/97      | Skirt | Large   | 3            | \$16.30                     |
| 0246               | 11/25/97      | Tunic | Small   | 2            | \$32.82                     |
| 0246               | 11/25/97      | Tunic | Med     | 1            | \$32.82                     |
| 0246               | 11/25/97      | Tunic | X Large | 4            | \$32.82                     |
| 0246               | 11/25/97      | Slack | Small   | 1            | \$17.80                     |
| 0246               | 11/25/97      | Slack | Large   | 2            | \$17.80                     |
| 0246               | 11/25/97      | Skirt | Med     | 4            | \$16.30                     |
| 0247               | 12/02/97      | Tunic | Med     | 2            | \$32.82                     |
| 0247               | 12/02/97      | Slack | Med     | 1            | \$17.80                     |
| 0247               | 12/02/97      | Skirt | Med     | 2            | \$16.30                     |
| 0248               | 12/09/97      | Tunic | Med     | 1            | \$32.82                     |
| 0248               | 12/09/97      | Tunic | Large   | 1            | \$32.82                     |
| 0248               | 12/09/97      | Slack | Small   | 5            | \$17.80                     |
| 0248               | 12/09/97      | Slack | Med     | 2            | \$17.80                     |
| 0248               | 12/09/97      | Slack | Large   | 10           | \$17.80                     |

|      |          |       |         |    |         |
|------|----------|-------|---------|----|---------|
| 0248 | 12/09/97 | Skirt | Small   | 5  | \$16.30 |
| 0248 | 12/09/97 | Skirt | Med     | 14 | \$16.30 |
| 0249 | 12/11/97 | Tunic | Large   | 1  | \$32.82 |
| 0249 | 12/11/97 | Slack | Med     | 1  | \$17.80 |
| 0249 | 12/11/97 | Slack | Large   | 1  | \$17.80 |
| 0249 | 12/11/97 | Skirt | Med     | 2  | \$16.30 |
| 0249 | 12/11/97 | Skirt | Large   | 2  | \$16.30 |
| 0250 | 12/16/97 | Tunic | Small   | 5  | \$32.82 |
| 0250 | 12/16/97 | Tunic | Med     | 8  | \$32.82 |
| 0250 | 12/16/97 | Tunic | Large   | 9  | \$32.82 |
| 0250 | 12/16/97 | Slack | Small   | 5  | \$17.80 |
| 0250 | 12/16/97 | Slack | Med     | 8  | \$17.80 |
| 0250 | 12/16/97 | Slack | Large   | 8  | \$17.80 |
| 0250 | 12/16/97 | Skirt | Small   | 6  | \$16.30 |
| 0250 | 12/16/97 | Skirt | Med     | 8  | \$16.30 |
| 0250 | 12/16/97 | Skirt | Large   | 25 | \$16.30 |
| 0251 | 12/18/97 | Skirt | Med     | 10 | \$16.30 |
| 0252 | 12/30/97 | Skirt | Small   | 6  | \$16.30 |
| 0252 | 12/30/97 | Skirt | Large   | 1  | \$16.30 |
| 0253 | 12/30/97 | Tunic | Small   | 1  | \$32.82 |
| 0253 | 12/30/97 | Slack | Small   | 1  | \$17.80 |
| 0253 | 12/30/97 | Skirt | Small   | 2  | \$16.30 |
| 0253 | 12/30/97 | Skirt | Med     | 2  | \$16.30 |
| 0256 | 01/06/98 | Tunic | Small   | 1  | \$32.82 |
| 0256 | 01/06/98 | Tunic | Med     | 8  | \$32.82 |
| 0256 | 01/06/98 | Tunic | Large   | 4  | \$32.82 |
| 0256 | 01/06/98 | Slack | Large   | 2  | \$17.80 |
| 0256 | 01/06/98 | Skirt | Small   | 10 | \$16.30 |
| 0256 | 01/06/98 | Skirt | Med     | 3  | \$16.30 |
| 0256 | 01/06/98 | Skirt | Large   | 10 | \$16.30 |
| 0257 | 01/13/98 | Tunic | Small   | 2  | \$32.82 |
| 0257 | 01/13/98 | Tunic | Med     | 1  | \$32.82 |
| 0257 | 01/13/98 | Slack | Med     | 1  | \$17.80 |
| 0257 | 01/13/98 | Skirt | Med     | 2  | \$16.30 |
| 0258 | 01/21/98 | Tunic | Med     | 5  | \$32.82 |
| 0258 | 01/21/98 | Tunic | Large   | 7  | \$32.82 |
| 0258 | 01/21/98 | Slack | X Small | 2  | \$17.80 |
| 0258 | 01/21/98 | Slack | Small   | 4  | \$17.80 |
| 0258 | 01/21/98 | Slack | Med     | 1  | \$17.80 |
| 0258 | 01/21/98 | Slack | Large   | 6  | \$17.80 |
| 0258 | 01/21/98 | Skirt | Med     | 27 | \$16.30 |
| 0258 | 01/21/98 | Skirt | Large   | 10 | \$16.30 |
| 0259 | 02/06/98 | Slack | Large   | 1  | \$17.80 |
| 0259 | 02/06/98 | Skirt | Large   | 9  | \$16.30 |
| 0260 | 02/06/98 | Slack | Large   | 6  | \$17.80 |
| 0261 | 02/06/98 | Slack | Med     | 6  | \$17.80 |

|      |          |       |         |    |         |
|------|----------|-------|---------|----|---------|
| 0261 | 02/06/98 | Skirt | Small   | 8  | \$16.30 |
| 0261 | 02/06/98 | Skirt | Med     | 31 | \$16.30 |
| 0261 | 02/06/98 | Skirt | Large   | 24 | \$16.30 |
| 0262 | 02/06/98 | Slack | Med     | 12 | \$17.80 |
| 0262 | 02/06/98 | Slack | Large   | 2  | \$17.80 |
| 0262 | 02/06/98 | Skirt | Small   | 3  | \$16.30 |
| 0262 | 02/06/98 | Skirt | Med     | 8  | \$16.30 |
| 0263 | 02/10/98 | Slack | Small   | 1  | \$17.80 |
| 0263 | 02/10/98 | Slack | Med     | 11 | \$17.80 |
| 0263 | 02/10/98 | Skirt | Small   | 2  | \$16.30 |
| 0263 | 02/10/98 | Skirt | Med     | 1  | \$16.30 |
| 0264 | 02/13/98 | Slack | Med     | 2  | \$17.80 |
| 0264 | 02/13/98 | Skirt | Med     | 2  | \$16.30 |
| 0265 | 02/18/98 | Slack | Med     | 1  | \$17.80 |
| 0265 | 02/18/98 | Skirt | Med     | 2  | \$16.30 |
| 0266 | 02/20/98 | Slack | Large   | 1  | \$17.80 |
| 0266 | 02/20/98 | Skirt | Large   | 2  | \$16.30 |
| 0267 | 02/24/98 | Slack | Small   | 5  | \$17.80 |
| 0267 | 02/24/98 | Slack | Med     | 16 | \$17.80 |
| 0267 | 02/24/98 | Skirt | Small   | 7  | \$16.30 |
| 0268 | 02/27/98 | Slack | X Small | 20 | \$17.80 |
| 0268 | 02/27/98 | Slack | Med     | 15 | \$17.80 |
| 0268 | 02/27/98 | Slack | Large   | 5  | \$17.80 |
| 0268 | 02/27/98 | Skirt | Small   | 5  | \$16.30 |
| 0268 | 02/27/98 | Skirt | Med     | 15 | \$16.30 |
| 0268 | 02/27/98 | Skirt | Large   | 10 | \$16.30 |
| 0269 | 03/03/98 | Slack | Small   | 8  | \$17.80 |
| 0269 | 03/03/98 | Slack | Med     | 4  | \$17.80 |
| 0269 | 03/03/98 | Slack | Large   | 8  | \$17.80 |
| 0269 | 03/03/98 | Skirt | Med     | 14 | \$16.30 |
| 0269 | 03/03/98 | Skirt | Large   | 1  | \$16.30 |
| 0270 | 03/10/98 | Skirt | Small   | 14 | \$16.30 |
| 0270 | 03/10/98 | Skirt | Med     | 20 | \$16.30 |
| 0270 | 03/10/98 | Skirt | Large   | 15 | \$16.30 |
| 0271 | 03/12/98 | Slack | Med     | 2  | \$17.80 |
| 0272 | 03/17/98 | Slack | X Small | 2  | \$17.80 |
| 0272 | 03/17/98 | Slack | Med     | 4  | \$17.80 |
| 0272 | 03/17/98 | Skirt | Large   | 12 | \$16.30 |
| 0273 | 03/24/98 | Slack | Small   | 1  | \$17.80 |
| 0273 | 03/24/98 | Slack | Med     | 4  | \$17.80 |
| 0273 | 03/24/98 | Slack | Large   | 1  | \$17.80 |
| 0273 | 03/24/98 | Skirt | Small   | 2  | \$16.30 |
| 0273 | 03/24/98 | Skirt | Large   | 2  | \$16.30 |
| 0274 | 03/31/98 | Slack | X Small | 3  | \$17.80 |
| 0274 | 03/31/98 | Slack | Small   | 7  | \$17.80 |
| 0274 | 03/31/98 | Slack | Large   | 4  | \$17.80 |

|      |          |       |         |    |         |
|------|----------|-------|---------|----|---------|
| 0274 | 03/31/98 | Skirt | Small   | 9  | \$16.30 |
| 0274 | 03/31/98 | Skirt | Med     | 10 | \$16.30 |
| 0274 | 03/31/98 | Skirt | Large   | 4  | \$16.30 |
| 0275 | 04/07/98 | Slack | Small   | 3  | \$17.80 |
| 0275 | 04/07/98 | Slack | Med     | 4  | \$17.80 |
| 0275 | 04/07/98 | Slack | Large   | 6  | \$17.80 |
| 0275 | 04/07/98 | Skirt | Small   | 6  | \$16.30 |
| 0275 | 04/07/98 | Skirt | Med     | 17 | \$16.30 |
| 0276 | 04/09/98 | Slack | Large   | 1  | \$17.80 |
| 0276 | 04/09/98 | Skirt | X Small | 13 | \$16.30 |
| 0276 | 04/09/98 | Skirt | Large   | 2  | \$16.30 |
| 0277 | 04/14/98 | Slack | X Small | 2  | \$17.80 |
| 0277 | 04/14/98 | Slack | Small   | 2  | \$17.80 |
| 0277 | 04/14/98 | Slack | Med     | 11 | \$17.80 |
| 0277 | 04/14/98 | Slack | Large   | 2  | \$17.80 |
| 0277 | 04/14/98 | Skirt | Med     | 21 | \$16.30 |
| 0277 | 04/14/98 | Skirt | Large   | 10 | \$16.30 |
| 0278 | 04/21/98 | Slack | Small   | 1  | \$17.80 |
| 0278 | 04/21/98 | Skirt | Small   | 4  | \$16.30 |
| 0278 | 04/21/98 | Skirt | Med     | 10 | \$16.30 |
| 0278 | 04/21/98 | Skirt | Large   | 10 | \$16.30 |
| 0279 | 04/23/98 | Skirt | Med     | 2  | \$16.30 |
| 0279 | 04/23/98 | Skirt | Large   | 3  | \$16.30 |
| 0280 | 05/20/98 | Slack | X Small | 20 | \$17.80 |
| 0280 | 05/20/98 | Slack | Small   | 31 | \$17.80 |
| 0280 | 05/20/98 | Slack | Med     | 34 | \$17.80 |
| 0280 | 05/20/98 | Slack | Large   | 40 | \$17.80 |
| 0280 | 05/20/98 | Skirt | X Small | 18 | \$16.30 |
| 0280 | 05/20/98 | Skirt | Small   | 28 | \$16.30 |
| 0280 | 05/20/98 | Skirt | Med     | 32 | \$16.30 |
| 0280 | 05/20/98 | Skirt | Large   | 46 | \$16.30 |
| 0281 | 05/05/98 | Slack | Small   | 1  | \$17.80 |
| 0281 | 05/05/98 | Skirt | Small   | 2  | \$16.30 |
| 0282 | 05/07/98 | Skirt | X Small | 2  | \$16.30 |
| 0283 | 05/11/98 | Slack | X Small | 1  | \$17.80 |
| 0283 | 05/11/98 | Slack | Large   | 2  | \$17.80 |
| 0283 | 05/11/98 | Skirt | X Small | 2  | \$16.30 |
| 0283 | 05/11/98 | Skirt | Small   | 4  | \$16.30 |
| 0283 | 05/11/98 | Skirt | Med     | 8  | \$16.30 |
| 0285 | 05/19/98 | Slack | X Small | 2  | \$17.80 |
| 0285 | 05/19/98 | Slack | Small   | 6  | \$17.80 |
| 0285 | 05/19/98 | Slack | Large   | 4  | \$17.80 |
| 0285 | 05/19/98 | Skirt | Med     | 22 | \$16.30 |
| 0285 | 05/19/98 | Skirt | Large   | 10 | \$16.30 |
| 0286 | 05/27/98 | Slack | X Small | 1  | \$17.80 |
| 0286 | 05/27/98 | Slack | Small   | 2  | \$17.80 |

|      |          |       |         |    |         |
|------|----------|-------|---------|----|---------|
| 0286 | 05/27/98 | Skirt | X Small | 2  | \$16.30 |
| 0286 | 05/27/98 | Skirt | Small   | 2  | \$16.30 |
| 0286 | 05/27/98 | Skirt | Med     | 6  | \$16.30 |
| 0286 | 05/27/98 | Skirt | Large   | 2  | \$16.30 |
| 0289 | 06/09/98 | Slack | Med     | 2  | \$17.80 |
| 0289 | 06/09/98 | Skirt | Small   | 6  | \$16.30 |
| 0289 | 06/09/98 | Skirt | Med     | 12 | \$16.30 |
| 0289 | 06/09/98 | Skirt | Large   | 7  | \$16.30 |
| 0290 | 06/11/98 | Slack | Small   | 2  | \$17.80 |
| 0290 | 06/11/98 | Slack | Med     | 2  | \$17.80 |
| 0290 | 06/11/98 | Slack | Large   | 2  | \$17.80 |
| 0290 | 06/11/98 | Skirt | Small   | 1  | \$16.30 |
| 0290 | 06/11/98 | Skirt | Med     | 2  | \$16.30 |
| 0291 | 06/16/98 | Slack | Med     | 14 | \$17.80 |
| 0291 | 06/16/98 | Slack | Large   | 6  | \$17.80 |
| 0291 | 06/16/98 | Skirt | X Small | 3  | \$16.30 |
| 0292 | 06/18/98 | Slack | Large   | 1  | \$17.80 |
| 0293 | 06/23/98 | Slack | Small   | 1  | \$17.80 |
| 0293 | 06/23/98 | Slack | Large   | 1  | \$17.80 |
| 0293 | 06/23/98 | Skirt | X Small | 2  | \$16.30 |
| 0293 | 06/23/98 | Skirt | Small   | 6  | \$16.30 |
| 0293 | 06/23/98 | Skirt | Med     | 9  | \$16.30 |
| 0293 | 06/23/98 | Skirt | Large   | 2  | \$16.30 |
| 0294 | 06/25/98 | Skirt | Med     | 6  | \$16.30 |
| 0295 | 06/30/98 | Slack | Med     | 12 | \$17.80 |
| 0295 | 06/30/98 | Skirt | Med     | 15 | \$16.30 |
| 0296 | 07/07/98 | Slack | X Small | 2  | \$17.80 |
| 0296 | 07/07/98 | Slack | Small   | 6  | \$17.80 |
| 0296 | 07/07/98 | Slack | Large   | 4  | \$17.80 |
| 0296 | 07/07/98 | Skirt | Small   | 5  | \$16.30 |
| 0296 | 07/07/98 | Skirt | Med     | 10 | \$16.30 |
| 0296 | 07/07/98 | Skirt | Large   | 3  | \$16.30 |
| 0298 | 07/14/98 | Slack | Med     | 16 | \$17.80 |
| 0298 | 07/14/98 | Skirt | Med     | 26 | \$16.30 |
| 0298 | 07/14/98 | Skirt | Large   | 22 | \$16.30 |
| 0299 | 07/16/98 | Tunic | Med     | 7  | \$32.82 |
| 0299 | 07/16/98 | Tunic | Large   | 19 | \$32.82 |
| 0299 | 07/16/98 | Skirt | Small   | 7  | \$16.30 |
| 0299 | 07/16/98 | Skirt | Med     | 6  | \$16.30 |
| 0300 | 07/21/98 | Slack | Small   | 5  | \$17.80 |
| 0300 | 07/21/98 | Slack | Med     | 10 | \$17.80 |
| 0300 | 07/21/98 | Slack | Large   | 10 | \$17.80 |
| 0300 | 07/21/98 | Skirt | Small   | 5  | \$16.30 |
| 0300 | 07/21/98 | Skirt | Med     | 12 | \$16.30 |
| 0300 | 07/21/98 | Skirt | Large   | 10 | \$16.30 |
| 0302 | 07/28/98 | Slack | Small   | 4  | \$17.80 |



|      |          |       |         |    |         |
|------|----------|-------|---------|----|---------|
| 0302 | 07/28/98 | Slack | Large   | 8  | \$17.80 |
| 0302 | 07/28/98 | Skirt | Small   | 9  | \$16.30 |
| 0302 | 07/28/98 | Skirt | Med     | 10 | \$16.30 |
| 0302 | 07/28/98 | Skirt | Large   | 2  | \$16.30 |
| 0303 | 07/30/98 | Slack | Small   | 1  | \$17.80 |
| 0303 | 07/30/98 | Skirt | Small   | 1  | \$16.30 |
| 0301 | 07/23/98 | Slack | Med     | 2  | \$17.80 |
| 0301 | 07/23/98 | Skirt | Med     | 2  | \$16.30 |
| 0307 | 08/12/98 | Slack | Small   | 1  | \$17.80 |
| 0307 | 08/12/98 | Skirt | Med     | 1  | \$16.30 |
| 0308 | 08/18/98 | Slack | Med     | 16 | \$17.80 |
| 0308 | 08/18/98 | Slack | Large   | 1  | \$17.80 |
| 0308 | 08/18/98 | Skirt | Med     | 1  | \$16.30 |
| 0308 | 08/18/98 | Skirt | Large   | 2  | \$16.30 |
| 0311 | 08/19/98 | Slack | Med     | 2  | \$17.80 |
| 0311 | 08/19/98 | Skirt | Med     | 2  | \$16.30 |
| 0312 | 08/27/98 | Slack | Small   | 6  | \$17.80 |
| 0312 | 08/27/98 | Slack | Med     | 1  | \$17.80 |
| 0312 | 08/27/98 | Slack | Large   | 4  | \$17.80 |
| 0312 | 08/27/98 | Skirt | Small   | 21 | \$16.30 |
| 0312 | 08/27/98 | Skirt | Med     | 21 | \$16.30 |
| 0312 | 08/27/98 | Skirt | Large   | 5  | \$16.30 |
| 0313 | 09/02/98 | Skirt | Small   | 8  | \$16.30 |
| 0313 | 09/02/98 | Skirt | Med     | 51 | \$16.30 |
| 0313 | 09/02/98 | Skirt | Large   | 21 | \$16.30 |
| 0314 | 09/03/98 | Slack | Large   | 1  | \$17.80 |
| 0315 | 09/09/98 | Slack | Small   | 4  | \$17.80 |
| 0315 | 09/09/98 | Skirt | X Small | 10 | \$16.30 |
| 0315 | 09/09/98 | Skirt | Small   | 5  | \$16.30 |
| 0315 | 09/09/98 | Skirt | Med     | 10 | \$16.30 |
| 0315 | 09/09/98 | Skirt | Large   | 12 | \$16.30 |
| 0317 | 09/18/98 | Skirt | Large   | 10 | \$16.30 |
| 0316 | 09/15/98 | Slack | Med     | 10 | \$17.80 |
| 0316 | 09/15/98 | Skirt | Med     | 6  | \$16.30 |
| 0316 | 09/15/98 | Skirt | Large   | 5  | \$16.30 |
| 0318 | 09/22/98 | Slack | Small   | 4  | \$17.80 |
| 0320 | 09/28/98 | Slack | Small   | 1  | \$17.80 |
| 0320 | 09/28/98 | Skirt | Small   | 2  | \$16.30 |
| 0321 | 09/30/98 | Slack | X Small | 2  | \$17.80 |
| 0321 | 09/30/98 | Slack | Small   | 6  | \$17.80 |
| 0321 | 09/30/98 | Slack | Med     | 40 | \$17.80 |
| 0321 | 09/30/98 | Slack | Large   | 37 | \$17.80 |
| 0321 | 09/30/98 | Slack | X Large | 1  | \$17.80 |
| 0322 | 10/09/98 | Tunic | Small   | 1  | \$32.82 |
| 0322 | 10/09/98 | Skirt | Small   | 8  | \$16.30 |
| 0322 | 10/09/98 | Skirt | Med     | 8  | \$16.30 |

|      |          |       |       |   |         |
|------|----------|-------|-------|---|---------|
| 0322 | 10/09/98 | Skirt | Large | 6 | \$16.30 |
| 0323 | 10/08/98 | Skirt | Med   | 1 | \$16.30 |

## Appendix B

The following pages document the Standard Allowed Minutes (SAMS) used as a basis for evaluation of productivity in section 3.5 Sew, Finish and Inspect. The reports are from the TimeQuest for Apparel Manufacturing software program developed and distributed by:

Industrial Engineering Services, InTime Inc.  
2400 East Rock Creek Road  
New Bern, North Carolina 28562  
Telephone: 252-637-2471

The TimeQuest for Apparel Manufacturing software outputs labor standards based on a database of pre-defined motions with assigned times for handling parts, aligning parts to needle, sewing, etc. The pre-defined motions are built using MODAPTS, Modular Arrangement of Pre-determined Time Standards, loaded within TimeQuest. To create labor standards TimeQuest combines a garment's specifications, such as seam length, with the pre-defined motion blocks.

Dependent on a plant's needs, TimeQuest outputs a variety of reports. For the Marine Maternity Dress Uniform – Tunic, Skirt and Slack the below reports are presented, respectively:

1. Part Workcenter Summary Report – Prints a summary of the operators' total time spent producing a garment. It incorporates a plant's Physical, Fatigue and Delay factor(s) (PF&D) and pay rate(s).

For the Marine Maternity Dress Uniform the following PF&D factors are used:

|                                                                                     |     |
|-------------------------------------------------------------------------------------|-----|
| <u>Sewing Operations</u> (Performed by Operators 1 – 6)                             | 22% |
| - 10% for bobbin change and machine delays                                          |     |
| - 12% for fatigue breaks, Cal Poly Demo gives two – 20 minute breaks per 8 hour day |     |
| <u>Finishing Operations</u> (Performed by Operators 7 – 9)                          | 12% |

In-addition, a 10% incentive allowance is applied due to the low volume work assignment. And, a pay rate of \$6.50 per hour is used.

2. Part Operation Summary Report – Prints a summary of each operation performed by a workcell's or production team's operators.
3. Part Variables Report – Prints a list of set parameters for a garment, such as stitches per inch.
4. Part Routing Report – Prints a list of all the operations performed for a garment, independent of operators, and breaks down each operation's labor standard by Setup, Handle and Process time, as defined below:

- Setup Time: The time for the sewing machine and station to be prepared for production of a garment. (Note: For the Marine Maternity Dress Uniform, the Cal Poly Demo to date has not performed any set-up time studies.)
- Handle Time: The time for obtaining and staging cut parts and sub-assemblies at a work station.
- Process Time: The time spent processing a part or sub-assembly at a workstation. Stated another way, this is the time spent “adding value” to a garment.

Note: Each of the times defined above are calculated per garment.

5. Operator Reports – Prints the break down of the motion blocks used to create a labor standard for each operation. The report may be printed for multiple levels of detail. For the MMDU garments, the Operator Report is printed at level three.

# Part Routing Report

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

| Operation                                            | Setup | Handle | Process | Normal | PF&D   | Incentive | Standard | Cost   |
|------------------------------------------------------|-------|--------|---------|--------|--------|-----------|----------|--------|
| INSPECT, TRIM, FOLD, BAG, TUNIC                      | 0.000 | .032   | .131    | .385   | 22.0 % | 10.0 %    | .508     | \$0.06 |
| IRON TO FUSE FACING PIECES, MATERNITY TUNIC          | 0.000 | 0.000  | .948    | 1.790  | 22.0 % | 10.0 %    | 2.363    | \$0.26 |
| PRESS, MATERNITY TUNIC                               | 0.000 | .075   | .409    | .484   | 22.0 % | 10.0 %    | .639     | \$0.07 |
| IRON (PRESS)SHOULDER SEAMS OF FACING, MATE           | 0.000 | .224   | .409    | .633   | 22.0 % | 10.0 %    | .835     | \$0.09 |
| OVERLOCK CLEAN 2 BACK PIECES, MATERNITY TUNIC        | 0.000 | .075   | .682    | .758   | 22.0 % | 10.0 %    | 1.000    | \$0.11 |
| OVERLOCK CLEAN FACING, WOMEN'S MATERNITY             | 0.000 | .075   | .467    | .758   | 22.0 % | 10.0 %    | 1.000    | \$0.11 |
| OVERLOCK CLEAN BOTTOM OF POCKET                      | 0.000 | 0.000  | .377    | .377   | 22.0 % | 10.0 %    | .497     | \$0.05 |
| OVERLOCK CLEAN SIDES, MATERNITY TUNIC                | 0.000 | .043   | 1.318   | 1.361  | 22.0 % | 10.0 %    | 1.796    | \$0.19 |
| BLIND HEM, MATERNITY TUNIC                           | 0.000 | .086   | 1.091   | 1.177  | 22.0 % | 10.0 %    | 1.554    | \$0.17 |
| JOIN BACK PIECES, MATERNITY TUNIC                    | 0.000 | .032   | .322    | .355   | 22.0 % | 10.0 %    | .468     | \$0.05 |
| SAFETYSTITCH JOIN 3 PIECE FRONT, MATERNITY TUNIC     | 0.000 | .043   | .839    | .882   | 22.0 % | 10.0 %    | 1.164    | \$0.13 |
| SAFETYSTITCH JOIN FRONT FACING, MATERNITY TUNIC      | 0.000 | .062   | .792    | .854   | 22.0 % | 10.0 %    | 1.128    | \$0.12 |
| LOCKSTITCH JOIN SHOULDER OF FACINGS, MATERNITY TUNIC | 0.000 | .062   | .437    | .500   | 22.0 % | 10.0 %    | .659     | \$0.07 |
| OVERLOCK JOIN 2 SIDES OF TOP OF 3 PIECE FRONT        | 0.000 | .032   | 1.080   | 1.113  | 22.0 % | 10.0 %    | 1.469    | \$0.16 |
| MAKE POCKET SAFETYSTITCH, MATERNITY TUNIC            | 0.000 | .049   | .448    | .497   | 22.0 % | 10.0 %    | .656     | \$0.07 |
| TACK ARMHOLE, MATERNITY TUNIC                        | 0.000 | .043   | .522    | .565   | 22.0 % | 10.0 %    | .746     | \$0.08 |
| SGL NDL TOPSTITCH JOIN SEAM OF 3 PIECE FRONT         | 0.000 | 0.000  | .695    | .695   | 22.0 % | 10.0 %    | .917     | \$0.10 |
| IRON TO PRESS OPEN SHOULDER                          | 0.000 | .086   | 1.258   | 1.344  | 22.0 % | 10.0 %    | 1.774    | \$0.19 |
| JOIN FACING TO BODY AT ARMHOLE, MATERNITY TUNIC      | 0.000 | .142   | 2.825   | 2.967  | 22.0 % | 10.0 %    | 3.916    | \$0.42 |
| JOIN BIAS TO BOTTOM, MDU TUNIC                       | 0.000 | .830   | .926    | 1.756  | 22.0 % | 10.0 %    | 2.318    | \$0.25 |
| JOIN & TOPSTITCH FACING TO BODY AT NECKLINE,         | 0.000 | 0.000  | 1.644   | 3.136  | 22.0 % | 10.0 %    | 4.139    | \$0.45 |
| JOIN SIDESEAM, MATERNITY TUNIC                       | 0.000 | 0.000  | 1.275   | 1.275  | 22.0 % | 10.0 %    | 1.683    | \$0.18 |
| JOIN SHOULDER, MATERNITY TUNIC                       | 0.000 | 0.000  | .523    | .523   | 22.0 % | 10.0 %    | .690     | \$0.07 |
| SET LABEL, MATERNITY TUNIC                           | 0.000 | 0.000  | .211    | .211   | 22.0 % | 10.0 %    | .279     | \$0.03 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

| Operation                                    | Setup | Handle | Process | Normal | PF&D   | Incentive | Standard | Cost   |
|----------------------------------------------|-------|--------|---------|--------|--------|-----------|----------|--------|
| SET POCKET, MATERNITY TUNIC                  | 0.000 | 0.000  | 1.801   | 1.801  | 22.0 % | 10.0 %    | 2.378    | \$0.26 |
| SET ZIPPER, MATERNITY TUNIC                  | 0.000 | 0.000  | 1.135   | 1.135  | 22.0 % | 10.0 %    | 1.498    | \$0.16 |
| SGL NDL JOIN 2 SIDES OF TOP OF 3 PIECE FRONT | 0.000 | .043   | .786    | .829   | 22.0 % | 10.0 %    | 1.094    | \$0.12 |
| BAR TACK POCKET, MATERNITY TUNIC             | 0.000 | .065   | .595    | .659   | 22.0 % | 10.0 %    | .870     | \$0.09 |
| SGL NDL TOPSTITCH 8" BOX, MATERNITY TUNIC    | 0.000 | 0.000  | 1.226   | 1.226  | 22.0 % | 10.0 %    | 1.619    | \$0.18 |
| TOPSTITCH ZIPPER, MATERNITY TUNIC            | 0.000 | 0.000  | 1.050   | 1.050  | 22.0 % | 10.0 %    | 1.387    | \$0.15 |
| TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC     | 0.000 | 0.000  | .755    | .755   | 22.0 % | 10.0 %    | .996     | \$0.11 |
|                                              | 0.000 | 2.101  | 26.978  | 31.849 |        |           | 42.041   | \$4.55 |

Parts Per Minute

Parts Per 8 Hour Day

.024

11.417

# Part Workcenter Summary Report

Thursday, September 09, 1999 @ 4:29 PM

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part: **MMDU-TUNIC** MATERNITY DRESS UNIFORM (TUNIC)

| Workcenter                                              | Normal Minutes | PF & D | Incentive | Std. Minutes | Cost          |
|---------------------------------------------------------|----------------|--------|-----------|--------------|---------------|
| <b>Material Group FLORAL OR OTHER PATTERN</b>           |                |        |           |              | <b>\$4.55</b> |
| Busy Bees #1                                            | 13.182         | 22.0 % | 10.0 %    | 17.401       | \$1.89        |
| Busy Bees #2                                            | 18.667         | 22.0 % | 10.0 %    | 24.640       | \$2.67        |
| Total Minutes                                           | 31.849         |        |           | 42.041       | <b>\$4.55</b> |
| Total Hours                                             | .531           |        |           | .701         |               |
| <b>Material Group MARINE CORP KHAKI POLY/WOOL BLEND</b> |                |        |           |              | <b>\$4.55</b> |
| Busy Bees #1                                            | 13.182         | 22.0 % | 10.0 %    | 17.401       | \$1.89        |
| Busy Bees #2                                            | 18.667         | 22.0 % | 10.0 %    | 24.640       | \$2.67        |
| Total Minutes                                           | 31.849         |        |           | 42.041       | <b>\$4.55</b> |
| Total Hours                                             | .531           |        |           | .701         |               |
| <b>Material Group SOLID FABRIC, NO ALIGNMENT</b>        |                |        |           |              | <b>\$4.55</b> |
| Busy Bees #1                                            | 13.182         | 22.0 % | 10.0 %    | 17.401       | \$1.89        |
| Busy Bees #2                                            | 18.667         | 22.0 % | 10.0 %    | 24.640       | \$2.67        |
| Total Minutes                                           | 31.849         |        |           | 42.041       | <b>\$4.55</b> |
| Total Hours                                             | .531           |        |           | .701         |               |

# Part Operation Summary Report

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER

Plant **CAL POLY POMONA** CAL POLY POMONA

Part **MMDU-TUNIC** MATERNITY DRESS UNIFORM (TUNIC)

| Workcenter/Operation                                     | Normal Minutes                        | Std. Minutes  | Cost          |
|----------------------------------------------------------|---------------------------------------|---------------|---------------|
| <b>Material Group FLORAL OR OTHER PATTERN</b>            |                                       |               | <b>\$4.55</b> |
| <b>Busy Bees #1</b>                                      | <b>PF&amp;D 22.0% Incentive 10.0%</b> |               |               |
| INSPECT, TRIM, FOLD, BAG, TUNIC                          | .385                                  | .508          | \$0.06        |
| IRON TO FUSE FACING PIECES, MATERNITY TUNIC              | 1.790                                 | 2.363         | \$0.26        |
| PRESS, MATERNITY TUNIC                                   | .484                                  | .639          | \$0.07        |
| IRON (PRESS) SHOULDER SEAMS OF FACING, MATERNITY TUNIC   | .633                                  | .835          | \$0.09        |
| OVERLOCK CLEAN 2 BACK PIECES, MATERNITY TUNIC            | .758                                  | 1.000         | \$0.11        |
| OVERLOCK CLEAN FACING, WOMEN'S MATERNITY TUNIC           | .758                                  | 1.000         | \$0.11        |
| OVERLOCK CLEAN BOTTOM OF POCKET                          | .377                                  | .497          | \$0.05        |
| OVERLOCK CLEAN SIDES, MATERNITY TUNIC                    | 1.361                                 | 1.796         | \$0.19        |
| BLIND HEM, MATERNITY TUNIC                               | 1.177                                 | 1.554         | \$0.17        |
| JOIN BACK PIECES, MATERNITY TUNIC                        | .355                                  | .468          | \$0.05        |
| SAFETYSTITCH JOIN 3 PIECE FRONT, MATERNITY TUNIC         | .882                                  | 1.164         | \$0.13        |
| SAFETYSTITCH JOIN FRONT FACING, MATERNITY TUNIC          | .854                                  | 1.128         | \$0.12        |
| LOCKSTITCH JOIN SHOULDER OF FACINGS, MATERNITY TUNIC     | .500                                  | .659          | \$0.07        |
| OVERLOCK JOIN 2 SIDES OF TOP OF 3 PIECE FRONT            | 1.113                                 | 1.469         | \$0.16        |
| MAKE POCKET SAFETYSTITCH, MATERNITY TUNIC                | .497                                  | .656          | \$0.07        |
| TACK ARMHOLE, MATERNITY TUNIC                            | .565                                  | .746          | \$0.08        |
| SGL NDL TOPSTITCH JOIN SEAM OF 3 PIECE FRONT             | .695                                  | .917          | \$0.10        |
| <b>Busy Bees #2</b>                                      | <b>PF&amp;D 22.0% Incentive 10.0%</b> |               |               |
| IRON TO PRESS OPEN SHOULDER                              | 1.344                                 | 1.774         | \$0.19        |
| JOIN FACING TO BODY AT ARMHOLE, MATERNITY TUNIC          | 2.967                                 | 3.916         | \$0.42        |
| JOIN BIAS TO BOTTOM, MDU TUNIC                           | 1.756                                 | 2.318         | \$0.25        |
| JOIN & TOPSTITCH FACING TO BODY AT NECKLINE, MATERNITY T | 3.136                                 | 4.139         | \$0.45        |
| JOIN SIDESEAM, MATERNITY TUNIC                           | 1.275                                 | 1.683         | \$0.18        |
| JOIN SHOULDER, MATERNITY TUNIC                           | .523                                  | .690          | \$0.07        |
| SET LABEL, MATERNITY TUNIC                               | .211                                  | .279          | \$0.03        |
| SET POCKET, MATERNITY TUNIC                              | 1.801                                 | 2.378         | \$0.26        |
| SET ZIPPER, MATERNITY TUNIC                              | 1.135                                 | 1.498         | \$0.16        |
| SGL NDL JOIN 2 SIDES OF TOP OF 3 PIECE FRONT             | .829                                  | 1.094         | \$0.12        |
| BAR TACK POCKET, MATERNITY TUNIC                         | .659                                  | .870          | \$0.09        |
| SGL NDL TOPSTITCH 8" BOX, MATERNITY TUNIC                | 1.226                                 | 1.619         | \$0.18        |
| TOPSTITCH ZIPPER, MATERNITY TUNIC                        | 1.050                                 | 1.387         | \$0.15        |
| TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC                 | .755                                  | .996          | \$0.11        |
| <b>Total Minutes</b>                                     | <b>31.849</b>                         | <b>42.041</b> | <b>\$4.55</b> |
| <b>Total Hours</b>                                       | <b>.531</b>                           | <b>.701</b>   |               |

Material Group **MARINE CORP KHAKI POLY/WOOL BLEND** **\$4.55**
**Busy Bees #1** **PF&D 22.0% Incentive 10.0%**

|                                             |       |       |        |
|---------------------------------------------|-------|-------|--------|
| INSPECT, TRIM, FOLD, BAG, TUNIC             | .385  | .508  | \$0.06 |
| IRON TO FUSE FACING PIECES, MATERNITY TUNIC | 1.790 | 2.363 | \$0.26 |



Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part **MMDU-TUNIC** MATERNITY DRESS UNIFORM (TUNIC)

| Workcenter/Operation                                     | Normal Minutes | Std. Minutes | Cost          |
|----------------------------------------------------------|----------------|--------------|---------------|
| <b>Material Group MARINE CORP KHAKI POLY/WOOL BLEND</b>  |                |              |               |
| <b>Busy Bees #1 PF&amp;D 22.0% Incentive 10.0%</b>       |                |              |               |
| PRESS, MATERNITY TUNIC                                   | .484           | .639         | \$0.07        |
| IRON (PRESS)SHOULDER SEAMS OF FACING, MATERNITY TUNIC    | .633           | .835         | \$0.09        |
| OVERLOCK CLEAN 2 BACK PIECES, MATERNITY TUNIC            | .758           | 1.000        | \$0.11        |
| OVERLOCK CLEAN FACING, WOMEN'S MATERNITY TUNIC           | .758           | 1.000        | \$0.11        |
| OVERLOCK CLEAN BOTTOM OF POCKET                          | .377           | .497         | \$0.05        |
| OVERLOCK CLEAN SIDES, MATERNITY TUNIC                    | 1.361          | 1.796        | \$0.19        |
| BLIND HEM, MATERNITY TUNIC                               | 1.177          | 1.554        | \$0.17        |
| JOIN BACK PIECES, MATERNITY TUNIC                        | .355           | .468         | \$0.05        |
| SAFETYSTITCH JOIN 3 PIECE FRONT, MATERNITY TUNIC         | .882           | 1.164        | \$0.13        |
| SAFETYSTITCH JOIN FRONT FACING, MATERNITY TUNIC          | .854           | 1.128        | \$0.12        |
| LOCKSTITCH JOIN SHOULDER OF FACINGS, MATERNITY TUNIC     | .500           | .659         | \$0.07        |
| OVERLOCK JOIN 2 SIDES OF TOP OF 3 PIECE FRONT            | 1.113          | 1.469        | \$0.16        |
| MAKE POCKET SAFETYSTITCH, MATERNITY TUNIC                | .497           | .656         | \$0.07        |
| TACK ARMHOLE, MATERNITY TUNIC                            | .565           | .746         | \$0.08        |
| SGL NDL TOPSTITCH JOIN SEAM OF 3 PIECE FRONT             | .695           | .917         | \$0.10        |
| <b>Busy Bees #2 PF&amp;D 22.0% Incentive 10.0%</b>       |                |              |               |
| IRON TO PRESS OPEN SHOULDER                              | 1.344          | 1.774        | \$0.19        |
| JOIN FACING TO BODY AT ARMHOLE, MATERNITY TUNIC          | 2.967          | 3.916        | \$0.42        |
| JOIN BIAS TO BOTTOM, MDU TUNIC                           | 1.756          | 2.318        | \$0.25        |
| JOIN & TOPSTITCH FACING TO BODY AT NECKLINE, MATERNITY 1 | 3.136          | 4.139        | \$0.45        |
| JOIN SIDESEAM, MATERNITY TUNIC                           | 1.275          | 1.683        | \$0.18        |
| JOIN SHOULDER, MATERNITY TUNIC                           | .523           | .690         | \$0.07        |
| SET LABEL, MATERNITY TUNIC                               | .211           | .279         | \$0.03        |
| SET POCKET, MATERNITY TUNIC                              | 1.801          | 2.378        | \$0.26        |
| SET ZIPPER, MATERNITY TUNIC                              | 1.135          | 1.498        | \$0.16        |
| SGL NDL JOIN 2 SIDES OF TOP OF 3 PIECE FRONT             | .829           | 1.094        | \$0.12        |
| BAR TACK POCKET, MATERNITY TUNIC                         | .659           | .870         | \$0.09        |
| SGL NDL TOPSTITCH 8" BOX, MATERNITY TUNIC                | 1.226          | 1.619        | \$0.18        |
| TOPSTITCH ZIPPER, MATERNITY TUNIC                        | 1.050          | 1.387        | \$0.15        |
| TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC                 | .755           | .996         | \$0.11        |
| Total Minutes                                            | 31.849         | 42.041       | <b>\$4.55</b> |
| Total Hours                                              | .531           | .701         |               |

**Material Group SOLID FABRIC, NO ALIGNMENT \$4.55**

|                                                       |       |       |        |
|-------------------------------------------------------|-------|-------|--------|
| <b>Busy Bees #1 PF&amp;D 22.0% Incentive 10.0%</b>    |       |       |        |
| INSPECT, TRIM, FOLD, BAG, TUNIC                       | .385  | .508  | \$0.06 |
| IRON TO FUSE FACING PIECES, MATERNITY TUNIC           | 1.790 | 2.363 | \$0.26 |
| PRESS, MATERNITY TUNIC                                | .484  | .639  | \$0.07 |
| IRON (PRESS)SHOULDER SEAMS OF FACING, MATERNITY TUNIC | .633  | .835  | \$0.09 |
| OVERLOCK CLEAN 2 BACK PIECES, MATERNITY TUNIC         | .758  | 1.000 | \$0.11 |
| OVERLOCK CLEAN FACING, WOMEN'S MATERNITY TUNIC        | .758  | 1.000 | \$0.11 |
| OVERLOCK CLEAN BOTTOM OF POCKET                       | .377  | .497  | \$0.05 |

Company **ATRC** APPAREL TECH & RESEARCH CENTER

Plant **CAL POLY POMONA** CAL POLY POMONA

Part **MMDU-TUNIC** MATERNITY DRESS UNIFORM (TUNIC)

| Workcenter/Operation                                     | Normal Minutes | Std. Minutes | Cost          |
|----------------------------------------------------------|----------------|--------------|---------------|
| <b>Material Group SOLID FABRIC, NO ALIGNMENT</b>         |                |              |               |
| <b>Busy Bees #1 PF&amp;D 22.0% Incentive 10.0%</b>       |                |              |               |
| OVERLOCK CLEAN SIDES, MATERNITY TUNIC                    | 1.361          | 1.796        | \$0.19        |
| BLIND HEM, MATERNITY TUNIC                               | 1.177          | 1.554        | \$0.17        |
| JOIN BACK PIECES, MATERNITY TUNIC                        | .355           | .468         | \$0.05        |
| SAFETYSTITCH JOIN 3 PIECE FRONT, MATERNITY TUNIC         | .882           | 1.164        | \$0.13        |
| SAFETYSTITCH JOIN FRONT FACING, MATERNITY TUNIC          | .854           | 1.128        | \$0.12        |
| LOCKSTITCH JOIN SHOULDER OF FACINGS, MATERNITY TUNIC     | .500           | .659         | \$0.07        |
| OVERLOCK JOIN 2 SIDES OF TOP OF 3 PIECE FRONT            | 1.113          | 1.469        | \$0.16        |
| MAKE POCKET SAFETYSTITCH, MATERNITY TUNIC                | .497           | .656         | \$0.07        |
| TACK ARMHOLE, MATERNITY TUNIC                            | .565           | .746         | \$0.08        |
| SGL NDL TOPSTITCH JOIN SEAM OF 3 PIECE FRONT             | .695           | .917         | \$0.10        |
| <b>Busy Bees #2 PF&amp;D 22.0% Incentive 10.0%</b>       |                |              |               |
| IRON TO PRESS OPEN SHOULDER                              | 1.344          | 1.774        | \$0.19        |
| JOIN FACING TO BODY AT ARMHOLE, MATERNITY TUNIC          | 2.967          | 3.916        | \$0.42        |
| JOIN BIAS TO BOTTOM, MDU TUNIC                           | 1.756          | 2.318        | \$0.25        |
| JOIN & TOPSTITCH FACING TO BODY AT NECKLINE, MATERNITY T | 3.136          | 4.139        | \$0.45        |
| JOIN SIDESEAM, MATERNITY TUNIC                           | 1.275          | 1.683        | \$0.18        |
| JOIN SHOULDER, MATERNITY TUNIC                           | .523           | .690         | \$0.07        |
| SET LABEL, MATERNITY TUNIC                               | .211           | .279         | \$0.03        |
| SET POCKET, MATERNITY TUNIC                              | 1.801          | 2.378        | \$0.26        |
| SET ZIPPER, MATERNITY TUNIC                              | 1.135          | 1.498        | \$0.16        |
| SGL NDL JOIN 2 SIDES OF TOP OF 3 PIECE FRONT             | .829           | 1.094        | \$0.12        |
| BAR TACK POCKET, MATERNITY TUNIC                         | .659           | .870         | \$0.09        |
| SGL NDL TOPSTITCH 8" BOX, MATERNITY TUNIC                | 1.226          | 1.619        | \$0.18        |
| TOPSTITCH ZIPPER, MATERNITY TUNIC                        | 1.050          | 1.387        | \$0.15        |
| TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC                 | .755           | .996         | \$0.11        |
| Total Minutes                                            | 31.849         | 42.041       |               |
| Total Hours                                              | .531           | .701         | <b>\$4.55</b> |

# Operator Report

Company ATRC APPAREL TECH & RESEARCH CENTER  
 Plant CAL POLY POMONACAL POLY POMONA  
 Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)  
 Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|          |                  |
|----------|------------------|
| Value    | Standard Minutes |
| Standard | Standard Hours   |
|          | 0.000            |
|          | 0.000            |

| Code            | Description                                 | Time    | Freq. | Occur. | Ext. Time |
|-----------------|---------------------------------------------|---------|-------|--------|-----------|
| FATO-WT-FUSEFAC | IRON TO FUSE FACING PIECES, MATERNITY TUNIC | 1.79035 | 1.00  | 1.00   | 1.79035   |
| FATS-WT-FSFRCNT | FUSE FRONT CENTER FACING, MATERNITY TUNIC   | 0.25500 | 1.00  | 1.00   | 0.25500   |
| W5              | STEP TO TABLE                               | 0.01075 | 1.00  | 1.00   | 0.01075   |
| M2G3 M3P0       | RH OBTAIN FACING                            | 0.01720 | 1.00  | 1.00   | 0.01720   |
| M2G3 M4P0       | LH OBTAIN APPROPRIATE PELLON LINER          | 0.01935 | 1.00  | 1.00   | 0.01935   |
| W5              | STEP TO IRONING BOARD                       | 0.01075 | 1.00  | 1.00   | 0.01075   |
| SUVE-APT-SM     | LAY PELLON LINER FLAT TO IRONING BOARD      | 0.01075 | 1.00  | 1.00   | 0.01075   |
| M3G1            | LH GRASP FACING                             | 0.00860 | 1.00  | 1.00   | 0.00860   |
| SUVE-APP-FS     | ALIGN FACING TO PELLON LINER                | 0.02580 | 1.00  | 1.00   | 0.02580   |
| M4P0            | SMOOTH FACING OVER LINER                    | 0.00860 | 1.00  | 1.00   | 0.00860   |
| M4G1 M4P2       | OBTAIN IRON AND POSITION TO FACING          | 0.02365 | 1.00  | 1.00   | 0.02365   |
| 465 MODS        | TIME TO IRON/FUSE FACING                    | 1.00000 | 0.08  | 1.00   | 0.08300   |
| M4P2            | ASIDE IRON                                  | 0.01290 | 1.00  | 1.00   | 0.01290   |
| M4G1 M4P2       | REGRASP AND ASIDE FACING TO LEFT OUT OF WAY | 0.02365 | 1.00  | 1.00   | 0.02365   |
| FATS-WT-FSFRARM | FUSE FRONT ARMHOLE FACING, MATERNITY TUNIC  | 0.58775 | 1.00  | 1.00   | 0.58775   |
| W5              | STEP TO TABLE                               | 0.01075 | 1.00  | 1.00   | 0.01075   |
| M2G3 M3P0       | RH OBTAIN RH FACING                         | 0.01720 | 1.00  | 1.00   | 0.01720   |
| M2G3 M3P0       | LH OBTAIN LH FACING                         | 0.01720 | 1.00  | 1.00   | 0.01720   |
| J2              | JUGGLE TO SHAKE FACING APART FROM STACK     | 0.00430 | 2.00  | 1.00   | 0.00860   |
| W5              | STEP TO IRONING BOARD                       | 0.01075 | 1.00  | 1.00   | 0.01075   |
| M3P0            | LAY PARTS TO IRONING BOARD                  | 0.00645 | 1.00  | 1.00   | 0.00645   |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                             |      |      |         |         |
|-----------------|---------------------------------------------|------|------|---------|---------|
| W5              | STEP BACK TO TABLE                          | 1.00 | 1.00 | 0.01075 | 0.01075 |
| M2G3 M3P0       | RH OBTAIN APPROPRIATE RH PELLON LINER       | 1.00 | 1.00 | 0.01720 | 0.01720 |
| M2G3 M4P0       | LH OBTAIN APPROPRIATE LH PELLON LINER       | 1.00 | 1.00 | 0.01935 | 0.01935 |
| J2              | JUGGLE TO SHAKE LINERS APART FROM STACK     | 2.00 | 1.00 | 0.00430 | 0.00860 |
| W5              | STEP TO IRONING BOARD                       | 1.00 | 1.00 | 0.01075 | 0.01075 |
| M3P0            | ASIDE LH PELLON LINER                       | 1.00 | 1.00 | 0.00645 | 0.00645 |
| M4G1            | REGRASP RH PELLON LINER                     | 2.00 | 1.00 | 0.01075 | 0.02150 |
| SUVE-APT-SM     | LAY RH PELLON LINER FLAT TO IRONING BOARD   | 2.00 | 1.00 | 0.01075 | 0.02150 |
| M4G3            | BH GRASP RH FACING                          | 2.00 | 1.00 | 0.01505 | 0.03010 |
| SUVE-APP-FM     | ALIGN FACING TO PELLON LINER                | 2.00 | 1.00 | 0.02795 | 0.05590 |
| M4P0            | SMOOTH FACING OVER LINER                    | 2.00 | 1.00 | 0.00860 | 0.01720 |
| M4G1 M4P2       | OBTAIN IRON AND POSITION TO FACING          | 2.00 | 1.00 | 0.02365 | 0.04730 |
| 465 MODS        | TIME TO IRON/FUSE FACING (.05 MINUTES EACH) | 0.10 | 1.00 | 1.00000 | 0.10000 |
| M4P2            | ASIDE IRON                                  | 2.00 | 1.00 | 0.01290 | 0.02580 |
| M2G3 M3P0       | GRASP LH FACING/LINER FROM IRONING BOARD    | 1.00 | 1.00 | 0.01720 | 0.01720 |
| SUVE-APP-SM     | ALIGN LH FACING FACE-TO-FACE TO RH FACING   | 1.00 | 1.00 | 0.02150 | 0.02150 |
| M4G1 M4P2       | GRASP IRON; PSN TO FACINGS                  | 1.00 | 1.00 | 0.02365 | 0.02365 |
| 465 MODS        | TIME TO IRON FACINGS STACKED TOGETHER       | 0.03 | 1.00 | 1.00000 | 0.02550 |
| M4P2            | ASIDE IRON                                  | 1.00 | 1.00 | 0.01290 | 0.01290 |
| M4G1 M4P2       | REGRASP AND ASIDE FACING TO LEFT OUT OF WAY | 1.00 | 1.00 | 0.02365 | 0.02365 |
| FATS-WT-FSBKARM | FUSE BACK ARMHOLE FACING, MATERNITY TUNIC   | 1.00 | 1.00 | 0.94760 | 0.94760 |
| W5              | STEP TO TABLE                               | 3.00 | 1.00 | 0.01075 | 0.03225 |
| 465 MODS        | TIME TO SORT FACINGS/LINERS                 | 0.21 | 1.00 | 1.00000 | 0.21000 |
| M2G3 M3P0       | RH OBTAIN RH FACING                         | 1.00 | 1.00 | 0.01720 | 0.01720 |
| M2G3 M3P0       | LH OBTAIN LH FACING                         | 1.00 | 1.00 | 0.01720 | 0.01720 |
| J2              | JUGGLE TO SHAKE FACING APART FROM STACK     | 2.00 | 1.00 | 0.00430 | 0.00860 |
| W5              | STEP TO IRONING BOARD                       | 3.00 | 1.00 | 0.01075 | 0.03225 |
| M3P0            | LAY PARTS TO IRONING BOARD                  | 1.00 | 1.00 | 0.00645 | 0.00645 |
| W5              | STEP BACK TO TABLE                          | 2.00 | 1.00 | 0.01075 | 0.02150 |
| M2G3 M3P0       | RH OBTAIN APPROPRIATE RH PELLON LINER       | 1.00 | 1.00 | 0.01720 | 0.01720 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                  |                                                 |         |      |         |
|------------------|-------------------------------------------------|---------|------|---------|
| M2G3 M4P0        | LH OBTAIN APPROPRIATE LH PELLON LINER           | 0.01935 | 1.00 | 0.01935 |
| J2               | JUGGLE TO SHAKE LINERS APART FROM STACK         | 0.00430 | 1.00 | 0.00860 |
| W5               | STEP TO IRONING BOARD                           | 0.01075 | 1.00 | 0.01075 |
| M3P0             | ASIDE LH PELLON LINER                           | 0.00645 | 1.00 | 0.00645 |
| M4G1             | REGRASP RH PELLON LINER                         | 0.01075 | 1.00 | 0.02150 |
| SUVE-APT-SM      | LAY RH PELLON LINER FLAT TO IRONING BOARD       | 0.01075 | 1.00 | 0.02150 |
| M4G3             | BH GRASP RH FACING                              | 0.01505 | 1.00 | 0.03010 |
| SUVE-APP-FM      | ALIGN FACING TO PELLON LINER                    | 0.02795 | 1.00 | 0.05590 |
| M4P0             | SMOOTH FACING OVER LINER                        | 0.00860 | 1.00 | 0.01720 |
| M4G1 M4P2        | OBTAIN IRON AND POSITION TO FACING              | 0.02365 | 1.00 | 0.04730 |
| 465 MODS         | TIME TO IRON/FUSE FACING (.09 MINUTES EACH)     | 1.00000 | 1.00 | 0.18000 |
| M4P2             | ASIDE IRON                                      | 0.01290 | 1.00 | 0.02580 |
| M2G3 M3P0        | GRASP LH FACING/LINER FROM IRONING BOARD        | 0.01720 | 1.00 | 0.01720 |
| SUVE-APP-SM      | ALIGN LH FACING FACE-TO-FACE TO RH FACING       | 0.02150 | 1.00 | 0.02150 |
| M4G1 M4P2        | GRASP IRON; PSN TO FACINGS                      | 0.02365 | 1.00 | 0.02365 |
| 465 MODS         | TIME TO IRON FACINGS STACKED TOGETHER           | 1.00000 | 1.00 | 0.03300 |
| M4P2             | ASIDE IRON                                      | 0.01290 | 1.00 | 0.01290 |
| M4G1 M4P2        | REGRASP AND ASIDE FACING TO LEFT ONTO STACK     | 0.02365 | 1.00 | 0.02365 |
| J2               | REGRASP STACK                                   | 0.00430 | 1.00 | 0.00860 |
| SATO-WT-JNFRFTFC | SAFETYSTITCH JOIN FRONT FACING, MATERNITY TUNIC | 0.85447 | 1.00 | 0.85447 |
| BATS-WT-JNFRFTFC | HANDLING, JOIN FRONT FACING, MATERNITY TUNIC    | 0.06235 | 1.00 | 0.06235 |
| W5               | STEP FROM IRONING BOARD TO SAFETYSTITCH         | 0.01075 | 1.00 | 0.05375 |
| M4P0             | ASIDE PARTS TO TABLE TOP                        | 0.00860 | 1.00 | 0.00860 |
| SATS-WT-JNFRFTFC | JOIN FRONT FACING, MATERNITY TUNIC              | 0.79212 | 1.00 | 0.79212 |
| M2G1 M4P0        | REGRASP FRONT FACING AND LAY TO TABLETOP        | 0.01505 | 1.00 | 0.01505 |
| SUVE-OOT-NM      | OBTAIN LH FRONT ARMHOLE FACING FROM STACK AT    | 0.03440 | 1.00 | 0.06880 |
| SUVE-APP-FM      | ALIGN LH FRONT ARMHOLE FACING TO FRONT          | 0.02795 | 1.00 | 0.05590 |
| SUVE-APN-SM      | ALIGN ASSEMBLY TO PRESSER FOOT                  | 0.01505 | 1.00 | 0.03010 |
| F2               | PEDAL TO START MACHINE                          | 0.00430 | 1.00 | 0.00860 |
| SUVF-SS-1N       | Sew 1" WILCOX/GIBBS SAFETYSTITCH, 2000 RPM,     | 0.01095 | 1.00 | 0.02190 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                 |         |       |      |         |
|-----------------|-------------------------------------------------|---------|-------|------|---------|
| SUVE-RHP-AS     | REGRASP TOP PLY (5X)                            | 0.01720 | 10.00 | 1.00 | 0.17200 |
| SUVE-APP-SS     | MINOR ALIGN TOP PLY TO BOTTOM (3X)              | 0.01935 | 6.00  | 1.00 | 0.11610 |
| F2              | PEDAL TO START SEW (5X)                         | 0.00430 | 10.00 | 1.00 | 0.04300 |
| SUVF-SS-2N      | Sew 2", WILCOX/GIBBS SAFETY STITCH, 2000 RPM,   | 0.01545 | 10.00 | 1.00 | 0.15452 |
| SUVE-RHP-AS     | REGRASP END OF PARTS TO MOVE FINGERS OUT OF     | 0.01720 | 2.00  | 1.00 | 0.03440 |
| F2              | PEDAL TO START SEW                              | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVF-SS-2N      | Sew 2", WILCOX/GIBBS SAFETY STITCH, 2000 RPM,   | 0.01545 | 2.00  | 1.00 | 0.03090 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                    | 0.01290 | 2.00  | 1.00 | 0.02580 |
| M3P0            | ROTATE FRONT PART 180 DEGREES                   | 0.00645 | 1.00  | 1.00 | 0.00645 |
| 0 MOD           | REPEAT ABOVE STEPS TO ATTACH LH ARMHOLE         | 0.00000 | 1.00  | 1.00 | 0.00000 |
| SATO-WT-CLNFAC  | OVERLOCK CLEAN FACING, WOMEN'S MATERNITY TUNIC  | 0.75760 | 1.00  | 1.00 | 0.75760 |
| BATS-WT-CLNFRFC | HANDLING-CLEAN FRONT FACING, MATERNITY TUNIC    | 0.07525 | 1.00  | 1.00 | 0.07525 |
| SUVE-OTO-NM     | OBTAIN BACK ARMHOLE FACING FROM TABLETOP        | 0.03440 | 1.00  | 1.00 | 0.03440 |
| W5              | STEP TO M/C#3, OVERLOCK                         | 0.01075 | 3.00  | 1.00 | 0.03225 |
| SUVE-DPO-NM     | ASIDE BACK ARMHOLE FACING TO M/C#3 TABLETOP     | 0.00860 | 1.00  | 1.00 | 0.00860 |
| SATS-WT-CLNFRFC | CLEAN 26" FRONT FACING, WOMEN'S MATERNITY TUNIC | 0.21489 | 1.00  | 1.00 | 0.21489 |
| SUVE-RHP-AM     | LH REGRASP ASSEMBLED FRONT FACING               | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-APN-SM     | ALIGN END OF FRONT FACING TO PRESSER FOOT       | 0.01505 | 1.00  | 1.00 | 0.01505 |
| F2              | PEDAL TO START MACHINE                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-OL-6N      | Sew 6", US39500 OVERLOCK, 4550 RPM, NORMAL stop | 0.01832 | 1.00  | 1.00 | 0.01832 |
| SUVE-FPS-SS     | FOLD LH SEAM OVER FLAT                          | 0.01935 | 1.00  | 1.00 | 0.01935 |
| F2              | PEDAL TO START MACHINE                          | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVF-OL-6N      | Sew 6", US39500 OVERLOCK, 4550 RPM, NORMAL stop | 0.01832 | 2.00  | 1.00 | 0.03664 |
| SUVE-FPS-SS     | FOLD RH SEAM OVER FLAT                          | 0.01935 | 1.00  | 1.00 | 0.01935 |
| F2              | PEDAL TO START MACHINE                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-OL-6N      | Sew 6", US39500 OVERLOCK, 4550 RPM, NORMAL stop | 0.01832 | 1.00  | 1.00 | 0.01832 |
| J2              | REPOSITION FINGERS ON END OF SEW OUT OF WAY     | 0.00430 | 1.00  | 1.00 | 0.00430 |
| F2              | PEDAL TO START MACHINE                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-OL-3N      | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop | 0.01476 | 1.00  | 1.00 | 0.01476 |
| M3P0            | PULL FACING AWAY FROM NEEDLE                    | 0.00645 | 1.00  | 1.00 | 0.00645 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                |         |      |      |         |
|-----------------|------------------------------------------------|---------|------|------|---------|
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                   | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SUVE-DPO-NM     | ASIDE FACING TO LHS M/C TABLE                  | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SATS-WT-CLNBKFC | CLEAN BACK ARMHOLE FACINGS, WOMEN'S MATERNITY  | 0.46746 | 1.00 | 1.00 | 0.46746 |
| M4G3 M4P0       | GRASP ARMHOLE FACINGS AND BRING STACK          | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-OOO-NM     | LH OBTAIN 1 FACING                             | 0.02365 | 2.00 | 1.00 | 0.04730 |
| SUVE-APN-SM     | ALIGN END OF FACING TO PRESSER FOOT            | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2              | PEDAL TO START MACHINE                         | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-RED16N  | Sew 16" REDUCED SPD ,US39500 OVERLOCK, 1950    | 0.08030 | 2.00 | 1.00 | 0.16060 |
| M3P0            | PULL CORNER OF FACING AROUND PRESSER FOOT      | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                   | 0.01290 | 2.00 | 1.00 | 0.02580 |
| SUVE-APN-SM     | ALIGN END OF FACING UNDER PRESSER FOOT         | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2              | PEDAL DROP PRESSER FOOT                        | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 0.01476 | 2.00 | 1.00 | 0.02952 |
| M3P0            | PULL FACING AWAY FROM NEEDLE                   | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                   | 0.01290 | 2.00 | 1.00 | 0.02580 |
| SUVE-CTS-AA     | CUT 2ND THREAD WITH PALMED SNIPS               | 0.01290 | 2.00 | 1.00 | 0.02580 |
| SUVE-DPO-SM     | ASIDE FACING TO LH M/C                         | 0.01290 | 2.00 | 1.00 | 0.02580 |
| 0 MOD           | REPEAT STEPS ABOVE TO CLEAN 2ND BACK           | 0.00000 | 1.00 | 1.00 | 0.00000 |
| SATO-WT-CLPKT   | OVERLOCK CLEAN BOTTOM OF POCKET                | 0.37650 | 1.00 | 1.00 | 0.37650 |
| SATS-WT-CLPKT   | OVERLOCK CLEAN POCKET, MATERNITY TUNIC         | 0.37650 | 1.00 | 1.00 | 0.37650 |
| SATM-WT-CLPKT1  | OVERLOCK CLEAN BOTTOM OF 1 POCKET,             | 0.18825 | 2.00 | 1.00 | 0.37650 |
| SATO-WT-JNSHFC  | LOCKSTITCH JOIN SHOULDER OF FACINGS, MATERNITY | 0.49956 | 1.00 | 1.00 | 0.49956 |
| BATS-WT-JNSHFC  | JOIN SHOULDER OF FACINGS                       | 0.06235 | 1.00 | 1.00 | 0.06235 |
| M2G3            | GRASP FACINGS FROM M/C#2 TABLETOP              | 0.01075 | 1.00 | 1.00 | 0.01075 |
| W5              | STEP TO S/N M/C #4                             | 0.01075 | 4.00 | 1.00 | 0.04300 |
| M4P0            | ASIDE BACK ARMHOLE FACINGS TO TABLETOP         | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SATS-WT-JNSHFC  | JOIN SHOULDER OF FACINGS                       | 0.43721 | 1.00 | 1.00 | 0.43721 |
| SUVE-APN-SM     | ALIGN FRONT FACING UNDER PRESSER FOOT          | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2              | DROP PRESSER FOOT TO HOLD FACING               | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-OOT-NM     | GRASP LH BACK ARMHOLE FACING FROM TABLETOP     | 0.03440 | 2.00 | 1.00 | 0.06880 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                            |         |       |      |         |
|----------------|------------------------------------------------------------|---------|-------|------|---------|
| F2             | PEDAL LIFT PRESSER FOOT                                    | 0.00430 | 2.00  | 1.00 | 0.00860 |
| M2P0           | PULL FRONT FACING BACK FROM PRESSER FOOT                   | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVE-APP-FS    | ALIGN LH BACK ARMHOLE FACING TO FRONT FACING               | 0.02580 | 2.00  | 1.00 | 0.05160 |
| SUVE-APN-SS    | ALIGN LEFT SHOULDER ASSY UNDER NEEDLE                      | 0.01290 | 2.00  | 1.00 | 0.02580 |
| F2             | PEDAL DROP PRESSER FOOT                                    | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVE-RHP-AS    | REGRASP OPPOSITE END OF SHOULDER ASSY                      | 0.01720 | 2.00  | 1.00 | 0.03440 |
| SUVE-APP-SS    | ALIGN OPPOSITE END OF SHOULDER ASSY                        | 0.01935 | 2.00  | 1.00 | 0.03870 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00  | 1.00 | 0.03010 |
| SUVF-LSS-4N    | Sew 4", Singer 591 Single Ndl Lockstitch, 3000 RPM, normal | 0.01845 | 2.00  | 1.00 | 0.03690 |
| J2             | MOVE FINGERS OUT OF WAY OF NEEDLE                          | 0.00430 | 2.00  | 1.00 | 0.00860 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVF-LSS-1E    | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.01525 | 2.00  | 1.00 | 0.03051 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00  | 1.00 | 0.03010 |
| F2             | PEDAL LIFT PRESSER FOOT AND CUT THREAD                     | 0.00430 | 2.00  | 1.00 | 0.00860 |
| 0 MOD          | REPEAT ELEMENTS ABOVE TO JOIN RH FACING                    | 0.00000 | 1.00  | 1.00 | 0.00000 |
| FATO-WT-PRSHFC | IRON (PRESS) SHOULDER SEAMS OF FACING, MATERNITY           | 0.63280 | 1.00  | 1.00 | 0.63280 |
| BATS-WT-PRSHFC | HANDLING-PRESS SHLD SEAMS OF FACING, MATERNITY             | 0.22360 | 1.00  | 1.00 | 0.22360 |
| W5             | STEP FROM S/N M/C#4 TO IRONING BOARD                       | 0.01075 | 12.00 | 1.00 | 0.12900 |
| W5             | WHEN COMPLETE, WALK TO TABLE #2                            | 0.01075 | 8.00  | 1.00 | 0.08600 |
| M4P0           | LAY FACING ASSEMBLY TO TABLE #2                            | 0.00860 | 1.00  | 1.00 | 0.00860 |
| FATS-WT-PRSHFC | PRESS OPEN SHOULDER SEAMS OF FACING                        | 0.40920 | 1.00  | 1.00 | 0.40920 |
| SUVE-APT-SM    | LAY FACING ASSEMBLY TO IRONING BOARD                       | 0.01075 | 1.00  | 1.00 | 0.01075 |
| M4G3 M3P0      | STRAIGHTEN ASSY ON IRONING BOARD                           | 0.02150 | 1.00  | 1.00 | 0.02150 |
| M3G3 M3P0      | FINISH STRAIGHTEN ASSY ON IRONING BOARD                    | 0.01935 | 1.00  | 1.00 | 0.01935 |
| M4G3 M2P2      | GRASP AND FOLD DOWN LHS SHOULDER SEAM                      | 0.02365 | 2.00  | 1.00 | 0.04730 |
| M2G1 M2P0      | FOLD DOWN OPPOSITE SIDE OF SEAM                            | 0.01075 | 2.00  | 1.00 | 0.02150 |
| J2             | REGRASP WITH FINGERS TO MAKE ROOM FOR IRON                 | 0.00430 | 2.00  | 1.00 | 0.00860 |
| M4G1 M4P2      | GRASP IRON; PSN TO LHS SHOULDER SEAM                       | 0.02365 | 2.00  | 1.00 | 0.04730 |
| 465 MODS       | TIME TO IRON LHS SHOULDER SEAM (.06 MIN EACH)              | 1.00000 | 0.12  | 1.00 | 0.12000 |
| 465 MODS       | TIME TO PRESS LHS FRONT FACING JOIN (.05 MIN               | 1.00000 | 0.10  | 1.00 | 0.10000 |



## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

| M4P2            | ASIDE IRON; SIMO: GRASP FACING ASSY FROM         | 0.01290 | 1.00 | 0.01290 |
|-----------------|--------------------------------------------------|---------|------|---------|
| SATO-WT-JNFRT   | SAFETYSTITCH JOIN 3 PIECE FRONT, MATERNITY TUNIC | 0.88191 | 1.00 | 0.88191 |
| BATS-WT-JNFRT   | HANDLING, JOIN 3 PIECE FRONT, MATERNITY TUNIC    | 0.04300 | 1.00 | 0.04300 |
| W5              | STEP FROM TABLE BACK TO SAFETYSTITCH M/C #1      | 0.01075 | 1.00 | 0.04300 |
| SATS-WT-JNFRT   | JOIN 3 PIECE FRONT, MATERNITY TUNIC              | 0.83891 | 1.00 | 0.83891 |
| SUVE-OOT-SX     | OBTAIN ONE LARGE part using TWO hands-SOME       | 0.05160 | 1.00 | 0.05160 |
| W5              | LEAN TO TABLE TO HOLD FRONT PANEL ON             | 0.01075 | 1.00 | 0.02150 |
| SUVE-OOT-SL     | OBTAIN LHS FRONT PIECE FROM LH TABLE AND         | 0.04300 | 1.00 | 0.08600 |
| SUVE-APP-FM     | ALIGN LHS FRONT PIECE TO CENTER FRONT PANEL      | 0.02795 | 1.00 | 0.05590 |
| SUVE-APN-SL     | ALIGN ASSEMBLY TO NEEDLE                         | 0.01720 | 1.00 | 0.03440 |
| F2              | PEDAL TO START MACHINE                           | 0.00430 | 1.00 | 0.00860 |
| SATM-WT-JN23SS  | JOIN 23" SEAM, SAFETYSTITCH (SEW TIME)           | 0.25821 | 1.00 | 0.51641 |
| M3P0            | PULL ASSY BACK FROM NEEDLE                       | 0.00645 | 1.00 | 0.01290 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                     | 0.01290 | 1.00 | 0.02580 |
| M4G0 M4P0       | ROTATE FRONT 180 DEGREES ON TABLETOP             | 0.01720 | 1.00 | 0.01720 |
| M4P0            | PULL FRONT PANEL BACK TOWARD NEEDLE              | 0.00860 | 1.00 | 0.00860 |
| SATO-WT-MKPKT   | MAKE POCKET SAFETYSTITCH, MATERNITY TUNIC        | 0.49716 | 1.00 | 0.49716 |
| BATS-WT-MKPKT   | HANDLING, MAKE POCKET, MATERNITY TUNIC           | 0.04945 | 1.00 | 0.04945 |
| M2G3 M3P0       | GRASP BOTH POCKETS AND LIFT                      | 0.01720 | 1.00 | 0.01720 |
| W5              | STEP TO M/C#1                                    | 0.01075 | 1.00 | 0.03225 |
| SATS-WT-MKPKT   | MAKE POCKET, MATERNITY TUNIC                     | 0.44771 | 1.00 | 0.44771 |
| SATM-WT-MKPKT   | MAKE 1 POCKET SAFETYSTITCH, MATERNITY TUNIC      | 0.22386 | 1.00 | 0.44771 |
| SATO-WT-JNTOPFR | OVERLOCK JOIN 2 SIDES OF TOP OF 3 PIECE FRONT    | 1.11257 | 1.00 | 1.11257 |
| BATS-WT-JNTOPFR | HANDLING, JOIN 2 SIDES OF TOP OF 3 PC FRONT,     | 0.03225 | 1.00 | 0.03225 |
| W5              | STEP TO OVERLOCK M/C #2                          | 0.01075 | 1.00 | 0.03225 |
| SATS-WT-JNTOPFR | JOIN 2 SIDES OF TOP OF 3 PC FRONT, MATERNITY     | 1.08032 | 1.00 | 1.08032 |
| M5P0            | LAY FRONT TO TABLETOP HOLDING FOLDED EDGE        | 0.01075 | 1.00 | 0.01075 |
| SUVE-APT-NL     | FLIP GARMENT TOWARD NEEDLE                       | 0.01075 | 1.00 | 0.01075 |
| M2P2            | MINOR ALIGN ASSEMBLY AT CORNER                   | 0.00860 | 1.00 | 0.00860 |
| SUVE-APS-SS     | ALIGN TO END BY SLIDING FINGERS TO END           | 0.01720 | 1.00 | 0.03440 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|               |                                                  |         |      |      |         |
|---------------|--------------------------------------------------|---------|------|------|---------|
| SUVE-RHP-AS   | REGRASP AT CORNER                                | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-APN-SL   | ALIGN FOLDED EDGE TO NEEDLE                      | 0.01720 | 2.00 | 1.00 | 0.03440 |
| F2            | PEDAL DROP PRESSER FOOT TO HOLD FOLDED EDGE      | 0.00430 | 2.00 | 1.00 | 0.00860 |
| M4G1 M4P0     | GRASP BODY OF GARMENT AND PUSH BACK ON           | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS   | LH REGRASP ASSEMBLY AT CORNER                    | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-APP-SXS  | MINOR ALIGN AT CORNER                            | 0.01720 | 2.00 | 1.00 | 0.03440 |
| F2            | PEDAL START MACHINE                              | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-2N    | Sew 2" US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01199 | 2.00 | 1.00 | 0.02398 |
| J2            | REGRASP TO MOVE FINGERS OUT OF WAY               | 0.00430 | 2.00 | 1.00 | 0.00860 |
| F2            | PEDAL START MACHINE                              | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-RED3N | Sew 3" REDUCED M/C SPD, US39500 OLOCK, 1300 RPM, | 0.02722 | 2.00 | 1.00 | 0.05444 |
| SUVE-RHP-AM   | REGRASP TOP PLY AT END                           | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS   | REGRASP BOTTOM PLY AT END                        | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-APP-SS   | ALIGN ENDS OF PLYS TOGETHER                      | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS   | REGRASP ASSY (3X)                                | 0.01720 | 6.00 | 1.00 | 0.10320 |
| SUVE-APP-SXS  | MINOR ALIGN PLYS                                 | 0.01720 | 6.00 | 1.00 | 0.10320 |
| F2            | PEDAL START MACHINE (3X)                         | 0.00430 | 6.00 | 1.00 | 0.02580 |
| SUVF-OL-RED3N | Sew 3" REDUCED M/C SPD, US39500 OLOCK, 1300 RPM, | 0.02722 | 6.00 | 1.00 | 0.16333 |
| SUVE-RHP-AS   | REGRASP ASSEMBLY AT END                          | 0.01720 | 2.00 | 1.00 | 0.03440 |
| F2            | PEDAL START MACHINE                              | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-RED2N | Sew 2" REDUCED SPD, US39500 OVERLOCK, 1300       | 0.02030 | 2.00 | 1.00 | 0.04060 |
| J2            | REGRASP TO MOVE FINGERS OUT OF WAY               | 0.00430 | 2.00 | 1.00 | 0.00860 |
| F2            | PEDAL START MACHINE                              | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-2N    | Sew 2" US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01199 | 2.00 | 1.00 | 0.02398 |
| M3P0          | PULL ASSEMBLY FROM NEEDLE                        | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CTS-AA   | CUT THREAD WITH PALMED SNIPS                     | 0.01290 | 2.00 | 1.00 | 0.02580 |
| M4G1 M4P0     | FLIP BODY OF GARMENT OVER TO ACCESS OPPOSITE     | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AM   | REGRASP OPPOSITE SIDE AT TOP OF JOIN SEAM        | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-FPP-FA   | PINCHFOLD PLYS AT TOP OF JOIN SEAM               | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SATO-WT-SNTOP | SGL NDL JOIN 2 SIDES OF TOP OF 3 PIECE FRONT     | 0.82867 | 1.00 | 1.00 | 0.82867 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                            |         |      |      |         |
|-----------------|------------------------------------------------------------|---------|------|------|---------|
| BATS-WT-SNTOPFR | HANDLING, SGL NDL 2 SIDES OF TOP OF 3 PC FRONT,            | 0.04300 | 1.00 | 1.00 | 0.04300 |
| W5              | STEP TO OVERLOCK M/C #2                                    | 0.01075 | 4.00 | 1.00 | 0.04300 |
| SATS-WT-SNTOPFR | SINGLE NDL JOIN 2 SIDES OF TOP OF 3 PC FRONT,              | 0.78567 | 1.00 | 1.00 | 0.78567 |
| M5P0            | LAY FRONT TO TABLETOP HOLDING FOLDED EDGE                  | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-APN-FL     | ALIGN JOINED EDGE TO NEEDLE                                | 0.02365 | 2.00 | 1.00 | 0.04730 |
| F2              | PEDAL DROP PRESSER FOOT TO HOLD FOLDED EDGE                | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00 | 1.00 | 0.03010 |
| M4G1 M4P0       | GRASP BODY OF GARMENT AND PUSH BACK ON                     | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS     | LH REGRASP ASSEMBLY AT CORNER                              | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-RHP-AS     | REGRASP ASSY (4X)                                          | 0.01720 | 8.00 | 1.00 | 0.13760 |
| F2              | PEDAL START MACHINE (4X)                                   | 0.00430 | 8.00 | 1.00 | 0.03440 |
| SUVF-LSS-3N     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 6.00 | 1.00 | 0.11971 |
| SUVF-LSS-3E     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.02425 | 2.00 | 1.00 | 0.04851 |
| F2              | PEDAL TO RAISE PRESSER FOOT                                | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-RPR-SL     | ROTATE GARMENT 90 DEGREES AROUND NEEDLE                    | 0.02150 | 2.00 | 1.00 | 0.04300 |
| SUVE-RHP-AS     | REGRASP ASSEMBLY AT END                                    | 0.01720 | 2.00 | 1.00 | 0.03440 |
| F2              | PEDAL START MACHINE                                        | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-1E     | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.01525 | 2.00 | 1.00 | 0.03051 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2              | PEDAL RAISE PRESSER FOOT                                   | 0.00430 | 2.00 | 1.00 | 0.00860 |
| M3P0            | PULL ASSEMBLY FROM NEEDLE                                  | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                               | 0.01290 | 2.00 | 1.00 | 0.02580 |
| SUVE-CPX-FA     | CUT EXTRA THREAD WITH SNIPS                                | 0.01720 | 2.00 | 1.00 | 0.03440 |
| M4G1 M4P0       | FLIP BODY OF GARMENT OVER TO ACCESS OPPOSITE               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | REGRASP OPPOSITE SIDE AT TOP OF JOIN SEAM                  | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SATO-WT-TSTOPFR | SGL NDL TOPSTITCH JOIN SEAM OF 3 PIECE FRONT               | 0.69497 | 1.00 | 1.00 | 0.69497 |
| SATS-WT-TSTOPFR | TOPSTITCH JOIN SEAM OF 3 PC FRONT, MATER                   | 0.69497 | 1.00 | 1.00 | 0.69497 |
| SUVE-APT-SL     | LAY FRONT FLAT TO TABLETOP                                 | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-APN-FL     | ALIGN SEAM TO NEEDLE                                       | 0.02365 | 2.00 | 1.00 | 0.04730 |
| F2              | PEDAL DROP PRESSER FOOT TO HOLD FOLDED EDGE                | 0.00430 | 2.00 | 1.00 | 0.00860 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                            |         |      |      |         |
|-----------------|------------------------------------------------------------|---------|------|------|---------|
| M4G1 M2P0       | REACH UNDER FRONT PANEL & PULL UNDERFOLD                   | 0.01505 | 4.00 | 1.00 | 0.06020 |
| M4P0            | PULL HAND FROM UNDER FRONT PANEL (2X)                      | 0.00860 | 2.00 | 1.00 | 0.01720 |
| SUVE-RHP-AS     | REGRASP ASSY (4X)                                          | 0.01720 | 8.00 | 1.00 | 0.13760 |
| F2              | PEDAL START MACHINE (4X)                                   | 0.00430 | 8.00 | 1.00 | 0.03440 |
| SUVF-LSS-3N     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 6.00 | 1.00 | 0.11971 |
| SUVF-LSS-3E     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.02425 | 2.00 | 1.00 | 0.04851 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2              | PEDAL RAISE PRESSER FOOT                                   | 0.00430 | 2.00 | 1.00 | 0.00860 |
| M3P0            | PULL ASSEMBLY FROM NEEDLE                                  | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CP5-FS     | CUT THREAD WITH SNIPS                                      | 0.04085 | 2.00 | 1.00 | 0.08170 |
| SUVE-CPX-FA     | CUT EXTRA THREAD WITH SNIPS                                | 0.01720 | 2.00 | 1.00 | 0.03440 |
| M4G1 M4P0       | FLIP BODY OF GARMENT OVER TO ACCESS OPPOSITE               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | REGRASP OPPOSITE SIDE AT TOP OF JOIN SEAM                  | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SATO-WT-TSBOX8  | SGL NDL TOPSTITCH 8" BOX, MATERNITY TUNIC                  | 1.22627 | 1.00 | 1.00 | 1.22627 |
| SATS-WT-TSBOX8  | SGL NDL TOPSTITCH 8" BOX, MATER TUNIC                      | 1.22627 | 1.00 | 1.00 | 1.22627 |
| M4G1 M4P0       | GRASP FRONT AND PULL BACK                                  | 0.01935 | 1.00 | 1.00 | 0.01935 |
| 465 MODS        | TIME TO ROTATE PRESSER FOOT                                | 1.00000 | 0.05 | 1.00 | 0.05000 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL                                        | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APN-FM     | ALIGN ALONG SEAM TO NEEDLE                                 | 0.02150 | 2.00 | 1.00 | 0.04300 |
| SUVE-RNW-AA     | REPOSITION NEEDLE USING HANDWHEEL                          | 0.02365 | 2.00 | 1.00 | 0.04730 |
| F2              | DROP PRESSER FOOT                                          | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-RHP-AL     | REGRASP UNDERNEATH PLYS OF FRONT PANEL                     | 0.02150 | 2.00 | 1.00 | 0.04300 |
| J2              | JUGGLE TO PSN FINGERS BETWEEN PLYS OF PLEAT                | 0.00430 | 2.00 | 1.00 | 0.00860 |
| J2              | REGRASP AND HOLD PLEAT IN PLACE                            | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-RHP-AL     | REGRASP FRONT OF PANEL                                     | 0.02150 | 2.00 | 1.00 | 0.04300 |
| F2              | PEDAL TO START SEW                                         | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-RED1E  | Sew 1" REDUCED SPD, Singer 591 SN LS, 500                  | 0.02875 | 2.00 | 1.00 | 0.05751 |
| SUVE-RPR-FL     | ROTATE FRONT AROUND NEEDLE                                 | 0.02795 | 2.00 | 1.00 | 0.05590 |
| SATM-WT-CR8INSM | CREASE 8" SEAM                                             | 0.10535 | 1.00 | 1.00 | 0.10535 |
| SUVE-RHP-AL     | REGRASP PLYS UNDERNEATH 2X                                 | 0.02150 | 4.00 | 1.00 | 0.08600 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                       |         |      |      |         |
|----------------|-------------------------------------------------------|---------|------|------|---------|
| M2P2           | PULL UNDERNEATH PLYS OUT OF WAY 2X                    | 0.00860 | 4.00 | 1.00 | 0.03440 |
| SUVE-RHP-AL    | REGRAASP FRONT PANEL 2X                               | 0.02150 | 4.00 | 1.00 | 0.08600 |
| M3P0           | RUB FINGER ALONG SEAM TO ENSURE BOTTOM PLYS           | 0.00645 | 8.00 | 1.00 | 0.05160 |
| F2             | PEDAL TO START MACHINE 2X                             | 0.00430 | 4.00 | 1.00 | 0.01720 |
| SUVE-LSS-RED3N | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000            | 0.03345 | 4.00 | 1.00 | 0.13381 |
| SUVE-RHP-AM    | REGRAASP FRONT PANEL                                  | 0.01935 | 2.00 | 1.00 | 0.03870 |
| F2             | PEDAL START MACHINE                                   | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-LSS-RED1N | Sew 1" REDUCED SPD, Singer 591 SN LS, 500 RPM, normal | 0.02445 | 2.00 | 2.00 | 0.02445 |
| SUVE-LSS-RED1E | Sew 1" REDUCED SPD, Singer 591 SN LS, 500             | 0.02875 | 2.00 | 1.00 | 0.05751 |
| SUVE-RNW-AA    | REPOSITION NEEDLE USING HANDWHEEL                     | 0.02365 | 2.00 | 1.00 | 0.04730 |
| F2             | PEDAL TO CUT THREAD                                   | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-CPS-FS    | CUT THREAD WITH SNIPS                                 | 0.04085 | 2.00 | 1.00 | 0.08170 |
| SUVE-CPX-FA    | CUT 1 MORE THREADS WITH SNIPS                         | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SATO-WT-CLBK   | OVERLOCK CLEAN 2 BACK PIECES, MATERNITY TUNIC         | 0.75764 | 1.00 | 1.00 | 0.75764 |
| BATS-WT-CLBACK | HANDLING, OLOCK CLEAN BACK PIECES                     | 0.07525 | 1.00 | 1.00 | 0.07525 |
| SUVE-OTT-NL    | OBTAIN 2 BACK PLYS WITH BOTH HANDS                    | 0.04300 | 1.00 | 1.00 | 0.04300 |
| W5             | STEP FROM TABLE BACK TO M/C#2                         | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WT-CLBK   | OVERLOCK CLEAN BACK PIECES                            | 0.68239 | 1.00 | 1.00 | 0.68239 |
| SUVE-APT-SL    | LAY BACK PIECES TO MACHINE TABLE                      | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-FPS-SL    | FOLD TOP PLY BACK                                     | 0.02795 | 2.00 | 1.00 | 0.05590 |
| SUVE-RHP-AL    | REGRAASP BOTTOM PLY                                   | 0.02150 | 2.00 | 1.00 | 0.04300 |
| SUVE-APN-SM    | ALIGN BOTTOM PLY TO NEEDLE                            | 0.01505 | 2.00 | 1.00 | 0.03010 |
| SATM-WT-CL32   | OVERLOCK CLEAN 32 INCH SIDE                           | 0.19070 | 2.00 | 1.00 | 0.38139 |
| SUVE-CPS-SA    | CUT THREADS WITH SNIPS                                | 0.03440 | 2.00 | 1.00 | 0.06880 |
| SUVE-CPX-FA    | CUT 2ND THREAD WITH SNIPS                             | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M2G1           | GRASP FOLDED BACK CORNER OF TOP PLY                   | 0.00645 | 1.00 | 1.00 | 0.00645 |
| SUVE-APP-SM    | ALIGN CORNERS OF TOP AND BOTTOM PLYS                  | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-RHP-AM    | REGRAASP ASSY                                         | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M4P0           | LIFT ASSY FROM TABLE                                  | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-APT-SL    | ROTATE ASSY UPSIDE DOWN TO TABLETOP                   | 0.01505 | 1.00 | 1.00 | 0.01505 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                           |         |      |      |         |
|----------------|-----------------------------------------------------------|---------|------|------|---------|
| SATO-WT-JNBK   | JOIN BACK PIECES, MATERNITY TUNIC                         | 0.35461 | 1.00 | 1.00 | 0.35461 |
| BATS-WT-JNBK   | HANDLING, JOIN BACK PIECES, MATERNITY TUNIC               | 0.03225 | 1.00 | 1.00 | 0.03225 |
| W5             | STEP TO M/C#3                                             | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WT-JNBK   | JOIN BACK PIECES, MATERNITY TUNIC                         | 0.32236 | 1.00 | 1.00 | 0.32236 |
| SUVE-APP-FL    | ALIGN BOTTOM CORNERS OF 2 BACK PIECES                     | 0.03010 | 1.00 | 1.00 | 0.03010 |
| SUVE-APN-SL    | ALIGN ASSY UNDER PRESSER FOOT                             | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2             | DROP PRESSER FOOT                                         | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                      | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AM    | REGRASP ASSY                                              | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-SS    | MINOR ALIGN PLYS                                          | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AS    | REGRASP ASSY 5X                                           | 0.01720 | 5.00 | 1.00 | 0.08600 |
| F2             | PEDAL START MACHINE 5X                                    | 0.00430 | 5.00 | 1.00 | 0.02150 |
| SUVF-LSS-2N    | Sew 2" Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01545 | 4.00 | 1.00 | 0.06181 |
| SUVF-LSS-2E    | Sew 2" Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.01975 | 1.00 | 1.00 | 0.01975 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                      | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2             | PEDAL TO CUT THREAD & LIFT PRESSER FOOT                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M4P0           | PULL FROM UNDER NEEDLE                                    | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SATO-WT-SETZIP | SET ZIPPER, MATERNITY TUNIC                               | 1.13483 | 1.00 | 1.00 | 1.13483 |
| SATS-WT-SETZIP | SET ZIPPER TO BACK PANEL, MATERNITY TUNIC                 | 1.13483 | 1.00 | 1.00 | 1.13483 |
| 465 MODS       | TIME TO ROTATE PRESSER FOOT                               | 1.00000 | 0.05 | 1.00 | 0.05000 |
| M4G3 M4P2      | GRASP FRONT/BACK PANELS FROM TABLE; FLIP                  | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-FPS-NS    | FOLD BACK TOP OF TOP PLY                                  | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-APN-SS    | ALIGN TOP OF BOTTOM PLY UNDER NEEDLE                      | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SUVE-FPS-NL    | FOLD BACK TOP PLY & LET DROP OFF TABLE                    | 0.02365 | 1.00 | 1.00 | 0.02365 |
| W5             | STEP TO TABLE                                             | 0.01075 | 3.00 | 1.00 | 0.03225 |
| M2G3 M4P0      | LH OBTAIN ZIPPER FROM TABLE                               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M4G3           | RH GRASP ZIPPER HANDLE                                    | 0.01505 | 1.00 | 1.00 | 0.01505 |
| J2             | LH REGRASP                                                | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M4P0           | RH UNZIP ZIPPER                                           | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AM    | RH REGRASP ZIPPER; SIMO: STEP TO M/C INT. TO              | 0.01935 | 1.00 | 1.00 | 0.01935 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                         |         |      |         |
|----------------|---------------------------------------------------------|---------|------|---------|
| SUVE-APP-FS    | ALIGN ZIPPER TO TOP OF BACK PANEL                       | 0.02580 | 1.00 | 0.02580 |
| F2             | PEDAL START MACHINE TO SEW ONTO ZIPPER                  | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-RED1N | Sew 1" REDUCED SPD,Singer 591 SN LS,500 RPM,normal      | 0.02445 | 1.00 | 0.02445 |
| SUVE-APS-FL    | ALIGN ZIPPER BY SLIDING FINGERS TO BOTTOM OF            | 0.02795 | 1.00 | 0.02795 |
| SUVE-RHP-AS    | LH REGRASP ASSY APPROX. 3" FROM NEEDLE 6X               | 0.01720 | 1.00 | 0.01720 |
| F2             | PEDAL TO START MACHINE 6X                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01995 | 1.00 | 0.01995 |
| M5G3           | LH GRASP OPPOSITE SIDE ZIPPER HANGING IN                | 0.01720 | 1.00 | 0.01720 |
| J2             | REGRASP ZIPPER                                          | 0.00430 | 1.00 | 0.00430 |
| M2G1           | LH GRASP OPPOSITE SIDE BACK HANGING IN FRONT            | 0.00645 | 1.00 | 0.00645 |
| M5P2           | PULL BACK UP ONTO MACHINE TABLE                         | 0.01505 | 1.00 | 0.01505 |
| SUVE-RHP-AM    | REGRASP END OF ZIPPER APPROX 3" IN FRONT OF             | 0.01935 | 1.00 | 0.01935 |
| SUVE-APP-FS    | ALIGN END OF ZIPPER TO BACK PANEL                       | 0.02580 | 1.00 | 0.02580 |
| F2             | PEDAL TO START SEW AND COMPLETE 1ST SIDE                | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-RED3N | Sew 3" REDUCED SPD,Singer 591 SN LS,1000                | 0.03345 | 1.00 | 0.03345 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                    | 0.01505 | 1.00 | 0.01505 |
| F2             | PEDAL TO CUT THREAD & LIFT FOOT                         | 0.00430 | 1.00 | 0.00430 |
| M4P0           | PULL GARMENT FROM UNDER NEEDLE                          | 0.00860 | 1.00 | 0.00860 |
| M4G1 M4P0      | GRASP AT BOTTOM OF ZIPPER & LIFT FROM TABLE             | 0.01935 | 1.00 | 0.01935 |
| SUVE-APP-FS    | ALIGN OPPOSITE SIDE OF ZIPPER AT BOTTOM TO              | 0.02580 | 1.00 | 0.02580 |
| SUVE-APN-FL    | ALIGN ASSY UNDER NEEDLE                                 | 0.02365 | 1.00 | 0.02365 |
| F2             | DROP PRESSER FOOT                                       | 0.00430 | 1.00 | 0.00430 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                    | 0.01505 | 1.00 | 0.01505 |
| SUVE-APS-FL    | ALIGN ZIPPER BY SLIDING FINGERS TO BOTTOM OF            | 0.02795 | 1.00 | 0.02795 |
| SUVE-RHP-AS    | LH REGRASP ASSY APPROX. 3" FROM NEEDLE 7X               | 0.01720 | 1.00 | 0.01720 |
| F2             | PEDAL START MACHINE 7X                                  | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01995 | 1.00 | 0.01995 |
| SUVF-LSS-3E    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,exact  | 0.02425 | 1.00 | 0.02425 |
| F2             | PEDAL TO CUT THREAD AND LIFT PRESSER FOOT               | 0.00430 | 1.00 | 0.00430 |
| M3P0           | PULL GARMENT FROM UNDER NEEDLE                          | 0.00645 | 1.00 | 0.00645 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

| SATO-WT-TSZIP  | TOPSTITCH ZIPPER, MATERNITY TUNIC                          | 1.05048 | 1.00 | 1.00 | 1.05048 |
|----------------|------------------------------------------------------------|---------|------|------|---------|
| SATS-WT-TSZIP  | TOPSTITCH ZIPPER, MATERNITY TUNIC                          | 1.05048 | 1.00 | 1.00 | 1.05048 |
| M4G3 M4P0      | GRASP TOP OF ZIPPER; LIFT FROM TABLETOP                    | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-FPS-FS    | FOLD SIDE OF ZIPPER BACK                                   | 0.02580 | 1.00 | 1.00 | 0.02580 |
| J2             | REGRASP ZIPPER ASSY                                        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APN-SS    | ALIGN TOP OF LHS ZIPPER UNDER NEEDLE                       | 0.01290 | 1.00 | 1.00 | 0.01290 |
| F2             | PEDAL START MACHINE TO SEW ONTO ZIPPER                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M5G1           | BH REGRASP GARMENT TOWARD BOTTOM OF ZIPPER                 | 0.01290 | 1.00 | 1.00 | 0.01290 |
| J2             | REGRASP FABRIC IN LH                                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M3G1           | LH GRASP ZIPPER AT BOTTOM                                  | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-FPS-SM    | FOLD ZIPPER TO BACK                                        | 0.02365 | 1.00 | 1.00 | 0.02365 |
| J2             | RH REGRASP TO HOLD ZIPPER FOLDED BACK                      | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RHP-AL    | LH REGRASP APPROX. 3" IN FRONT OF NEEDLE                   | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-RED3N | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000                 | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVE-RHP-AS    | LH REGRASP ASSY APPROX. 3" FROM NEEDLE 5X                  | 0.01720 | 5.00 | 1.00 | 0.08600 |
| F2             | PEDAL TO START MACHINE 5X                                  | 0.00430 | 5.00 | 1.00 | 0.02150 |
| SUVF-LSS-3N    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 5.00 | 1.00 | 0.09976 |
| M5G3           | LH GRASP OPPOSITE SIDE BACK HANGING IN FRONT               | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M5P2           | PULL BACK UP ONTO MACHINE TABLE                            | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AL    | LH REGRASP AT BOTTOM OF ZIPPER                             | 0.02150 | 1.00 | 1.00 | 0.02150 |
| M2G3           | RH GRASP ZIPPER                                            | 0.01075 | 1.00 | 1.00 | 0.01075 |
| M3P0           | RH ZIP ZIPPER PAST PRESSER FOOT                            | 0.00645 | 1.00 | 1.00 | 0.00645 |
| F2             | PEDAL TO START SEW AND COMPLETE 1ST SIDE                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-RED3N | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000                 | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVF-LSS-RED1E | SEW BACKTACK, BUTTON                                       | 0.02875 | 1.00 | 1.00 | 0.02875 |
| F2             | PEDAL TO LIFT PRESSER FOOT                                 | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RPR-FM    | ROTATE GARMENT AROUND NEEDLE                               | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-RHP-AS    | REGRASP AT BOTTOM OF ZIPPER                                | 0.01720 | 1.00 | 1.00 | 0.01720 |



Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                            |         |      |         |
|----------------|------------------------------------------------------------|---------|------|---------|
| F2             | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-REDIE | ALIGN ASSY UNDER NEEDLE                                    | 0.02875 | 1.00 | 0.02875 |
| SUVE-RPR-FL    | ROTATE BACK PANEL AROUND NEEDLE TO SEW 2ND                 | 0.02795 | 1.00 | 0.02795 |
| M4G3 M5P0      | GRASP ZIPPER AND ZIP TO END                                | 0.02580 | 1.00 | 0.02580 |
| SUVE-RHP-AL    | REGRASP BACK PANEL                                         | 0.02150 | 1.00 | 0.02150 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 1.00 | 0.01995 |
| SUVE-RHP-AS    | LH REGRASP ASSY APPROX. 3" FROM NEEDLE 6X                  | 0.01720 | 1.00 | 0.10320 |
| F2             | PEDAL START MACHINE 6X                                     | 0.00430 | 1.00 | 0.02580 |
| SUVF-LSS-3N    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 1.00 | 0.11971 |
| SUVE-RHP-AS    | REGRASP AND MOVE FINGERS OUT OF WAY                        | 0.01720 | 1.00 | 0.01720 |
| F2             | PEDAL TO START MACHINE                                     | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-REDIE | Sew 1" REDUCED SPD, Singer 591 SN LS, 500                  | 0.02875 | 1.00 | 0.02875 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 0.01505 |
| F2             | PEDAL TO CUT THREAD AND LIFT PRESSER FOOT                  | 0.00430 | 1.00 | 0.00430 |
| M4P0           | PULL GARMENT FROM UNDER NEEDLE                             | 0.00860 | 1.00 | 0.00860 |
| SATO-WT-JNSHLD | JOIN SHOULDER, MATERNITY TUNIC                             | 0.52291 | 1.00 | 0.52291 |
| SATS-WT-JNSHLD | JOIN SHOULDER, MATERNITY TUNIC                             | 0.52291 | 1.00 | 0.52291 |
| 465 MODS       | TIME TO ROTATE PRESSER FOOT                                | 1.00000 | 1.00 | 0.05000 |
| SUVE-RHP-AM    | REGRASP BACK PANEL ON TABLETOP                             | 0.01935 | 1.00 | 0.01935 |
| SUVE-APN-SM    | ALIGN SHOULDER UNDER NEEDLE                                | 0.01505 | 1.00 | 0.01505 |
| SUVE-OOT-SL    | OBTAIN FRONT PANEL FROM FRONT OF M/C TABLE;                | 0.04300 | 1.00 | 0.04300 |
| SUVE-RHP-AL    | REGRASP SHOULDER OF FRONT PANEL                            | 0.02150 | 1.00 | 0.04300 |
| SUVE-APP-FM    | ALIGN RHS SHOULDER FRONT TO BACK                           | 0.02795 | 1.00 | 0.05590 |
| SUVE-APN-SS    | ALIGN ASSY UNDER NEEDLE                                    | 0.01290 | 1.00 | 0.02580 |
| F2             | DROP PRESSER FOOT                                          | 0.00430 | 1.00 | 0.00860 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 0.03010 |
| SUVE-RHP-AM    | REGRASP TOP PLY AT OPPOSITE SIDE OF SHOULDER               | 0.01935 | 1.00 | 0.03870 |
| SUVE-APP-FM    | ALIGN OPPOSITE END SHOULDER                                | 0.02795 | 1.00 | 0.05590 |
| SUVE-RHP-AM    | REGRASP TOWARD CENTER OF SHOULDER                          | 0.01935 | 1.00 | 0.03870 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                           |         |      |      |         |
|----------------|-----------------------------------------------------------|---------|------|------|---------|
| F2             | PEDAL TO START SEW                                        | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-5E    | Sew 5", Singer 591 Single Ndl Lockstitch, 3000 RPM, exact | 0.02575 | 2.00 | 1.00 | 0.05151 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                      | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2             | PEDAL TO CUT THREAD AND LIFT PRESSER FOOT                 | 0.00430 | 2.00 | 1.00 | 0.00860 |
| 0 MOD          | REPEAT ELEMENTS ABOVE TO JOIN LHS SHOULDER                | 0.00000 | 1.00 | 1.00 | 0.00000 |
| FATO-WT-PRSHLD | IRON TO PRESS OPEN SHOULDER                               | 1.34415 | 1.00 | 1.00 | 1.34415 |
| BATS-WT-PRSHLD | HANDLING, PRESS OPEN SHOULDER, MATERNITY TUNIT            | 0.08600 | 1.00 | 1.00 | 0.08600 |
| W5             | STEP TO IRONING BOARD                                     | 0.01075 | 8.00 | 1.00 | 0.08600 |
| FATS-WT-PRSHLD | PRESS OPEN SHOULDER, MATERNITY TUNIC                      | 1.25815 | 1.00 | 1.00 | 1.25815 |
| SUVE-APT-SL    | LAY GARMENT OPEN TO IRONING BOARD                         | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M4G3 M2P0      | GRASP FABRIC AND TUG TO PULL WRINKLES OUT 2X              | 0.01935 | 2.00 | 1.00 | 0.03870 |
| M4G1 M4P2      | GRASP IRON AND POSITION TO ZIPPER SET SEAMS               | 0.02365 | 1.00 | 1.00 | 0.02365 |
| 465 MODS       | TIME TO IRON BACK SEAM AND ZIPPER                         | 1.00000 | 0.07 | 1.00 | 0.06600 |
| M4P2           | ASIDE IRON                                                | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4G3 M4P0      | GRASP GARMENT WITH BOTH HANDS AND LIFT FROM               | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-APT-SL    | LAY GARMENT TO IRONING BOARD                              | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M4G3 M1P0      | GRASP SHOULDER SEAM & FOLD OVER 2X                        | 0.01720 | 2.00 | 1.00 | 0.03440 |
| J2             | REGRASP TO HOLD SEAM OPEN 2X                              | 0.00430 | 2.00 | 1.00 | 0.00860 |
| M4G1 M4P2      | GRASP IRON AND PSN TO SEAM 2X                             | 0.02365 | 2.00 | 1.00 | 0.04730 |
| 465 MODS       | TIME TO IRONG SHOULDER SEAM (.041 MIN PER                 | 1.00000 | 0.08 | 1.00 | 0.08200 |
| M4P2           | ASIDE IRON 2X                                             | 0.01290 | 2.00 | 1.00 | 0.02580 |
| M4G3 M4P0      | GRASP FRONT PANEL AT UNDERARM; PULL BACK                  | 0.02365 | 1.00 | 1.00 | 0.02365 |
| M3G1 M2P0      | GRASP SIDES OF FRONT; PULL WRINKLES OUT                   | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4G1 M4P2      | GRASP IRON; PSN TO FRONT TOP                              | 0.02365 | 1.00 | 1.00 | 0.02365 |
| 465 MODS       | TIME TO IRON TOP OF FRONT PANEL                           | 1.00000 | 0.17 | 1.00 | 0.17000 |
| M4P2           | ASIDE IRON                                                | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4G1 M4P2      | GRASP FRONT PANEL; LAY SIDEWAYS ONTO TABLE                | 0.02365 | 1.00 | 1.00 | 0.02365 |
| M3G1 M2P0      | GRASP ENDS AND PULL WRINKLES OUT 2X                       | 0.01290 | 2.00 | 1.00 | 0.02580 |
| M3P2           | PSN LH TO TOP OF FRONT PLEAT 2X                           | 0.01075 | 2.00 | 1.00 | 0.02150 |
| M3P0           | INSERT LH TO TOP OF PLEAT & HOLD 2X                       | 0.00645 | 2.00 | 1.00 | 0.01290 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                 |         |      |      |         |
|----------------|-------------------------------------------------|---------|------|------|---------|
| SUVE-FPS-SM    | RH GRASP BOTTOM OF PLEAT AND FOLD TO CENTER     | 0.02365 | 2.00 | 1.00 | 0.04730 |
| SUVE-RHP-AM    | LH REGRASP TO HOLD PLEAT 2X                     | 0.01935 | 2.00 | 1.00 | 0.03870 |
| M4G1 M4P2      | RH GRASP IRON AND POSITION TO PLEAT 2X          | 0.02365 | 2.00 | 1.00 | 0.04730 |
| 465 MODS       | TIME TO IRON 1 PLEAT (.1 MINUTES, 2 PLEATS)     | 1.00000 | 0.20 | 1.00 | 0.20000 |
| M4P2           | ASIDE IRON 2X                                   | 0.01290 | 2.00 | 1.00 | 0.02580 |
| M4G1 M4P2      | GRASP AND PULL FRONT ONTO IRONING BOARD TO      | 0.02365 | 1.00 | 1.00 | 0.02365 |
| M4G3 M4P2      | GRASP AND ROTATE TOP FRONT ONTO IRONING         | 0.02795 | 1.00 | 1.00 | 0.02795 |
| M3G3 M2P0      | PULL WRINKLES OUT                               | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M4G1 M4P2      | GRASP IRON; PSN TO TOP FRONT                    | 0.02365 | 1.00 | 1.00 | 0.02365 |
| 465 MODS       | TIME TO IRON TOP FRONT                          | 1.00000 | 0.05 | 1.00 | 0.05000 |
| M4P2           | ASIDE IRON                                      | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4G3 M4P0      | GRASP AND LIFT GARMENT FROM IRONING BOARD       | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SATO-WT-JNAHFC | JOIN FACING TO BODY AT ARMHOLE, MATERNITY TUNIC | 2.96682 | 1.00 | 1.00 | 2.96682 |
| BATS-WT-JNAHFC | HANDLING, JOIN ARMHOLE FACING, MATERNITY TUNIC  | 0.14190 | 1.00 | 1.00 | 0.14190 |
| W5             | STEP FROM IRONING BOARD TO TABLE                | 0.01075 | 8.00 | 1.00 | 0.08600 |
| SUVE-OOO-NM    | OBTAIN FACING ASSY FROM TABLE                   | 0.02365 | 1.00 | 1.00 | 0.02365 |
| W5             | STEP FROM TABLE TO LOCKSTITCH M/C #4            | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WT-JNFCAH | JOIN FACING TO ARMHOLE & TOPSTITCH, MATERNITY   | 2.82492 | 1.00 | 1.00 | 2.82492 |
| SUVE-APN-SL    | PSN END OF ARMHOLE FACING UNDER NEEDLE TO       | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M4G1           | GRASP GARMENT                                   | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-APT-SL    | LAY GARMENT OPEN TO TABLE                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-CPS-FS    | CUT TOP OF LHS ZIPPER W/SCISSORS                | 0.04085 | 1.00 | 1.00 | 0.04085 |
| X4             | EXTRA FORCE TO CUT PLYS                         | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-CPX-FA    | CUT RHS ZIPPER W/SCISSORS                       | 0.01720 | 1.00 | 1.00 | 0.01720 |
| X4             | EXTRA FORCE TO CUT PLYS                         | 0.00860 | 1.00 | 1.00 | 0.00860 |
| M4G3 M4P0      | GRASP GARMENT FROM TABLE AND LIFT               | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-APP-FM    | ALIGN RH ARMHOLES OF FACING AND GARMENT         | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SATM-WT-JNFCAH | JOIN INTERFACING AT RH ARMHOLE, 22" SEAM        | 0.64132 | 1.00 | 1.00 | 0.64132 |
| SATM-WT-CUT3   | MAKE 3 CUTS IN FRONT AND BACK CURVE OF RH       | 0.15695 | 1.00 | 1.00 | 0.15695 |
| SATM-WT-TSFCAH | TOPSTITCH INTERFACING AT RH ARMHOLE, 22" SEAM   | 0.46262 | 1.00 | 1.00 | 0.46262 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                |         |      |      |         |
|-----------------|------------------------------------------------|---------|------|------|---------|
| SUVE-RHP-AL     | GRASP LH ARMHOLE SHOULDER SEAM                 | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-RHP-AM     | REGRASP AND GRASP LH ARMHOLE SHOULDER SEAM     | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-FS     | ALIGN LH SHOULDER SEAM AND FACING              | 0.02580 | 1.00 | 1.00 | 0.02580 |
| M5P2            | TURN UPSIDE DOWN TOWARD NEEDLE                 | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M4G3            | LH GRASP END OF ARMHOLE                        | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M2G3            | RH GRASP END OF ARMHOLE FACING                 | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-APP-FS     | ALIGN ENDS OF LH ARMHOLE TOGETHER              | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SATM-WT-JNFCALH | JOIN INTERFACING AT LH ARMHOLE, 22" SEAM       | 0.64132 | 1.00 | 1.00 | 0.64132 |
| SATM-WT-CUT3    | MAKE 3 CUTS IN FRONT AND BACK CURVE OF LH      | 0.15695 | 1.00 | 1.00 | 0.15695 |
| SATM-WT-TSFCALH | TOPSTITCH INTERFACING AT LH ARMHOLE, 22" SEAM  | 0.46262 | 1.00 | 1.00 | 0.46262 |
| SATO-WT-JNFCNK  | JOIN & TOPSTITCH FACING TO BODY AT NECKLINE,   | 3.13555 | 1.00 | 1.00 | 3.13555 |
| SATS-WT-JNFCNK  | JOIN FACING TO NECK, MATERNITY TUNIC           | 1.49172 | 1.00 | 1.00 | 1.49172 |
| 465 MODS        | TIME TO FINESSE FABRIC AND ALIGN END OF FACING | 1.00000 | 0.49 | 1.00 | 0.49000 |
| F2              | PEDAL TO START MACHINE                         | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                           | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AM     | REGRASP GARMENT AT SHOULDER SEAM               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-FM     | ALIGN SHOULDER SEAMS OF FACING AND BODY        | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-RHP-AS     | LH REGRASP ASSY                                | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APP-SS     | MINOR ALIGN SEAM                               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL TO START SEW                             | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-LSS-RED3N  | Sew 3" REDUCED SPD,Singer 591 SN LS,1000       | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVE-RHP-AS     | LH REGRASP ASSY                                | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2              | PEDAL START MACHINE                            | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-LSS-RED3N  | Sew 3" REDUCED SPD,Singer 591 SN LS,1000       | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVE-RHP-AM     | REGRASP AT CENTER NECKLINE                     | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-FS     | ALIGN CENTER NECKLINE FACING TO BODY           | 0.02580 | 1.00 | 1.00 | 0.02580 |
| M4G1 M4P0       | LH GRASP BODY OF GARMENT AND PUSH BACK ONTO    | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS     | LH REGRASP ASSY 3X                             | 0.01720 | 3.00 | 1.00 | 0.05160 |
| SUVE-APP-SS     | MINOR ALIGN SEAM 3X                            | 0.01935 | 3.00 | 1.00 | 0.05805 |
| F2              | PEDAL START MACHINE 3X                         | 0.00430 | 3.00 | 1.00 | 0.01290 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                            |         |      |      |         |
|----------------|------------------------------------------------------------|---------|------|------|---------|
| SUVF-LSS-3N    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 2.00 | 1.00 | 0.03990 |
| SUVF-LSS-3E    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.02425 | 1.00 | 1.00 | 0.02425 |
| F2             | PEDAL RAISE PRESSER FOOT                                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RPR-FM    | ROTATE GARMENT AROUND NEEDLE AT "V"                        | 0.02580 | 1.00 | 1.00 | 0.02580 |
| F2             | PEDAL DROP PRESSER FOOT                                    | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RHP-AM    | REGRASP AT SHOULDER                                        | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-FS    | ALIGN SHOULDER SEAMS OF BODY AND FACING                    | 0.02580 | 1.00 | 1.00 | 0.02580 |
| M4G1 M4P0      | LH GRASP BODY OF GARMENT AND PUSH BACK ONTO                | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-RHP-AS    | LH REGRASP ASSY 3X                                         | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-APP-SS    | MINOR ALIGN SEAM 3X                                        | 0.01935 | 3.00 | 1.00 | 0.05805 |
| F2             | PEDAL START MACHINE 3X                                     | 0.00430 | 3.00 | 1.00 | 0.01290 |
| SUVF-LSS-3N    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 2.00 | 1.00 | 0.03990 |
| SUVF-LSS-RED3N | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000                 | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVE-RHP-AM    | REGRASP AT END                                             | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-FM    | ALIGN ENDS OF BODY AND FACING                              | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-RHP-AM    | LH REGRASP AND HOLD                                        | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-SS    | MINOR ALIGN SEAM                                           | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-RED3N | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000                 | 0.03345 | 1.00 | 1.00 | 0.03345 |
| SUVE-RHP-AS    | REGRASP END TO MOVE FINGERS OUT OF WAY OF                  | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-3E    | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.02425 | 1.00 | 1.00 | 0.02425 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2             | PEDAL RAISE FOOT AND CUT THREAD                            | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M4P0           | PULL GARMENT AWAY FROM NEEDLE                              | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-CPS-FS    | CUT "V" WITH SNIPS                                         | 0.04085 | 1.00 | 1.00 | 0.04085 |
| SATS-WT-TSFCNK | TOPSTITCH JOIN OF FACING TO NECK, MATERNITY                | 1.64383 | 1.00 | 1.00 | 1.64383 |
| M4G1           | GRASP LH END OF NECKLINE                                   | 0.01075 | 2.00 | 1.00 | 0.02150 |
| SUVE-FPS-FS    | FOLD END OVER SIMPLE                                       | 0.02580 | 2.00 | 1.00 | 0.05160 |
| SUVE-APN-SM    | ALIGN END TO NEEDLE TO TACK                                | 0.01505 | 2.00 | 1.00 | 0.03010 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                    |         |       |      |         |
|----------------|----------------------------------------------------|---------|-------|------|---------|
| F2             | PEDAL TO START SEW                                 | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                               | 0.01505 | 2.00  | 1.00 | 0.03010 |
| SUVF-LSS-RED1N | Sew 1" REDUCED SPD,Singer 591 SN LS,500 RPM,normal | 0.02445 | 2.00  | 1.00 | 0.04890 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                               | 0.01505 | 2.00  | 1.00 | 0.03010 |
| F2             | PEDAL TO CUT THREAD AND LIFT FOOT                  | 0.00430 | 2.00  | 1.00 | 0.00860 |
| M3P0           | PULL FROM UNDER NEEDLE                             | 0.00645 | 2.00  | 1.00 | 0.01290 |
| SUVE-FPS-SS    | UNFOLD END                                         | 0.01935 | 2.00  | 1.00 | 0.03870 |
| SUVE-RHP-AS    | REGRASP END                                        | 0.01720 | 2.00  | 1.00 | 0.03440 |
| SUVE-APN-FM    | ALIGN END UNDER NEEDLE                             | 0.02150 | 2.00  | 1.00 | 0.04300 |
| F2             | PEDAL TO START MACHINE                             | 0.00430 | 2.00  | 1.00 | 0.00860 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                               | 0.01505 | 2.00  | 1.00 | 0.03010 |
| SUVE-RHP-AXS   | REGRASP AND SPREAD SEAM 6X                         | 0.01505 | 12.00 | 1.00 | 0.18060 |
| F2             | PEDAL TO START SEW 6X                              | 0.00430 | 12.00 | 1.00 | 0.05160 |
| SUVF-LSS-RED1N | Sew 1" REDUCED SPD,Singer 591 SN LS,500 RPM,normal | 0.02445 | 12.00 | 1.00 | 0.29342 |
| F2             | PEDAL TO RAISE FOOT                                | 0.00430 | 2.00  | 1.00 | 0.00860 |
| M4P0           | PULL FROM UNDER FOOT                               | 0.00860 | 2.00  | 1.00 | 0.01720 |
| J2             | WIGGLE FABRIC FROM UNDER FOOT                      | 0.00430 | 4.00  | 1.00 | 0.01720 |
| SUVE-RHP-AM    | REGRASP GARMENT                                    | 0.01935 | 2.00  | 1.00 | 0.03870 |
| M4P0           | INSERT HAND INTO FACING                            | 0.00860 | 2.00  | 1.00 | 0.01720 |
| M3G0 M3P0      | LH GRASP END AND PUSH INTO RH INSERTED INTO        | 0.01290 | 2.00  | 1.00 | 0.02580 |
| SUVE-RHP-AM    | LH REGRASP GARMENT                                 | 0.01935 | 2.00  | 1.00 | 0.03870 |
| M4P0           | RH PULL RIGHTSIDE OUT                              | 0.00860 | 2.00  | 1.00 | 0.01720 |
| M2G1 M2P0      | GRASP AND PULL ZIPPER END STRAIGHT                 | 0.01075 | 2.00  | 1.00 | 0.02150 |
| SUVE-RHP-AM    | REGRASP FACING NEAR "V"                            | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-RHP-AM    | LH REGRASP FACING                                  | 0.01935 | 1.00  | 1.00 | 0.01935 |
| J2             | REGRASP SEAM TO PULL FLAT                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| M4P2           | GUIDE FACING UNDER NEEDLE                          | 0.01290 | 1.00  | 1.00 | 0.01290 |
| SUVE-APN-FS    | ALIGN UNDER NEEDLE                                 | 0.01935 | 1.00  | 1.00 | 0.01935 |
| F2             | DROP PRESSER FOOT                                  | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                               | 0.01505 | 1.00  | 1.00 | 0.01505 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                       |         |      |      |         |
|-----------------|-------------------------------------------------------|---------|------|------|---------|
| SUVE-RHP-AS     | REGRASP AND SPREAD SEAM 3X                            | 0.01720 | 3.00 | 1.00 | 0.05160 |
| F2              | PEDAL START MACHINE 3X                                | 0.00430 | 3.00 | 1.00 | 0.01290 |
| SUVF-LSS-RED3N  | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000            | 0.03345 | 2.00 | 1.00 | 0.06690 |
| SUVF-LSS-RED1E  | Sew 1" REDUCED SPD, Singer 591 SN LS, 500             | 0.02875 | 1.00 | 1.00 | 0.02875 |
| F2              | PEDAL TO LIFT PRESSER FOOT                            | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RPR-FM     | ROTATE GARMENT AROUND NEEDLE AT "V"                   | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-RHP-AS     | REGRASP ASSY                                          | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2              | PEDAL DROP PRESSER FOOT                               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-RED1N  | Sew 1" REDUCED SPD, Singer 591 SN LS, 500 RPM, normal | 0.02445 | 1.00 | 1.00 | 0.02445 |
| SUVE-RHP-AS     | REGRASP AND SPREAD SEAM 2X                            | 0.01720 | 2.00 | 1.00 | 0.03440 |
| F2              | PEDAL START MACHINE 2X                                | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-RED3N  | Sew 3" REDUCED SPD, Singer 591 SN LS, 1000            | 0.03345 | 2.00 | 1.00 | 0.06690 |
| SUVF-LSS-RED1N  | Sew 1" REDUCED SPD, Singer 591 SN LS, 500 RPM, normal | 0.02445 | 1.00 | 1.00 | 0.02445 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                  | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2              | PEDAL RAISE FOOT AND CUT THREAD                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M4P0            | PULL GARMENT AWAY FROM NEEDLE                         | 0.00860 | 1.00 | 1.00 | 0.00860 |
| M4G3            | GRASP ZIPPER                                          | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M5P0            | ZIP ZIPPER                                            | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATO-WT-TSZIPTP | TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC              | 0.75491 | 1.00 | 1.00 | 0.75491 |
| SATS-WT-TSZIPTP | TOPSTITCH TOP OF ZIPPER, MATERNITY TUNIC              | 0.75491 | 1.00 | 1.00 | 0.75491 |
| E4              | E2 *2 TO INSPECT ZIPPER                               | 0.00860 | 2.00 | 1.00 | 0.01720 |
| M3P0            | UNZIP ZIPPER PARTIALLY                                | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-RHP-AM     | REGRASP AT LHS ZIPPER FACING                          | 0.01935 | 2.00 | 1.00 | 0.03870 |
| SUVE-FPP-SA     | PINCHFOLD FACING BACK AT ZIPPER                       | 0.01075 | 2.00 | 1.00 | 0.02150 |
| SUVE-APP-SS     | ALIGN FOLDED FACING TO ZIPPER                         | 0.01935 | 2.00 | 1.00 | 0.03870 |
| M4G3 M4P2       | GRASP STRAIGHT PIN AND PSN TO FACING                  | 0.02795 | 2.00 | 1.00 | 0.05590 |
| M2P2            | PIN BACK THROUGH TOP LAYER                            | 0.00860 | 2.00 | 1.00 | 0.01720 |
| SUVE-RHP-AS     | REGASP ASSY                                           | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-APT-NL     | ALIGN ASSY TO TABLETOP                                | 0.01075 | 2.00 | 1.00 | 0.02150 |
| SUVE-RHP-AS     | REGRASP ASSY                                          | 0.01720 | 2.00 | 1.00 | 0.03440 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                            |         |      |      |         |
|----------------|------------------------------------------------------------|---------|------|------|---------|
| SUVE-APN-FS    | ALIGN ASSY UNDER NEEDLE                                    | 0.01935 | 2.00 | 1.00 | 0.03870 |
| F2             | DROP PRESSER FOOT                                          | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2             | PEDAL START MACHINE                                        | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-2N    | Sew 2", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01545 | 2.00 | 1.00 | 0.03090 |
| M2G3 M2P0      | REMOVE STRAIGHT PIN                                        | 0.01505 | 2.00 | 1.00 | 0.03010 |
| M4P2           | ASIDE STRAIGHT PIN TO CUSHION                              | 0.01290 | 2.00 | 1.00 | 0.02580 |
| SUVE-RHP-AM    | REGRASP ASSY                                               | 0.01935 | 2.00 | 1.00 | 0.03870 |
| F2             | PEDAL TO START MACHINE                                     | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-LSS-RED1E | Sew 1" REDUCED SPD, Singer 591 SN LS, 500                  | 0.02875 | 2.00 | 1.00 | 0.05751 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 2.00 | 1.00 | 0.03010 |
| F2             | PEDAL TO RAISE PRESSER FOOT AND CUT THREAD                 | 0.00430 | 2.00 | 1.00 | 0.00860 |
| M3P0           | PULL FROM UNDER PRESSER FOOT                               | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-CPS-SA    | CUT THREAD                                                 | 0.03440 | 2.00 | 1.00 | 0.06880 |
| SUVE-CPX-SA    | CUT 2ND THREAD                                             | 0.01075 | 2.00 | 1.00 | 0.02150 |
| M4G3 M3P0      | ZIP ZIPPER                                                 | 0.02150 | 2.00 | 1.00 | 0.04300 |
| SATO-WT-SETLBL | SET LABEL, MATERNITY TUNIC                                 | 0.21100 | 1.00 | 1.00 | 0.21100 |
| SATS-WT-SETLBL | SET LABEL, MATERNITY TUNIC                                 | 0.21100 | 1.00 | 1.00 | 0.21100 |
| SUVE-RHP-AM    | REGRASP FACING AT LHS ZIPPER                               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APN-FL    | ALIGN FACING UNDER NEEDLE                                  | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-OLB-SA    | Obtain label from box or roll at right table top           | 0.02795 | 1.00 | 1.00 | 0.02795 |
| F2             | DROP PRESSER FOOT                                          | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M4G1 M4P0      | PUSH BODY OF GARMENT BACK ONTO TABLE                       | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AM    | REGRASP ASSY                                               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-1.5E  | Sew 1.5", Singer 591 SGL Ndl Lockstitch, 2000 RPM, exact   | 0.01750 | 1.00 | 1.00 | 0.01750 |
| SUVE-SBB-AA    | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2             | PEDAL TO CUT THREADS AND LIFT PRESSER FOOT                 | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CPS-SA    | CUT THREAD WITH SNIPS                                      | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SUVE-CPX-SA    | CUT 2ND THREAD                                             | 0.01075 | 1.00 | 1.00 | 0.01075 |



## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                         |         |      |      |         |
|-----------------|-----------------------------------------|---------|------|------|---------|
| SATO-WT-JNSDSM  | JOIN SIDESEAM, MATERNITY TUNIC          | 1.27478 | 1.00 | 1.00 | 1.27478 |
| SATS-WT-JNSDSM  | JOIN SIDESEAMS, MATERNITY TUNIC         | 1.27478 | 1.00 | 1.00 | 1.27478 |
| SUVE-APT-SL     | LAY GARMENT OUT TO TABLE                | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M4G1 M3P0       | GRASP ARMHOLES AND PULL OUT WRINKLES    | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M2G1 M2P0       | PULL OUT WRINKLES                       | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-CPS-SA     | CUT LOOSE THREAD                        | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SATM-WT-JNSDSM1 | JOIN 1 SIDESEAM, MATERNITY TUNIC        | 0.57181 | 1.00 | 1.00 | 0.57181 |
| M4P0            | PULL GARMENT BACK TO FRONT OF TABLE     | 0.00860 | 1.00 | 1.00 | 0.00860 |
| M4G3 M5P0       | FLIP GARMENT OVER TO OPPOSITE SIDE      | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-CPX-SA     | CUT THREAD WITH SNIPS                   | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATM-WT-JNSDSM1 | JOIN 1 SIDESEAM, MATERNITY TUNIC        | 0.57181 | 1.00 | 1.00 | 0.57181 |
| M4P0            | PULL BACK FROM BEHIND NEEDLE            | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SATO-WT-SETPKT  | SET POCKET, MATERNITY TUNIC             | 1.80132 | 1.00 | 1.00 | 1.80132 |
| SATS-WT-SETPKT  | LOCKSTITCH SET POCKET, MATERNITY TUNIC  | 1.80132 | 1.00 | 1.00 | 1.80132 |
| SATM-WT-TKPKT   | TACK 1 POCKET                           | 0.15305 | 2.00 | 1.00 | 0.30611 |
| SATM-WT-CLPPKT  | CLIP POCKET, MATERNITY TUNIC            | 0.11180 | 2.00 | 1.00 | 0.22360 |
| SATM-WT-SETPKT  | SET 1 POCKET TO SIDESEAM                | 0.63581 | 2.00 | 1.00 | 1.27162 |
| SATO-WT-CLSIDES | OVERLOCK CLEAN SIDES, MATERNITY TUNIC   | 1.36080 | 1.00 | 1.00 | 1.36080 |
| BATS-WT-CLSIDES | OVERLOCK CLEAN SIDE, MATERNITY TUNIC    | 0.04300 | 1.00 | 1.00 | 0.04300 |
| W5              | STEP TO MACHINE #2                      | 0.01075 | 4.00 | 1.00 | 0.04300 |
| SATS-WT-CLSIDES | OVERLOCK CLEAN SIDES, MATERNITY TUNIC   | 1.31780 | 1.00 | 1.00 | 1.31780 |
| SUVE-APT-NL     | LAY GARMENT TO MACHINE TABLETOP         | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-RHP-AL     | REGRAASP SIDESEAM AT TOP                | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-APN-SL     | ALIGN END OF SIDESEAM TO PRESSERFOOT    | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SATM-WT-CL25    | OVERLOCK CLEAN 25 INCH SIDE             | 0.23338 | 1.00 | 1.00 | 0.23338 |
| SUVE-RHP-AL     | REGRAASP GARMENT ON OPPOSITE SIDE       | 0.02150 | 1.00 | 1.00 | 0.02150 |
| M5P2            | TURN GARMENT OVER AND POSITION SEAM END | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AS     | REGRAASP ON TOP END OF SEAM             | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APN-SM     | ALIGN END OF SEAM TO NEEDLE             | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SATM-WT-CL25    | OVERLOCK CLEAN 25 INCH SIDE             | 0.23338 | 1.00 | 1.00 | 0.23338 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                |                                                 |         |      |         |
|----------------|-------------------------------------------------|---------|------|---------|
| SUVE-RHP-AL    | REGRASP BOTTOM OF SEAM ON OPPOSITE SIDE OF      | 0.02150 | 1.00 | 0.02150 |
| M5P0           | TURN GARMENT OVER AND POSITION END OF SEAM      | 0.01075 | 1.00 | 0.01075 |
| SUVE-RHP-AS    | REGRASP SEAM END                                | 0.01720 | 1.00 | 0.01720 |
| SUVE-APN-SM    | ALIGN END OF SEAM TO NEEDLE                     | 0.01505 | 1.00 | 0.01505 |
| SATM-WT-CL25   | OVERLOCK CLEAN 25 INCH SIDE                     | 0.23338 | 1.00 | 0.23338 |
| SUVE-RPR-FM    | ROTATE END OF SEAM AROUND PRESSER FOOT          | 0.02580 | 1.00 | 0.02580 |
| F2             | PEDAL START MACHINE & CLEAN FACING AT           | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N     | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop | 0.01476 | 1.00 | 0.01476 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                    | 0.01290 | 1.00 | 0.01290 |
| SUVE-CPX-SA    | CUT 2ND THREAD                                  | 0.01075 | 1.00 | 0.01075 |
| SUVE-RHP-AL    | REGRASP BOTTOM OF SIDESEAM ON OPPOSITE SIDE     | 0.02150 | 1.00 | 0.02150 |
| M5P0           | TURN PART OVER AND PLACE NEAR NEEDLE            | 0.01075 | 1.00 | 0.01075 |
| SUVE-RHP-AS    | REGRASP SEAM                                    | 0.01720 | 1.00 | 0.01720 |
| SUVE-APN-SM    | ALIGN SEAM TO NEEDLE                            | 0.01505 | 1.00 | 0.01505 |
| SATM-WT-CL25   | OVERLOCK CLEAN 25 INCH SIDE                     | 0.23338 | 1.00 | 0.23338 |
| SUVE-RPR-FM    | ROTATE END OF SEAM AROUND PRESSER FOOT          | 0.02580 | 1.00 | 0.02580 |
| F2             | PEDAL START MACHINE                             | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N     | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop | 0.01476 | 1.00 | 0.01476 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                    | 0.01290 | 1.00 | 0.01290 |
| SUVE-CPX-SA    | CUT 2ND THREAD                                  | 0.01075 | 1.00 | 0.01075 |
| SATO-WT-TKAH   | TACK ARMHOLE, MATERNITY TUNIC                   | 0.56490 | 1.00 | 0.56490 |
| BATS-WT-TKAH   | HANDLING, TACK ARMHOLE, MATERNITY TUNIC         | 0.04300 | 1.00 | 0.04300 |
| W5             | STEP TO LOCKSTITCH MACHINE #4                   | 0.01075 | 1.00 | 0.04300 |
| SATS-WT-TKAH   | TACK ARMHOLE, MATERNITY TUNIC                   | 0.52190 | 1.00 | 0.52190 |
| M5G1 M5P0      | TURN TUNIC INSIDE OUT                           | 0.02365 | 1.00 | 0.02365 |
| M4G1 M4P0      | STRAIGHTEN FABRIC                               | 0.01935 | 1.00 | 0.01935 |
| SATM-WT-TKAH   | TACK 2 ARMHOLES, MATERNITY TUNIC                | 0.23945 | 2.00 | 0.47890 |
| SATO-WT-JNBIAS | JOIN BIAS TO BOTTOM, MDU TUNIC                  | 1.75602 | 1.00 | 1.75602 |
| BATS-WT-BIAS   | HANDLING-JOIN BIAS TAPE TO TUNIC BOTTOM         | 0.83000 | 1.00 | 0.83000 |
| 465 MODS       | TIME TO SET M/C UP TO JOIN BIAS TAPE            | 1.00000 | 1.00 | 0.83000 |
|                |                                                 | 0.83    |      |         |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                                                                       |         |       |      |         |
|-----------------|---------------------------------------------------------------------------------------|---------|-------|------|---------|
| SATS-WT-JNBIAS  | JOIN BIAS TO MARINE MATERNITY TUNIC BOTTOM                                            | 0.92602 | 1.00  | 1.00 | 0.92602 |
| SUVE-OOO-NL     | OBTAIN TUNIC FROM LHS TABLE                                                           | 0.02795 | 1.00  | 1.00 | 0.02795 |
| SUVE-RHP-AM     | REGRAASP AT BOTTOM                                                                    | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-APT-SM     | FLIP ONTO TABLETOP TO SPREAD OUT                                                      | 0.01075 | 1.00  | 1.00 | 0.01075 |
| SUVE-APN-SM     | ALIGN BOTTOM UNDER PRESSER FOOT                                                       | 0.01505 | 1.00  | 1.00 | 0.01505 |
| F2              | DROP PRESSER FOOT & START SEW (NOTE:<br>Sew 10" RED SPD*, Singer 591 SGL Ndl LS, 2000 | 0.00430 | 7.00  | 1.00 | 0.03010 |
| SUVF-LSS-RED10N | REGRAASP TUNIC BOTTOM TO GUIDE NEXT 10" UNDER                                         | 0.05145 | 7.00  | 1.00 | 0.36016 |
| SUVE-RHP-AM     | PUSH FABRIC OUT OF WAY AND REGRAASP NEAR                                              | 0.01935 | 7.00  | 1.00 | 0.13545 |
| M4G1 M4P0       | CUT BIAS TAPE WITH SCISSORS                                                           | 0.01935 | 7.00  | 1.00 | 0.13545 |
| SUVE-CPS-SA     | GRASP CUT END OF BIAS TAPE                                                            | 0.03440 | 1.00  | 1.00 | 0.03440 |
| M4G3            | FOLD UNDER CUT END OF BIAS TAPE                                                       | 0.01505 | 1.00  | 1.00 | 0.01505 |
| SUVE-FPS-SS     | ALIGN FOLDED BIAS TAPE TO TUNIC BOTTOM                                                | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-APP-FS     | PEDAL TO START SEW                                                                    | 0.02580 | 1.00  | 1.00 | 0.02580 |
| F2              | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact                             | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-LSS-1E     | ROTATE EDGE AROUND NEEDLE 90 DEGREES                                                  | 0.01525 | 1.00  | 1.00 | 0.01525 |
| SUVE-RPR-SM     | PEDAL TO START SEW                                                                    | 0.01935 | 1.00  | 1.00 | 0.01935 |
| F2              | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact                             | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-LSS-1E     | SEW BACKTACK, LEVER                                                                   | 0.01525 | 1.00  | 1.00 | 0.01525 |
| SUVE-SBL-AA     | PEDAL TO LIFT PRESSER FOOT & CUT THREAD                                               | 0.02150 | 1.00  | 1.00 | 0.02150 |
| F2              | CUT THREAD WITH PALMED SNIPS                                                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                                                          | 0.01290 | 1.00  | 1.00 | 0.01290 |
| SATO-WT-HEM     | BLIND HEM, MATERNITY TUNIC                                                            | 1.17725 | 1.00  | 1.00 | 1.17725 |
| BATS-WT-HEM     | HANDLING-HEM BOTTOM, MATERNITY TUNIC                                                  | 0.08600 | 1.00  | 1.00 | 0.08600 |
| W5              | WALK TO M/C#8                                                                         | 0.01075 | 8.00  | 1.00 | 0.08600 |
| SATS-WT-HEM     | BLIND HEM, MATERNITY TUNIC                                                            | 1.09125 | 1.00  | 1.00 | 1.09125 |
| M4G1 M4P0       | REGRAASP BY SLIDING HANDS AROUND BTM UNDER                                            | 0.01935 | 2.00  | 1.00 | 0.03870 |
| SUVE-APF-FL     | ALIGN TUNIC BOTTOM TO FOLDER ON BLINDSTICH                                            | 0.03010 | 1.00  | 1.00 | 0.03010 |
| F2              | PEDAL TO SEW ON                                                                       | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-APS-FM     | ALIGN HEM BY SLIDING RH DOWN APPROX. 7"                                               | 0.02580 | 10.00 | 1.00 | 0.25800 |
| SUVE-RHP-AM     | LH REGRAASP BODY OF SKIRT                                                             | 0.01935 | 10.00 | 1.00 | 0.19350 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                              |         |       |      |         |
|-----------------|----------------------------------------------|---------|-------|------|---------|
| M4P0            | LH MOVE BODY OF SKIRT AROUND M/C AID         | 0.00860 | 10.00 | 1.00 | 0.08600 |
| F2              | PEDAL TO START M/C (NOTE: REDUCED M/C SPEED) | 0.00430 | 10.00 | 1.00 | 0.04300 |
| SUVE-CHU-7NRED  | Sew 7" REDUCE SPD, US56300 SN chainst, 1770  | 0.04204 | 10.00 | 1.00 | 0.42045 |
| F2              | PEDAL TO RELEASE HEM FROM UNDER NEEDLE       | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                 | 0.01290 | 1.00  | 1.00 | 0.01290 |
| SATO-WT-TKPKT   | BAR TACK POCKET, MATERNITY TUNIC             | 0.65925 | 1.00  | 1.00 | 0.65925 |
| BATS-WT-TKPKT   | HANDLING, BAR TACK POCKET, MATERNITY TUNIC   | 0.06450 | 1.00  | 1.00 | 0.06450 |
| W5              | STEP TO BAR TACK MACHINE #7                  | 0.01075 | 6.00  | 1.00 | 0.06450 |
| SATS-WT-TKPKT   | BAR TACK POCKETS, MATERNITY TUNIC            | 0.59475 | 1.00  | 1.00 | 0.59475 |
| M5G1 M5P0       | REACH IN AND TURN GARMENT RIGHTSIDE OUT      | 0.02365 | 1.00  | 1.00 | 0.02365 |
| M4G1 M4P0       | STRAIGHTEN FABRIC                            | 0.01935 | 3.00  | 1.00 | 0.05805 |
| J2              | REGASP SIDESEAM IN HANDS 5X TO GATHER        | 0.00430 | 10.00 | 1.00 | 0.04300 |
| SATM-WT-BRTKPKT | BAR TACK BOTTOM OF LHS POCKET, MATERNITY     | 0.09870 | 2.00  | 1.00 | 0.19740 |
| SATM-WT-BRTKPKT | BAR TACK TOP OF RHS POCKET, MATERNITY TUNIC  | 0.09870 | 2.00  | 1.00 | 0.19740 |
| M4P0            | PULL GARMENT FROM MACHINE                    | 0.00860 | 2.00  | 1.00 | 0.01720 |
| M4G1 M4P0       | REGASP GARMENT 3X TO OBTAIN RHS SIDESEAM     | 0.01935 | 3.00  | 1.00 | 0.05805 |
| FATO-WT-PRESS   | PRESS, MATERNITY TUNIC                       | 0.48445 | 1.00  | 1.00 | 0.48445 |
| BATS-WT-PRESS   | HANDLING-PRESS MATERNITY TUNIC               | 0.07525 | 1.00  | 1.00 | 0.07525 |
| W5              | STEP FROM S/N M/C#7 TO IRONING BOARD         | 0.01075 | 7.00  | 1.00 | 0.07525 |
| FATS-WT-PRSHFC  | PRESS OPEN SHOULDER SEAMS OF FACING          | 0.40920 | 1.00  | 1.00 | 0.40920 |
| FATO-WT-FOLDBAG | INSPECT, TRIM, FOLD, BAG, TUNIC              | 0.38485 | 1.00  | 1.00 | 0.38485 |
| BATS-WT-BAG     | HANDLING, FOLD & BAG MARINE MATERNITY TUNIC  | 0.03225 | 1.00  | 1.00 | 0.03225 |
| W5              | STEP TO FOLDING TABLE                        | 0.01075 | 3.00  | 1.00 | 0.03225 |
| FATS-WT-INSFLD  | INSPECT, TRIM, FOLD, MARINE MATERNITY TUNIC  | 0.22145 | 1.00  | 1.00 | 0.22145 |
| SUVE-APT-SL     | LAY TUNIC FLAT TO TABLE                      | 0.01505 | 1.00  | 1.00 | 0.01505 |
| M4G3 M3P0       | GRASP BACK PLY AND LIFT                      | 0.02150 | 1.00  | 1.00 | 0.02150 |
| M2G3 M2P2       | GRASP 1ST FRONT PLEAT AND PULL TO ALIGN      | 0.01935 | 1.00  | 1.00 | 0.01935 |
| M2G3 M2P2       | GRASP 2ND FRONT PLEAT AND PULL TO ALIGN      | 0.01935 | 1.00  | 1.00 | 0.01935 |
| M3P2            | LOWER BACK PANEL TO ALIGN                    | 0.01075 | 1.00  | 1.00 | 0.01075 |
| M4G1 M2P0       | GRASP AT SIDESEAMS AND STRAIGHTEN            | 0.01505 | 1.00  | 1.00 | 0.01505 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

Component MMDU-TUNIC MATERNITY DRESS UNIFORM (TUNIC)

|                 |                                               |      |         |      |         |
|-----------------|-----------------------------------------------|------|---------|------|---------|
| SUVE-FPS-SL     | FOLD LHS TUNIC TOWARD CENTER                  | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | FOLD RHS TUNIC TOWARD CENTER                  | 1.00 | 0.02795 | 1.00 | 0.02795 |
| M4P0            | ROTATE TUNIC 90 DEGREES                       | 1.00 | 0.00860 | 1.00 | 0.00860 |
| SUVE-FPS-SL     | FOLD BOTTOM END OF TUNIC APPROX. 3"           | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | FOLD BOTTOM OF TUNIC OVER TO TOP              | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SATS-WS-BAGSTKR | BAG GARMENT ADD STICKER BAG                   | 1.00 | 0.13115 | 1.00 | 0.13115 |
| M4G3 M4P0       | GRASP BAG & LAY TO TABLE                      | 1.00 | 0.02365 | 1.00 | 0.02365 |
| FUVM-BGM        | Bag folded garment manual                     | 1.00 | 0.07310 | 1.00 | 0.07310 |
| SUVE-OSR-AA     | Obtain sticker from roll and position to part | 1.00 | 0.03440 | 1.00 | 0.03440 |

# Part Routing Report

| Company                                     | ATRC                           | APPAREL TECH & RESEARCH CENTER         |        |         |        |        |           |          |        |  |  |
|---------------------------------------------|--------------------------------|----------------------------------------|--------|---------|--------|--------|-----------|----------|--------|--|--|
| Plant                                       | CAL POLY POMONACAL POLY POMONA |                                        |        |         |        |        |           |          |        |  |  |
| Part                                        | MMDU-SKIRT                     | MARINE MATERNITY DRESS UNIFORM (SKIRT) |        |         |        |        |           |          |        |  |  |
| Operation                                   |                                | Setup                                  | Handle | Process | Normal | PF&D   | Incentive | Standard | Cost   |  |  |
| CLOSE BACK SEAM & SEW 2 BACK PLEATS, MDU SI |                                | 0.000                                  | .198   | .782    | 1.605  | 22.0 % | 10.0 %    | 2.119    | \$0.23 |  |  |
| CLEAN 2 SIDES OF 2 BACK PIECES, MDU SKIRT   |                                | .083                                   | 0.000  | .858    | 1.076  | 22.0 % | 10.0 %    | 1.421    | \$0.15 |  |  |
| CLEAN FRONT SIDES & RIB, MDU SKIRT          |                                | 0.000                                  | .088   | .709    | 1.039  | 22.0 % | 10.0 %    | 1.371    | \$0.15 |  |  |
| INSPECT, TRIM, FOLD, BAG, SKIRT             |                                | 0.000                                  | .065   | .131    | .331   | 22.0 % | 10.0 %    | .437     | \$0.05 |  |  |
| BLIND HEM MDU SKIRT                         |                                | 0.000                                  | .086   | .737    | .823   | 22.0 % | 10.0 %    | 1.087    | \$0.12 |  |  |
| JOIN RIB TO FRONT PANEL, MDU SKIRT/SLACK    |                                | 0.000                                  | 0.000  | .747    | .747   | 22.0 % | 10.0 %    | .986     | \$0.11 |  |  |
| PRESS MDU SKIRT                             |                                | 0.000                                  | .065   | .812    | .876   | 22.0 % | 10.0 %    | 1.157    | \$0.13 |  |  |
| CLEAN BOTTOM, MDU SKIRT                     |                                | 0.000                                  | 0.000  | .739    | .739   | 22.0 % | 10.0 %    | .975     | \$0.11 |  |  |
| CLEAN WAIST & SET LABEL, MDU SKIRT          |                                | 0.000                                  | .032   | .457    | .489   | 22.0 % | 10.0 %    | .646     | \$0.07 |  |  |
| CUT, TACK, SET ELASTIC, MDU SKIRT           |                                | 0.000                                  | .147   | 1.343   | 1.826  | 22.0 % | 10.0 %    | 2.410    | \$0.26 |  |  |
| JOIN BIAS TO BOTTOM SKIRT, MDU SKIRT        |                                | 0.000                                  | .830   | .741    | 1.571  | 22.0 % | 10.0 %    | 2.074    | \$0.22 |  |  |
| JOIN SIDESEAM, SKIRT                        |                                | 0.000                                  | .175   | 1.148   | 1.323  | 22.0 % | 10.0 %    | 1.746    | \$0.19 |  |  |
| TOPSTITCH RIB JOIN, MDU SKIRT/SLACKS        |                                | 0.000                                  | 0.000  | .365    | .365   | 22.0 % | 10.0 %    | .481     | \$0.05 |  |  |
|                                             |                                | .083                                   | 1.685  | 9.568   | 12.810 |        |           | 16.910   | \$1.83 |  |  |

Parts Per Minute

Parts Per 8 Hour Day

.059

28.386

# Part Workcenter Summary Report

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part: **MMDU-SKIRT** MARINE MATERNITY DRESS UNIFORM (SKIRT)

| Workcenter                                              | Normal Minutes | PF & D Incentive | Std. Minutes | Cost          |
|---------------------------------------------------------|----------------|------------------|--------------|---------------|
| <b>Material Group FLORAL OR OTHER PATTERN</b>           |                |                  |              | <b>\$1.83</b> |
| Busy Bees #1                                            | 6.497          | 22.0 % 10.0 %    | 8.576        | \$0.93        |
| Busy Bees #2                                            | 6.313          | 22.0 % 10.0 %    | 8.333        | \$0.90        |
| Total Minutes                                           | 12.810         |                  | 16.910       |               |
| Total Hours                                             | .214           |                  | .282         | <b>\$1.83</b> |
| <b>Material Group MARINE CORP KHAKI POLY/WOOL BLEND</b> |                |                  |              | <b>\$1.83</b> |
| Busy Bees #1                                            | 6.497          | 22.0 % 10.0 %    | 8.576        | \$0.93        |
| Busy Bees #2                                            | 6.313          | 22.0 % 10.0 %    | 8.333        | \$0.90        |
| Total Minutes                                           | 12.810         |                  | 16.910       |               |
| Total Hours                                             | .214           |                  | .282         | <b>\$1.83</b> |
| <b>Material Group SOLID FABRIC, NO ALIGNMENT</b>        |                |                  |              | <b>\$1.83</b> |
| Busy Bees #1                                            | 6.497          | 22.0 % 10.0 %    | 8.576        | \$0.93        |
| Busy Bees #2                                            | 6.313          | 22.0 % 10.0 %    | 8.333        | \$0.90        |
| Total Minutes                                           | 12.810         |                  | 16.910       |               |
| Total Hours                                             | .214           |                  | .282         | <b>\$1.83</b> |

# Part Operation Summary Report

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part **MMDU-SKIRT** MARINE MATERNITY DRESS UNIFORM (SKIRT)

| Workcenter/Operation | Normal Minutes | Std. Minutes | Cost |
|----------------------|----------------|--------------|------|
|----------------------|----------------|--------------|------|

Material Group **FLORAL OR OTHER PATTERN** **\$1.83**

**Busy Bees #1** PF&D 22.0% Incentive 10.0%

|                                                |       |       |        |
|------------------------------------------------|-------|-------|--------|
| CLOSE BACK SEAM & SEW 2 BACK PLEATS, MDU SKIRT | 1.605 | 2.119 | \$0.23 |
| CLEAN 2 SIDES OF 2 BACK PIECES, MDU SKIRT      | 1.076 | 1.421 | \$0.15 |
| CLEAN FRONT SIDES & RIB, MDU SKIRT             | 1.039 | 1.371 | \$0.15 |
| INSPECT, TRIM, FOLD, BAG, SKIRT                | .331  | .437  | \$0.05 |
| BLIND HEM MDU SKIRT                            | .823  | 1.087 | \$0.12 |
| JOIN RIB TO FRONT PANEL, MDU SKIRT/SLACK       | .747  | .986  | \$0.11 |
| PRESS MDU SKIRT                                | .876  | 1.157 | \$0.13 |

**Busy Bees #2** PF&D 22.0% Incentive 10.0%

|                                      |       |       |        |
|--------------------------------------|-------|-------|--------|
| CLEAN BOTTOM, MDU SKIRT              | .739  | .975  | \$0.11 |
| CLEAN WAIST & SET LABEL, MDU SKIRT   | .489  | .646  | \$0.07 |
| CUT, TACK, SET ELASTIC, MDU SKIRT    | 1.826 | 2.410 | \$0.26 |
| JOIN BIAS TO BOTTOM SKIRT, MDU SKIRT | 1.571 | 2.074 | \$0.22 |
| JOIN SIDESEAM, SKIRT                 | 1.323 | 1.746 | \$0.19 |
| TOPSTITCH RIB JOIN, MDU SKIRT/SLACKS | .365  | .481  | \$0.05 |

|               |        |        |               |
|---------------|--------|--------|---------------|
| Total Minutes | 12.810 | 16.910 |               |
| Total Hours   | .214   | .282   | <b>\$1.83</b> |

Material Group **MARINE CORP KHAKI POLY/WOOL BLEND** **\$1.83**

**Busy Bees #1** PF&D 22.0% Incentive 10.0%

|                                                |       |       |        |
|------------------------------------------------|-------|-------|--------|
| CLOSE BACK SEAM & SEW 2 BACK PLEATS, MDU SKIRT | 1.605 | 2.119 | \$0.23 |
| CLEAN 2 SIDES OF 2 BACK PIECES, MDU SKIRT      | 1.076 | 1.421 | \$0.15 |
| CLEAN FRONT SIDES & RIB, MDU SKIRT             | 1.039 | 1.371 | \$0.15 |
| INSPECT, TRIM, FOLD, BAG, SKIRT                | .331  | .437  | \$0.05 |
| BLIND HEM MDU SKIRT                            | .823  | 1.087 | \$0.12 |
| JOIN RIB TO FRONT PANEL, MDU SKIRT/SLACK       | .747  | .986  | \$0.11 |
| PRESS MDU SKIRT                                | .876  | 1.157 | \$0.13 |

**Busy Bees #2** PF&D 22.0% Incentive 10.0%

|                                      |       |       |        |
|--------------------------------------|-------|-------|--------|
| CLEAN BOTTOM, MDU SKIRT              | .739  | .975  | \$0.11 |
| CLEAN WAIST & SET LABEL, MDU SKIRT   | .489  | .646  | \$0.07 |
| CUT, TACK, SET ELASTIC, MDU SKIRT    | 1.826 | 2.410 | \$0.26 |
| JOIN BIAS TO BOTTOM SKIRT, MDU SKIRT | 1.571 | 2.074 | \$0.22 |
| JOIN SIDESEAM, SKIRT                 | 1.323 | 1.746 | \$0.19 |
| TOPSTITCH RIB JOIN, MDU SKIRT/SLACKS | .365  | .481  | \$0.05 |

|               |        |        |               |
|---------------|--------|--------|---------------|
| Total Minutes | 12.810 | 16.910 |               |
| Total Hours   | .214   | .282   | <b>\$1.83</b> |



Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part **MMDU-SKIRT** MARINE MATERNITY DRESS UNIFORM (SKIRT)

| Workcenter/Operation                               | Normal Minutes | Std. Minutes  | Cost          |
|----------------------------------------------------|----------------|---------------|---------------|
| <b>Material Group SOLID FABRIC, NO ALIGNMENT</b>   |                |               | <b>\$1.83</b> |
| <b>Busy Bees #1 PF&amp;D 22.0% Incentive 10.0%</b> |                |               |               |
| CLOSE BACK SEAM & SEW 2 BACK PLEATS, MDU SKIRT     | 1.605          | 2.119         | \$0.23        |
| CLEAN 2 SIDES OF 2 BACK PIECES, MDU SKIRT          | 1.076          | 1.421         | \$0.15        |
| CLEAN FRONT SIDES & RIB, MDU SKIRT                 | 1.039          | 1.371         | \$0.15        |
| INSPECT, TRIM, FOLD, BAG, SKIRT                    | .331           | .437          | \$0.05        |
| BLIND HEM MDU SKIRT                                | .823           | 1.087         | \$0.12        |
| JOIN RIB TO FRONT PANEL, MDU SKIRT/SLACK           | .747           | .986          | \$0.11        |
| PRESS MDU SKIRT                                    | .876           | 1.157         | \$0.13        |
| <b>Busy Bees #2 PF&amp;D 22.0% Incentive 10.0%</b> |                |               |               |
| CLEAN BOTTOM, MDU SKIRT                            | .739           | .975          | \$0.11        |
| CLEAN WAIST & SET LABEL, MDU SKIRT                 | .489           | .646          | \$0.07        |
| CUT, TACK, SET ELASTIC, MDU SKIRT                  | 1.826          | 2.410         | \$0.26        |
| JOIN BIAS TO BOTTOM SKIRT, MDU SKIRT               | 1.571          | 2.074         | \$0.22        |
| JOIN SIDESEAM, SKIRT                               | 1.323          | 1.746         | \$0.19        |
| TOPSTITCH RIB JOIN, MDU SKIRT/SLACKS               | .365           | .481          | \$0.05        |
| <b>Total Minutes</b>                               | <b>12.810</b>  | <b>16.910</b> |               |
| <b>Total Hours</b>                                 | <b>.214</b>    | <b>.282</b>   | <b>\$1.83</b> |

# Operator Report

Company ATRC APPAREL TECH & RESEARCH CENTER  
 Plant CAL POLY POMONACAL POLY POMONA  
 Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)  
 Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Value  
 Standard

Standard Minutes  
 Standard Hours

0.000  
 0.000

| Code            | Description                                               | Time    | Freq. | Occur. | Ext. Time |
|-----------------|-----------------------------------------------------------|---------|-------|--------|-----------|
| SATO-WK-CLNBACK | CLEAN 2 SIDES OF 2 BACK PIECES, MDU SKIRT                 | 1.07615 | 1.00  | 1.00   | 1.07615   |
| MMSS-BPS-CB     | MM Skirt - Bring (2) back parts to station for clean back | 0.08278 | 1.00  | 1.00   | 0.08278   |
| SUVE-000-NL     | OBTAIN 1ST BACK PIECE FROM STACK                          | 0.02795 | 1.00  | 1.00   | 0.02795   |
| SUVE-000-NL     | OBTAIN 2ND BACK PIECE FROM STACK                          | 0.02795 | 1.00  | 1.00   | 0.02795   |
| W5              | TURN, WALK TO OLOCK MACHINE TABLE                         | 0.01075 | 4.00  | 2.00   | 0.02150   |
| M5P0            | ASIDE STACK TO STATION                                    | 0.01075 | 1.00  | 2.00   | 0.00538   |
| SATS-WSK-ASS BK | ASSEMBLE 2 PANELS & ATTACH W/STRAIGHT PIN                 | 0.13545 | 1.00  | 1.00   | 0.13545   |
| SUVE-000-NS     | RH OBTAIN STRAIGHT PIN FROM RHS M/C                       | 0.01935 | 1.00  | 1.00   | 0.01935   |
| SUVE-00T-FL     | OBTAIN 1ST PANEL FROM RHS M/C; PSN TO 2ND                 | 0.04945 | 1.00  | 1.00   | 0.04945   |
| SUVE-RHP-AS     | LH REGRASP ASSEMBLY                                       | 0.01720 | 1.00  | 1.00   | 0.01720   |
| M4P0            | LIFT 2 PARTS TOGETHER FROM TABLETOP                       | 0.00860 | 1.00  | 1.00   | 0.00860   |
| SUVE-RHP-AM     | LH REGRASP PART                                           | 0.01935 | 1.00  | 1.00   | 0.01935   |
| M3P2            | RH INSERT STRAIGHT PIN TO JOIN 2 PANELS                   | 0.01075 | 2.00  | 1.00   | 0.02150   |
| SATS-WSK-CLBK   | OVERLOCK CLEAN 1 SIDE OF 1 PIECE                          | 0.21448 | 4.00  | 1.00   | 0.85792   |
| SUVE-APT-NM     | ALIGN ASSEMBLY TO TABLE TOP                               | 0.00860 | 1.00  | 2.00   | 0.00430   |
| SUVE-FPS-NM     | GRASP & FOLD TOP PLY HALFWAY BACK TO ACCESS               | 0.01935 | 1.00  | 2.00   | 0.00968   |
| SUVE-RHP-AS     | REPOSITION HANDS ON BOTTOM PLY                            | 0.01720 | 1.00  | 2.00   | 0.00860   |
| SUVE-APN-SM     | ALIGN END OF BOTTOM PLY TO NEEDLE                         | 0.01505 | 1.00  | 1.00   | 0.01505   |
| F1              | FOOT PEDAL TO START MACHINE & SEW ONTO EDGE               | 0.00215 | 1.00  | 1.00   | 0.00215   |
| SUVF-OL-6N      | Sew 6" US39500 OVERLOCK, 4550 RPM, NORMAL stop            | 0.01832 | 1.00  | 1.00   | 0.01832   |
| SUVE-RHP-AS     | REPOSITION BH ON PANEL 3 TIMES                            | 0.01720 | 3.00  | 1.00   | 0.05160   |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

## Plant CAL POLY POMONACAL POLY POMONA

## Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

## Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

| F1             | PEDAL START M/C (3 SEW BURST @ 9" EACH)              | 0.00215 | 3.00 | 1.00 | 0.00645 |
|----------------|------------------------------------------------------|---------|------|------|---------|
| SUVE-OL-9N     | Sew 9" US39500 OVERLOCK, 5200 RPM, NORMAL stop       | 0.02203 | 3.00 | 1.00 | 0.06609 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                         | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4P0           | PULL PANEL BACK FROM BEHIND NEEDLE                   | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AL    | GRASP EDGE OF FOLDED BACK TOP PANEL                  | 0.02150 | 1.00 | 2.00 | 0.01075 |
| SATO-WK-CLBKPL | CLOSE BACK SEAM & SEW 2 BACK PLEATS, MDU SKIRT       | 1.60509 | 1.00 | 1.00 | 1.60509 |
| BATS-SKR-MC3   | Re-obtain 2 back parts, walk to next station & align | 0.19780 | 1.00 | 1.00 | 0.19780 |
| SUVE-000-SL    | OBTAIN BACK PANELS FROM M/C #2 TABLE                 | 0.03225 | 1.00 | 1.00 | 0.03225 |
| W5             | STEP TO MACHINE #3                                   | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SUVE-APT-NL    | LAY BACKS TO TABLE                                   | 0.01075 | 1.00 | 1.00 | 0.01075 |
| W5             | AFTER SEW PLEATS, STEP TO TABLE                      | 0.01075 | 2.00 | 1.00 | 0.02150 |
| SUVE-DPT-SL    | ASIDE PLEATED BACK PANEL TO TABLE                    | 0.01935 | 1.00 | 1.00 | 0.01935 |
| W5             | STEP TO STACK OF FRONT PANELS                        | 0.01075 | 2.00 | 1.00 | 0.02150 |
| SUVE-000-NL    | OBTAIN FRONT PANEL FROM STACK                        | 0.02795 | 1.00 | 1.00 | 0.02795 |
| W5             | STEP BACK TO M/C#3                                   | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WK-JNBK   | JOIN BACK PIECES ON WOMEN'S MARINE SKIRT             | 0.62576 | 1.00 | 1.00 | 0.62576 |
| SUVE-OTT-NM    | OBTAIN 2 BACK PIECES FROM LEFT M/C TABLE             | 0.03870 | 1.00 | 1.00 | 0.03870 |
| SUVE-APP-FS    | ALIGN 2 BACK PANELS TOGETHER                         | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-APN-SL    | ALIGN ASSEMBLY UNDER PRESSER FOOT                    | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2             | DROP PRESSER FOOT & START BACKTACK SEW               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA    | SEW BACKTACK, LEVER                                  | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-RHP-AS    | REGRASP ASSY 8 TIMES                                 | 0.01720 | 8.00 | 1.00 | 0.13760 |
| SUVE-APP-SS    | MINOR ALIGN TOP PLY TO BOTTOM 7 TIMES                | 0.01935 | 7.00 | 1.00 | 0.13545 |
| F2             | PEDAL START SEW 7 TIMES                              | 0.00430 | 7.00 | 1.00 | 0.03010 |
| MMSM-JBPCS     | JOIN BACK PIECES, 31.5" SEAM (SEW TIME)              | 0.14416 | 1.00 | 1.00 | 0.14416 |
| SUVE-SBL-AA    | SEW BACKTACK, LEVER                                  | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2             | PEDAL TO RAISE PRESSER FOOT                          | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CPX-SA    | CUT PART with SCISSORS - SOME alignment care         | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SUVE-CPX-SA    | MAKE 2ND THREAD CUT W/SNIPS                          | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATS-WK-MKPLT  | MAKE 1 8" PLEAT ON BACK WOMEN'S MARINE               | 0.39076 | 2.00 | 1.00 | 0.78153 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|               |                                                            |         |      |      |         |
|---------------|------------------------------------------------------------|---------|------|------|---------|
| M4P0          | PULL BACK PANEL BACK FROM BEHIND NEEDLE                    | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AM   | REPOSITION HANDS TO TO AREA OF PLEAT                       | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-FPP-FA   | PINCHFOLD PLEAT ALIGNING NOTCHES                           | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APT-SL   | LIFT AND LAY FOLDED PLEAT TO TABLE                         | 0.01505 | 1.00 | 1.00 | 0.01505 |
| J2            | REPOSITION FINGERS ON FOLDED EDGE                          | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APN-SM   | ALIGN END OF PLEAT TO FRONT OF PRESSER FOOT                | 0.01505 | 1.00 | 1.00 | 0.01505 |
| J2            | REMOVE FINGERS FROM UNDER PRESSER FOOT                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APP-FS   | REALIGN TOP EDGES OF PLEAT                                 | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-APN-FS   | ALIGN END OF PLEAT UNDER PRESSER FOOT                      | 0.01935 | 1.00 | 1.00 | 0.01935 |
| J2            | REMOVE FINGERS FROM UNDER PRESSER FOOT                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| F2            | DROP PRESSER FOOT                                          | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                        | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-RHP-AM   | REPOSITION RH FROM LEVER TO FOLDED PLEAT                   | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M2P5          | REALIGN BOTTOM OF PLEAT                                    | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AS   | REPOSITION LH TO HOLD CENTER OF FOLD                       | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F1            | PEDAL TO MAKE 7 SEW BURST                                  | 0.00215 | 7.00 | 1.00 | 0.01505 |
| SUVE-LSS-1N   | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01095 | 7.00 | 1.00 | 0.07666 |
| SUVE-LSS-1E   | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.01525 | 1.00 | 1.00 | 0.01525 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                        | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-CPS-FS   | CUT THREAD ON BOTTOM OF PLEAT WITH SNIPS                   | 0.04085 | 1.00 | 1.00 | 0.04085 |
| SUVE-CPX-SA   | CUT THREAD ON TOP OF PLEAT                                 | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATO-WK-JNRIB | JOIN RIB TO FRONT PANEL, MDU SKIRT/SLACK                   | 0.74676 | 1.00 | 1.00 | 0.74676 |
| SATS-WK-JNRIB | JOIN 25" RIB TO FRONT, MARINE MATERNITY                    | 0.74676 | 1.00 | 1.00 | 0.74676 |
| SUVE-RHP-AL   | REPOSITION RH TO START CORNER OF FRONT PANEL               | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-OOO-NM   | LH GRASP END OF RIB PANEL & LIFT FROM STACK                | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-APN-SL   | ALIGN CORNER OF RIB UNDER NEEDLE                           | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2            | PEDAL TO DROP PRESSER FOOT TO HOLD RIB                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-RHP-AL   | LH REGRAASP FRONT PANEL                                    | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-OOO-FS   | GRASP CORNER OF RIB FROM UNDER PRESSER                     | 0.03010 | 1.00 | 1.00 | 0.03010 |
| SUVE-APP-FS   | ALIGN CORNERS OF RIB AND FRONT PANEL                       | 0.02580 | 1.00 | 1.00 | 0.02580 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                |                                                        |         |      |         |
|----------------|--------------------------------------------------------|---------|------|---------|
| SUVE-APN-FS    | ALIGN ASSY UNDER NEEDLE                                | 0.01935 | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW                                     | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-1N    | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,norml | 0.01095 | 1.00 | 0.01095 |
| SUVE-RHP-AS    | REGRASP FRONT PANEL APPROX. 4" FRONT START             | 0.01720 | 1.00 | 0.01720 |
| SUVE-APP-SS    | ALIGN FRONT PANEL TO RIB PANEL AT EDGE                 | 0.01935 | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW                                     | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,norml | 0.01995 | 1.00 | 0.01995 |
| SUVE-RHP-AM    | REGRASP FRONT PANEL                                    | 0.01935 | 1.00 | 0.01935 |
| M3P0           | PULL FRONT PANEL TO LEFT TO MOVE EXCESS BULK           | 0.00645 | 1.00 | 0.00645 |
| SUVE-RHP-AM    | REGRASP FRONT PANEL NEAR CENTER                        | 0.01935 | 1.00 | 0.01935 |
| SUVE-APP-SS    | ALIGN FRONT PANEL TO RIB NEAR CENTER                   | 0.01935 | 1.00 | 0.01935 |
| M4G1 M2P2      | RH GRASP UNDER FRONT TO RIB & PULL TO ALIGN            | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AS    | LH REPOSITION HAND APPROX 4" IN FRONT OF               | 0.01720 | 1.00 | 0.05160 |
| M1P2           | MINOR ALIGN FRONT PANEL TO RIB (3X)                    | 0.00645 | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW (3X)                                | 0.00430 | 1.00 | 0.01290 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,norml | 0.01995 | 1.00 | 0.05985 |
| SUVE-RHP-AM    | LH REGRASP FRONT PANEL AT END                          | 0.01935 | 1.00 | 0.01935 |
| M3G1           | RH GRASP RIB PANEL AT END                              | 0.00860 | 1.00 | 0.00860 |
| SUVE-APP-FS    | ALIGN ENDS OF FRONT PANEL AND RIB TOGETHER             | 0.02580 | 1.00 | 0.02580 |
| M4G1 M2P2      | RH GRASP UNDER FRONT TO RIB & PULL TO ALIGN            | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AS    | LH GRASP FRONT PANEL APPROX. 4" IN FRONT OF            | 0.01720 | 1.00 | 0.05160 |
| M1P2           | MINOR ALIGN FRONT PANEL TO RIB (3X)                    | 0.00645 | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW (3X)                                | 0.00430 | 1.00 | 0.01290 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,norml | 0.01995 | 1.00 | 0.05985 |
| J2             | REGRASP CORNER OF ASSY TO MOVE FINGERS OUT             | 0.00430 | 1.00 | 0.00430 |
| F2             | PEDAL TO SEW                                           | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N    | Sew 3",Singer 591 Single Ndl Lockstitch,2000 RPM,norml | 0.01995 | 1.00 | 0.01995 |
| SUVE-CPS-SA    | CUT PART with SCISSORS - SOME alignment care           | 0.03440 | 1.00 | 0.03440 |
| SATO-WK-CLRBFT | CLEAN FRONT SIDES & RIB, MDU SKIRT                     | 1.03878 | 1.00 | 1.03878 |
| BATS-SKR-MC2   | BUNDLING- MARINE MATER SKIRT M/C#2, CLEAN FRT &        | 0.08815 | 1.00 | 0.08815 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                                         |         |      |      |         |
|-----------------|---------------------------------------------------------|---------|------|------|---------|
| W5              | STEP TO MACHINE #2, REGRASP JN SEAM EN ROUTE            | 0.01075 | 3.00 | 1.00 | 0.03225 |
| W5              | WHEN COMPLETE, STEP TO M/C #4                           | 0.01075 | 4.00 | 1.00 | 0.04300 |
| M4P2            | ASIDE SKIRT TO 2ND OPERATOR AT M/C#4                    | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATS-WK-CLNRBJN | CLEAN RIB JOIN ON MARINE MATER SKIRT/SLACK              | 0.24144 | 1.00 | 1.00 | 0.24144 |
| SUVE-APT-SM     | LAY FRONT PANEL TO M/C TABLE TO LEFT OF NEEDLE          | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-RHP-AM     | REGRASP FRONT/RIB JOIN AT END                           | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-APN-SS     | ALIGN END OF RIB JOIN SEAM TO PRESSER FOOT              | 0.01290 | 1.00 | 1.00 | 0.01290 |
| F2              | PEDAL TO START SEW                                      | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |
| SUVE-RHP-AM     | REPOSITION HAND ON SEAM TO GUIDE TO NEEDLE              | 0.01935 | 3.00 | 1.00 | 0.05805 |
| F2              | PEDAL START MACHINE (3X)                                | 0.00430 | 3.00 | 1.00 | 0.01290 |
| SUVE-CHU-7N     | Sew 7", US56300 SN chainst, 3540 RPM,normal stop        | 0.02425 | 3.00 | 1.00 | 0.07274 |
| J2              | REGRASP TO MOVE FINGERS OUT OF WAY OF                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                            | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATS-WK-CLFRSDS | CLEAN 32" FRONT SIDESEAM,1 SIDE, MARINE MATER           | 0.35460 | 2.00 | 1.00 | 0.70919 |
| M4P0            | PULL FRONT BACK FROM BEHIND NEEDLE                      | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL AT SIDE BOTTOM                      | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APN-SM     | ALIGN BOTTOM FRONT CORNER TO NEEDLE                     | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2              | PEDAL TO SEW ON TO FRONT                                | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL (3X)                                | 0.01720 | 3.00 | 1.00 | 0.05160 |
| F2              | PEDAL TO START SEW (3X)                                 | 0.00430 | 3.00 | 1.00 | 0.01290 |
| SUVE-CHU-6N     | Sew 6", US56300 single ndl chainstitch, 2950 RPM,normal | 0.02476 | 3.00 | 1.00 | 0.07427 |
| SUVE-RHP-AS     | REGRASP FRONT AT RIB JOIN SEAM                          | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-FPS-SS     | FOLD RIB JOIN SEAM OVER, SIMPLE FOLD                    | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL TO START M/C (REDUCED SPEED NEXT 4"               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 2.00 | 1.00 | 0.03324 |
| SUVE-RHP-AM     | RH GRASP END OF RIB; RH GRASP APPROX. 6" FROM           | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL START SEW                                         | 0.00430 | 1.00 | 1.00 | 0.00430 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                                            |         |      |      |         |
|-----------------|------------------------------------------------------------|---------|------|------|---------|
| SUVF-CHU-3N     | Sew 3", US56300 single ndl chainstitch, 1770 RPM, normal   | 0.02171 | 2.00 | 1.00 | 0.04341 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                               | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATO-WK-TSRIB   | TOPSTITCH RIB JOIN, MDU SKIRT/SLACKS                       | 0.36461 | 1.00 | 1.00 | 0.36461 |
| SATS-WK-TSRIBJN | TOPSTITCH 25" RIB JOIN, MARINE MATERNITY                   | 0.36461 | 1.00 | 1.00 | 0.36461 |
| SUVE-APN-FL     | ALIGN RIB JOIN SEAM UNDER NEEDLE                           | 0.02365 | 1.00 | 1.00 | 0.02365 |
| M1P2            | WIGGLE SEAM WITH FINGER LAY FLAT                           | 0.00645 | 2.00 | 1.00 | 0.01290 |
| SUVE-RNW-AA     | REPOSITION NEEDLE USING HANDWHEEL                          | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-RHP-AL     | REPOSITION RH TO FRONT TO SPREAD SEAM FLAT                 | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2              | PEDAL START M/C (6X)                                       | 0.00430 | 6.00 | 1.00 | 0.02580 |
| SUVF-LSS-4N     | Sew 4", Singer 591 Single Ndl Lockstitch, 3000 RPM, normal | 0.01845 | 6.00 | 1.00 | 0.11071 |
| SUVE-RHP-AS     | REPOSITION HANDS TO SPREAD SEAM (6X)                       | 0.01720 | 6.00 | 1.00 | 0.10320 |
| F2              | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-LSS-1N     | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01095 | 1.00 | 1.00 | 0.01095 |
| F2              | PEDAL BACK TO CUT THREAD                                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                               | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SUVE-CPX-SA     | CUT STARTING END LOOSE THREAD                              | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATO-WK-JNSIDES | JOIN SIDESEAM, SKIRT                                       | 1.32302 | 1.00 | 1.00 | 1.32302 |
| BATS-SKR-MC4    | BUNDLING- MARINE MATER SKIRT M/C#4                         | 0.17470 | 1.00 | 1.00 | 0.17470 |
| W5              | STEP TO MACHINE #4                                         | 0.01075 | 3.00 | 1.00 | 0.03225 |
| 465 MODS        | TIME TO ROTATE M/C PRESSER FOOT TO JOIN SIDES              | 1.00000 | 0.05 | 1.00 | 0.05000 |
| W5              | TURN & STEP TO TABLE                                       | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SUVE-OOO-NL     | OBTAIN SKIRT BACK FROM TABLE                               | 0.02795 | 1.00 | 1.00 | 0.02795 |
| W5              | TURN & STEP BACK TO M/C                                    | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WK-JNSIDE  | JOIN 1 SIDE ON WOMEN'S MARINE SKIRT                        | 0.57416 | 2.00 | 1.00 | 1.14832 |
| SUVE-APP-FL     | ALIGN LHS BACK PANEL TO FRONT                              | 0.03010 | 1.00 | 1.00 | 0.03010 |
| SUVE-APN-SL     | ALIGN ASSEMBLY UNDER PRESSER FOOT                          | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F2              | DROP PRESSER FOOT & START BACKTACK SEW                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                        | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SATM-WK-JNSIDE  | JOIN 1 SIDE MARINE MATERNITY SKIRT, 31.5" SEAM             | 0.43011 | 1.00 | 1.00 | 0.43011 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                        | 0.02150 | 1.00 | 1.00 | 0.02150 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

## Plant CAL POLY POMONACAL POLY POMONA

## Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

## Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                                  |         |      |      |         |
|-----------------|--------------------------------------------------|---------|------|------|---------|
| F2              | PEDAL TO RAISE PRESSER FOOT                      | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CPS-SA     | CUT PART with SCISSORS - SOME alignment care     | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SUVE-CPX-SA     | MAKE 2ND THREAD CUT W/ SNIPS                     | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATO-WK-CLWSTLB | CLEAN WAIST & SET LABEL, MDU SKIRT               | 0.48922 | 1.00 | 1.00 | 0.48922 |
| BATS-SKR-MC5    | BUNDLE/HANDLING-CLEAN WAIST-MACHINE #5           | 0.03225 | 1.00 | 1.00 | 0.03225 |
| W5              | STEP TO M/C #5, OVERLOCK; SIMO: TURN SKIRT       | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WK-CLWAIST | CLEAN WAIST & SET LABEL, MARINE MATERNITY        | 0.45697 | 1.00 | 1.00 | 0.45697 |
| SUVE-RHP-AL     | REGRASP WAIST AT LHS SIDESEAM                    | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-APN-FM     | ALIGN WAIST UNDER PRESSER FOOT KEEPING SEAM      | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2              | PEDAL TO START SEW                               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-RHP-AS     | REGRASP AT LHS PLEAT                             | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-FPS-FS     | FOLD PLEAT TO SEW DOWN                           | 0.02580 | 1.00 | 1.00 | 0.02580 |
| F2              | PEDAL TO START SEW                               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-RHP-AS     | REGRASP AT BACK PANEL JOIN SEAM                  | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-RPS-AS     | REPOSITION SEAM BY SMOOTHING FLAT                | 0.01075 | 1.00 | 1.00 | 0.01075 |
| J2              | LH REGRASP TO HOLD SEAM DOWN                     | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-OLB-SA     | Obtain label from box or roll at right table top | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-APP-SM     | ALIGN LABEL TO CENTER BACK WAIST                 | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2              | PEDAL TO START MACHINE                           | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-RHP-AS     | REGRASP RHS BACK PLEAT                           | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-FPS-SS     | FOLD RHS PLEAT OVER                              | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL TO START SEW                               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop   | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-RHP-AS     | REGRASP RHS SIDESEAM                             | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-RPS-AS     | SMOOTH RHS SIDESEAM FLAT                         | 0.01075 | 1.00 | 1.00 | 0.01075 |
| F2              | PEDAL TO START MACHINE                           | 0.00430 | 1.00 | 1.00 | 0.00430 |



Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                |                                                 |         |      |      |         |
|----------------|-------------------------------------------------|---------|------|------|---------|
| SUVF-OL-3N     | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-RHP-AM    | REGRA SP WAIST AT CENTER FRONT (2X)             | 0.01935 | 1.00 | 1.00 | 0.03870 |
| F2             | PEDAL TO START MACHINE (2X)                     | 0.00430 | 2.00 | 1.00 | 0.00860 |
| SUVF-OL-9N     | Sew 9",US39500 OVERLOCK, 5200 RPM, NORMAL stop  | 0.02203 | 2.00 | 1.00 | 0.04406 |
| SUVF-OL-3N     | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 1.00 | 0.01476 |
| SUVE-CTK-AA    | CUT THREAD WITH UNDERTRIMMER                    | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SATO-WK-CLNBTM | CLEAN BOTTOM, MDU SKIRT                         | 0.73878 | 1.00 | 1.00 | 0.73878 |
| SATS-WT-CLBTM  | CLEAN BOTTOM, MATERNITY TUNIC                   | 0.73878 | 1.00 | 1.00 | 0.73878 |
| M4G1 M3P0      | STRAIGHTEN TUNIC ON TABLETOP                    | 0.01720 | 2.00 | 1.00 | 0.03440 |
| SUVE-RHP-AL    | REGRA SP TUNIC AT LHS BOTTOM SIDESEAM           | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-APT-NL    | FLIP TUNIC AROUND TO ALIGN BOTTOM NEAR          | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-APN-SM    | ALIGN LHS BOTTOM UNDER FOOT NEAR LHS            | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AS    | REGRA SP SIDESEAM                               | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-RPS-AS    | SMOOTH SIDESEAM FLAT                            | 0.01075 | 1.00 | 1.00 | 0.01075 |
| F2             | PEDAL TO START SEW                              | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-3N     | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 1.00 | 0.01476 |
| M5G1 M5P0      | REACH INTO TUNIC AND TURN RIGHTSIDE OUT TO      | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-RHP-AM    | REGRA SP TUNIC BOTTOM NEAR CENTER BACK SEAM     | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW                              | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-9N     | Sew 9",US39500 OVERLOCK, 5200 RPM, NORMAL stop  | 0.02203 | 1.00 | 1.00 | 0.02203 |
| SUVE-RHP-AM    | REGRA SP BOTTOM EDGE                            | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2             | PEDAL START MACHINE                             | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-4N     | Sew 4",US39500 OVERLOCK, 4550 RPM, NORMAL stop  | 0.01436 | 1.00 | 1.00 | 0.01436 |
| SUVE-RHP-AS    | REGRA SP AT BACK PANEL JOIN SEAM                | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-RPS-AS    | REPOSITION SEAM BY SMOOTHING FLAT               | 0.01075 | 1.00 | 1.00 | 0.01075 |
| F2             | PEDAL TO START MACHINE                          | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-RED3N  | Sew 3" REDUCED M/C SPD,US39500 OLOCK, 1300 RPM, | 0.02722 | 1.00 | 1.00 | 0.02722 |
| SUVE-RHP-AM    | REGRA SP NEAR RHS SIDESEAM                      | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2             | PEDAL START MACHINE                             | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-OL-9N     | Sew 9",US39500 OVERLOCK, 5200 RPM, NORMAL stop  | 0.02203 | 1.00 | 1.00 | 0.02203 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                                           |         |      |         |
|-----------------|-----------------------------------------------------------|---------|------|---------|
| SUVE-RHP-AS     | REGRASP RHS SIDESEAM                                      | 0.01720 | 1.00 | 0.01720 |
| SUVE-RPS-AS     | SMOOTH RHS SIDESEAM FLAT                                  | 0.01075 | 1.00 | 0.01075 |
| F2              | PEDAL TO START MACHINE                                    | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-RED3N   | Sew 3" REDUCED M/C SPD, US39500 OLOCK, 1300 RPM,          | 0.02722 | 1.00 | 0.02722 |
| SUVE-RHP-AM     | REGRASP AT FRONT (5X)                                     | 0.01935 | 1.00 | 0.09675 |
| F2              | PEDAL TO START MACHINE (5X)                               | 0.00430 | 1.00 | 0.02150 |
| M2G1 M1P0       | GRASP FRONT PANEL JOIN SEAM AND FOLD OVER                 | 0.00860 | 1.00 | 0.01720 |
| SUVF-OL-8N      | Sew 9" US39500 OVERLOCK, 5200 RPM, NORMAL stop            | 0.02203 | 1.00 | 0.06609 |
| SUVF-OL-RED3N   | Sew 8" REDUCED M/C SPD, US39500 OLOCK, 1300 RPM,          | 0.06184 | 1.00 | 0.12367 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                              | 0.01290 | 1.00 | 0.01290 |
| SATO-WK-ELASTIC | CUT, TACK, SET ELASTIC, MDU SKIRT                         | 1.82609 | 1.00 | 1.82609 |
| BATS-WS-ELASTIC | BUNDLING/HANDLINE, ELASTIC OPERATION                      | 0.14730 | 1.00 | 0.14730 |
| W5              | STEP TO MACHINE                                           | 0.01075 | 1.00 | 0.03225 |
| SUVE-DPT-NL     | ASIDE GARMENT TO TABLE                                    | 0.01505 | 1.00 | 0.01505 |
| 405 MODS        | TIME TO ROTATE PRESSER FOOT FOR TACK ELASTIC              | 1.00000 | 1.00 | 0.05000 |
| 405 MODS        | TIME TO ROTATE PRESSER FOOT FOR SET ELASTIC               | 1.00000 | 1.00 | 0.05000 |
| SATS-WK-CUTELAS | CUT 20" ELASTIC                                           | 0.10750 | 1.00 | 0.10750 |
| M5G1 MSP0       | GRASP ELASTIC AND PULL OUT FROM ROLL                      | 0.02365 | 1.00 | 0.02365 |
| SUVE-APT-FL     | ALIGN RIGHT END ELASTIC TO TABLE GUIDE                    | 0.02150 | 1.00 | 0.02150 |
| M3P5            | SLIDE LH TO TABLE GUIDE AT LOCATION OF CUT                | 0.01720 | 1.00 | 0.01720 |
| J2              | LH REGRASP AT LOCATION OF CUT                             | 0.00430 | 1.00 | 0.00430 |
| SUVE-CPS-SA     | CUT ELASTIC WITH SNIPS                                    | 0.03440 | 1.00 | 0.03440 |
| SUVE-CPX-NA     | XTRA CUT TO CUT THROUGH ELASTIC                           | 0.00645 | 1.00 | 0.00645 |
| SATS-WK-TKELAS  | TACK ELASTIC                                              | 0.22871 | 1.00 | 0.22871 |
| M4G1            | RH GRASP END OF ELASTIC                                   | 0.01075 | 1.00 | 0.01075 |
| SUVE-APP-FM     | ALIGN ENDS OF ELASTIC TOGETHER                            | 0.02795 | 1.00 | 0.02795 |
| SUVE-APN-FM     | ALIGN ASSY ENDS OF ELASTIC UNDER NEEDLE                   | 0.02150 | 1.00 | 0.02150 |
| F2              | DROP PRESSER FOOT                                         | 0.00430 | 1.00 | 0.00430 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                       | 0.02150 | 1.00 | 0.02150 |
| SUVF-LSS-1E     | Sew 1", Singer 591 Single Ndi Lockstitch, 2000 RPM, exact | 0.01525 | 1.00 | 0.01525 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACA POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                                         |         |       |      |         |
|-----------------|---------------------------------------------------------|---------|-------|------|---------|
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00  | 1.00 | 0.01095 |
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVF-LSS-1E     | Sew 1",Singer 591 Single Ndl Lockstitch, 2000 RPM,exact | 0.01525 | 1.00  | 1.00 | 0.01525 |
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00  | 1.00 | 0.01095 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00  | 1.00 | 0.02150 |
| F2              | LIFT PRESSER FOOT                                       | 0.00430 | 1.00  | 1.00 | 0.00430 |
| M3P0            | PULL ELASTIC FROM UNDER PRESSER FOOT                    | 0.00645 | 1.00  | 1.00 | 0.00645 |
| SATS-WK-SETELAS | SET ELASTIC (36" STRETCHED) TO WAIST                    | 1.34258 | 1.00  | 1.00 | 1.34258 |
| M3G1 M3P2       | GRASP WAISTLINE OF SKIRT AT TABLETOP; PSN TO            | 0.01935 | 1.00  | 1.00 | 0.01935 |
| M3G1            | GRASP ELASTIC IN OPPOSITE HAND                          | 0.00860 | 1.00  | 1.00 | 0.00860 |
| SUVE-APP-FS     | ALIGN ELASTIC WAIST AT SEAM                             | 0.02580 | 1.00  | 1.00 | 0.02580 |
| SUVE-FPS-FS     | SIMPLE FOLD TOP OF WAIST LINE DOWN OVER                 | 0.02580 | 1.00  | 1.00 | 0.02580 |
| J2              | REGRASP ASSY                                            | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-APN-FM     | ALIGN ASSY UNDER NEEDLE                                 | 0.02150 | 1.00  | 1.00 | 0.02150 |
| SUVE-RPS-AS     | SMOOTH FOLDED WAISTBAND                                 | 0.01075 | 1.00  | 1.00 | 0.01075 |
| F2              | DROP PRESSER FOOT TO START SEW                          | 0.00430 | 1.00  | 1.00 | 0.00430 |
| M4G3 M4P2       | GRASP STRAIGHT PIN AND INSERT TO WAISTBAND              | 0.02795 | 2.00  | 1.00 | 0.05590 |
| M2P2            | PUSH PIN THROUGH TO HOLD IN PLACE (2X)                  | 0.00860 | 2.00  | 1.00 | 0.01720 |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00  | 1.00 | 0.01095 |
| SUVE-RHP-AS     | BH REGRASP ELASTIC/WAISTBAND EVERY 4"                   | 0.01720 | 9.00  | 1.00 | 0.15480 |
| SUVE-APP-FS     | ALIGN ELASTIC TO WAIST EVERY 4"                         | 0.02580 | 9.00  | 1.00 | 0.23220 |
| SUVE-FPS-FS     | FOLD WAISTBAND OVER ELASTIC EVERY 4"                    | 0.02580 | 9.00  | 1.00 | 0.23220 |
| J2              | RH REGRASP ASSY EVERY 4"                                | 0.00430 | 9.00  | 1.00 | 0.03870 |
| F2              | PEDAL TO START SEW EVERY 4"(NOTE: REDUCED M/C           | 0.00430 | 9.00  | 1.00 | 0.03870 |
| SUVF-LSS-2N     | Sew 2",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01545 | 18.00 | 1.00 | 0.27813 |
| M4G1 M3P0       | GRASP BULK OF SKIRT AND ROTATE OUT OF WAY (3X)          | 0.01720 | 3.00  | 1.00 | 0.05160 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00  | 1.00 | 0.02150 |
| F2              | PEDAL TO LIFT PRESSER FOOT                              | 0.00430 | 1.00  | 1.00 | 0.00430 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                |                                                           |         |       |      |         |
|----------------|-----------------------------------------------------------|---------|-------|------|---------|
| M3P0           | MOVE FROM UNDER NEEDLE                                    | 0.00645 | 1.00  | 1.00 | 0.00645 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                              | 0.01290 | 1.00  | 1.00 | 0.01290 |
| M3G1 M4P0      | GRASP AND REMOVE STRAIGHT PIN FROM WAIST                  | 0.01720 | 1.00  | 1.00 | 0.01720 |
| M4G1           | REGRASP WAIST                                             | 0.01075 | 1.00  | 1.00 | 0.01075 |
| M3P0           | PULL & RELEASE WAIST ELASTIC 3X TO DISTRIBUTE             | 0.00645 | 6.00  | 1.00 | 0.03870 |
| SATO-WK-JNBIAS | JOIN BIAS TO BOTTOM SKIRT, MDU SKIRT                      | 1.57123 | 1.00  | 1.00 | 1.57123 |
| BATS-SKR-BIAS  | HANDLING-JOIN BIAS TAPE TO SKIRT BOTTOM                   | 0.83000 | 1.00  | 1.00 | 0.83000 |
| 465 MODS       | TIME TO SET M/C UP TO JOIN BIAS TAPE                      | 1.00000 | 0.83  | 1.00 | 0.83000 |
| SATS-WK-JNBIAS | JOIN BIAS TO MARINE MATERNITY SKIRT BOTTOM                | 0.74123 | 1.00  | 1.00 | 0.74123 |
| SUVE-000-NL    | OBTAIN SKIRT FROM LHS TABLE                               | 0.02795 | 1.00  | 1.00 | 0.02795 |
| SUVE-RHP-AM    | REGRASP SKIRT BOTTOM                                      | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-APT-SM    | FLIP SKIRT ONTO TABLETOP TO SPREAD OUT                    | 0.01075 | 1.00  | 1.00 | 0.01075 |
| SUVE-APN-SM    | ALIGN BOTTOM SKIRT UNDER PRESSER FOOT                     | 0.01505 | 1.00  | 1.00 | 0.01505 |
| F2             | DROP PRESSER FOOT & START SEW (NOTE:                      | 0.00430 | 7.00  | 1.00 | 0.03010 |
| SUVF-LSS-3.5N  | Sew 3.5", Singer 591 Single Ndl LStitch, 2000 RPM, normal | 0.02220 | 14.00 | 1.00 | 0.31082 |
| SUVE-RHP-AM    | REGRASP SKIRT BOTTOM TO GUIDE NEXT 7" UNDER               | 0.01935 | 7.00  | 1.00 | 0.13545 |
| SUVE-CPS-SA    | CUT BIAS TAPE WITH SCISSORS                               | 0.03440 | 1.00  | 1.00 | 0.03440 |
| M4G3           | GRASP CUT END OF BIAS TAPE                                | 0.01505 | 1.00  | 1.00 | 0.01505 |
| SUVE-FPS-SS    | FOLD UNDER CUT END OF BIAS TAPE                           | 0.01935 | 1.00  | 1.00 | 0.01935 |
| SUVE-APP-FS    | ALIGN FOLDED BIAS TAPE TO SKIRT BOTTOM                    | 0.02580 | 1.00  | 1.00 | 0.02580 |
| F2             | PEDAL TO START SEW                                        | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-LSS-1E    | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact | 0.01525 | 1.00  | 1.00 | 0.01525 |
| SUVE-RPR-SM    | ROTATE EDGE AROUND NEEDLE 90 DEGREES                      | 0.01935 | 1.00  | 1.00 | 0.01935 |
| F2             | PEDAL TO START SEW                                        | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVF-LSS-1E    | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact | 0.01525 | 1.00  | 1.00 | 0.01525 |
| SUVE-SBL-AA    | SEW BACKTACK, LEVER                                       | 0.02150 | 1.00  | 1.00 | 0.02150 |
| F2             | PEDAL TO LIFT PRESSER FOOT & CUT THREAD                   | 0.00430 | 1.00  | 1.00 | 0.00430 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                              | 0.01290 | 1.00  | 1.00 | 0.01290 |
| SATO-WK-HEM    | BLIND HEM MDU SKIRT                                       | 0.82321 | 1.00  | 1.00 | 0.82321 |
| BATS-SKR-HEM   | HANDLING-HEM BOTTOM MARINE MATERNITY SKIRT                | 0.08600 | 1.00  | 1.00 | 0.08600 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

| W5             | WALK TO M/C#8                                 | 0.01075 | 8.00 | 1.00 | 0.08600 |
|----------------|-----------------------------------------------|---------|------|------|---------|
| SATS-WK-HEM    | BLIND HEM MARINE MATERNITY SKIRT              | 0.73721 | 1.00 | 1.00 | 0.73721 |
| SUVE-APF-FL    | ALIGN SKIRT BOTTOM TO FOLDER ON BLINDSTICH    | 0.03010 | 1.00 | 1.00 | 0.03010 |
| F2             | PEDAL TO SEW ON                               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APS-FM    | ALIGN HEM BY SLIDING RH DOWN APPROX. 7"       | 0.02580 | 7.00 | 1.00 | 0.18060 |
| SUVE-RHP-AM    | LH REGRASP BODY OF SKIRT                      | 0.01935 | 7.00 | 1.00 | 0.13545 |
| M3P0           | LH MOVE BODY OF SKIRT AROUND M/C AID          | 0.00645 | 7.00 | 1.00 | 0.04515 |
| F2             | PEDAL TO START M/C (NOTE: REDUCED M/C SPEED)  | 0.00430 | 7.00 | 1.00 | 0.03010 |
| SUVF-CHU-7NRED | Sew 7" REDUCE SPD, US56300 SN chainst, 1770   | 0.04204 | 7.00 | 1.00 | 0.29431 |
| F2             | PEDAL TO RELEASE HEM FROM UNDER NEEDLE        | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CTS-AA    | CUT THREAD WITH PALMED SNIPS                  | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATO-WK-PRESS  | PRESS MDU SKIRT                               | 0.87620 | 1.00 | 1.00 | 0.87620 |
| BATS-SKR-PRESS | HANDLING-PRESS MARINE MATERNITY SKIRT         | 0.06450 | 1.00 | 1.00 | 0.06450 |
| W5             | WALK TO IRONING BOARD                         | 0.01075 | 6.00 | 1.00 | 0.06450 |
| SATS-WK-PRESS  | PRESS MARINE MATERNITY SKIRT                  | 0.81170 | 1.00 | 1.00 | 0.81170 |
| M4P2           | POSITION SKIRT BOTTOM TO END OF IRONING BOARD | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M5P2           | SLIDE SKIRT ONTO IRONING BOARD                | 0.01505 | 1.00 | 1.00 | 0.01505 |
| M3P0           | WIGGLE SKIRT STRAIGHT ONTO BOARD              | 0.00645 | 2.00 | 1.00 | 0.01290 |
| M4G1 M4P2      | GRASP IRON AND POSITION TO BOTTOM OF LH       | 0.02365 | 1.00 | 1.00 | 0.02365 |
| 465 MODS       | TIME TO PRESS LH SIDESEAM                     | 1.00000 | 0.10 | 1.00 | 0.10000 |
| M4P0           | PRESS BOTTOM HEM                              | 0.00860 | 2.00 | 1.00 | 0.01720 |
| M4P2           | ASIDE IRON (4X)                               | 0.01290 | 4.00 | 1.00 | 0.05160 |
| M4G3 M4P2      | GRASP SKIRT AND ROTATE AROUND IRONING BOARD   | 0.02795 | 4.00 | 1.00 | 0.11180 |
| M4G1 M4P2      | GRASP IRON AND POSITION TO SKIRT (4X)         | 0.02365 | 4.00 | 1.00 | 0.09460 |
| 465 MODS       | TIME TO PRESS CENTER BACK SEAM                | 1.00000 | 0.10 | 1.00 | 0.10000 |
| 465 MODS       | TIME TO PRESS RH SIDESEAM                     | 1.00000 | 0.10 | 1.00 | 0.10000 |
| M4P0           | PRESS BOTTOM HEM BACK & FORTH (4X)            | 0.00860 | 8.00 | 1.00 | 0.06880 |
| M4G1 M4P0      | GRASP SKIRT & REMOVE FROM BOARD               | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M4P2           | LAY SKIRT FLAT TO IRONING BOARD               | 0.01290 | 1.00 | 1.00 | 0.01290 |
| M4G1 M4P2      | GRASP IRON; POSITION TO SKIRT FRONT           | 0.02365 | 1.00 | 1.00 | 0.02365 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

Component MMDU-SKIRT MARINE MATERNITY DRESS UNIFORM (SKIRT)

|                 |                                               |         |      |      |         |
|-----------------|-----------------------------------------------|---------|------|------|---------|
| M4P0            | IRON BACK AND FORTH ACROSS SKIRT FRONT 4X     | 0.00860 | 4.00 | 1.00 | 0.03440 |
| M4P2            | ASIDE IRON                                    | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATO-WK-FLDBAG  | INSPECT, TRIM, FOLD, BAG, SKIRT               | 0.33110 | 1.00 | 1.00 | 0.33110 |
| BATS-SKR-BAG    | HANDLING, FOLD & BAG MARINE MATERNITY         | 0.06450 | 1.00 | 1.00 | 0.06450 |
| W5              | STEP TO FOLDING TABLE                         | 0.01075 | 6.00 | 1.00 | 0.06450 |
| FATS-WK-INSFLD  | INSPECT, TRIM, FOLD, MARINE MATERNITY SKIRT   | 0.13545 | 1.00 | 1.00 | 0.13545 |
| SUVE-APT-SL     | LAY SKIRT FLAT TO TABLE                       | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-FPS-SL     | FOLD LHS SKIRT TOWARD CENTER                  | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | FOLD RHS SKIRT TOWARD CENTER                  | 0.02795 | 1.00 | 1.00 | 0.02795 |
| M4P0            | ROTATE SKIRT 90 DEGREES                       | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-FPS-SL     | FOLD BOTTOM END OF SKIRT SLIGHTLY             | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | FOLD BOTTOM OF SKIRT TOWARD WAIST OF SKIRT    | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SATS-WS-BAGSTKR | BAG GARMENT ADD STICKER BAG                   | 0.13115 | 1.00 | 1.00 | 0.13115 |
| M4G3 M4P0       | GRASP BAG & LAY TO TABLE                      | 0.02365 | 1.00 | 1.00 | 0.02365 |
| FUVM-BGM        | Bag folded garment manual                     | 0.07310 | 1.00 | 1.00 | 0.07310 |
| SUVE-OSR-AA     | Obtain sticker from roll and position to part | 0.03440 | 1.00 | 1.00 | 0.03440 |

# Part Routing Report

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONA CAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

| Operation                                   | Setup | Handle | Process | Normal | PF&D   | Incentive | Standard | Cost   |
|---------------------------------------------|-------|--------|---------|--------|--------|-----------|----------|--------|
| PRE-PRESS GARMENT                           | 0.000 | .258   | .953    | 1.211  | 22.0 % | 10.0 %    | 1.599    | \$0.17 |
| CLEAN BACK SIDESEAMS AND INSEAM, MDU SLACKS | 0.000 | .032   | .466    | 1.682  | 22.0 % | 10.0 %    | 2.220    | \$0.24 |
| CLEAN BACK RISE, SLACKS                     | 0.000 | 0.000  | .647    | .647   | 22.0 % | 10.0 %    | .854     | \$0.09 |
| CLEAN FRONT RISE, SLACKS                    | 0.000 | .043   | .456    | .499   | 22.0 % | 10.0 %    | .658     | \$0.07 |
| CLEAN FRONT SIDES & RIB, MDU SLACKS         | 0.000 | .032   | .493    | 1.999  | 22.0 % | 10.0 %    | 2.638    | \$0.29 |
| INSPECT, TRIM, FOLD, BAG, SLACKS            | 0.000 | .065   | .131    | .329   | 22.0 % | 10.0 %    | .434     | \$0.05 |
| JOIN BACK RISE & SEW PLEATS                 | 0.000 | .032   | .782    | 1.365  | 22.0 % | 10.0 %    | 1.802    | \$0.20 |
| JOIN FRONT RISE, SLACKS                     | 0.000 | .032   | .513    | .545   | 22.0 % | 10.0 %    | .719     | \$0.08 |
| JOIN INSEAMS, SLACKS                        | 0.000 | .092   | 1.998   | 2.091  | 22.0 % | 10.0 %    | 2.760    | \$0.30 |
| JOIN RIB TO FRONT PANEL, MDU SLACK          | 0.000 | 0.000  | .822    | .822   | 22.0 % | 10.0 %    | 1.085    | \$0.12 |
| PRESS MDU SLACKS                            | 0.000 | .129   | 2.250   | 2.379  | 22.0 % | 10.0 %    | 3.140    | \$0.34 |
| CLEAN 16 1/2" BOTTOM LEG OPENING, SLACK     | 0.000 | 0.000  | .626    | .626   | 22.0 % | 10.0 %    | .826     | \$0.09 |
| CLEAN WAIST & SET LABEL, MDU SLACKS         | 0.000 | .503   | .476    | .979   | 22.0 % | 10.0 %    | 1.293    | \$0.14 |
| CUT, TACK, SET ELASTIC, MDU SLACK           | 0.000 | .147   | 1.343   | 1.826  | 22.0 % | 10.0 %    | 2.410    | \$0.26 |
| JOIN SIDESEAM, SLACKS                       | 0.000 | .050   | 1.827   | 1.877  | 22.0 % | 10.0 %    | 2.478    | \$0.27 |
| TOPSTITCH RIB JOIN, MDU SLACKS              | 0.000 | 0.000  | .365    | .365   | 22.0 % | 10.0 %    | .481     | \$0.05 |
|                                             | 0.000 | 1.416  | 14.147  | 19.241 |        |           | 25.398   | \$2.75 |

Parts Per Minute .039

Parts Per 8 Hour Day 18.899

# Part Workcenter Summary Report

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER  
Plant **CAL POLY POMONA** CAL POLY POMONA  
Part: **MDU-SLACKS** MATERNITY DRESS UNIFORM (SLACKS)

| Workcenter                                              | Normal Minutes | PF & D Incentive | Std. Minutes | Cost          |
|---------------------------------------------------------|----------------|------------------|--------------|---------------|
| Material Group <b>FLORAL OR OTHER PATTERN</b>           |                |                  |              | <b>\$2.75</b> |
| Busy Bees #1                                            | 13.568         | 22.0 % 10.0 %    | 17.910       | \$1.94        |
| Busy Bees #2                                            | 5.673          | 22.0 % 10.0 %    | 7.488        | \$0.81        |
| Total Minutes                                           | 19.241         |                  | 25.398       |               |
| Total Hours                                             | .321           |                  | .423         | <b>\$2.75</b> |
| Material Group <b>MARINE CORP KHAKI POLY/WOOL BLEND</b> |                |                  |              | <b>\$2.75</b> |
| Busy Bees #1                                            | 13.568         | 22.0 % 10.0 %    | 17.910       | \$1.94        |
| Busy Bees #2                                            | 5.673          | 22.0 % 10.0 %    | 7.488        | \$0.81        |
| Total Minutes                                           | 19.241         |                  | 25.398       |               |
| Total Hours                                             | .321           |                  | .423         | <b>\$2.75</b> |
| Material Group <b>SOLID FABRIC, NO ALIGNMENT</b>        |                |                  |              | <b>\$2.75</b> |
| Busy Bees #1                                            | 13.568         | 22.0 % 10.0 %    | 17.910       | \$1.94        |
| Busy Bees #2                                            | 5.673          | 22.0 % 10.0 %    | 7.488        | \$0.81        |
| Total Minutes                                           | 19.241         |                  | 25.398       |               |
| Total Hours                                             | .321           |                  | .423         | <b>\$2.75</b> |



# Part Operation Summary Report

Page 1

Company **ATRC** APPAREL TECH & RESEARCH CENTER  
 Plant **CAL POLY POMONA** CAL POLY POMONA  
 Part **MDU-SLACKS** MATERNITY DRESS UNIFORM (SLACKS)

| Workcenter/Operation                           | Normal Minutes | Std. Minutes  | Cost          |
|------------------------------------------------|----------------|---------------|---------------|
| <b>Material Group FLORAL OR OTHER PATTERN</b>  |                |               | <b>\$2.75</b> |
| <b>Busy Bees #1</b> PF&D 22.0% Incentive 10.0% |                |               |               |
| PRE-PRESS GARMENT                              | 1.211          | 1.599         | \$0.17        |
| CLEAN BACK SIDESEAMS AND INSEAM, MDU SLACKS    | 1.682          | 2.220         | \$0.24        |
| CLEAN BACK RISE, SLACKS                        | .647           | .854          | \$0.09        |
| CLEAN FRONT RISE, SLACKS                       | .499           | .658          | \$0.07        |
| CLEAN FRONT SIDES & RIB, MDU SLACKS            | 1.999          | 2.638         | \$0.29        |
| INSPECT, TRIM, FOLD, BAG, SLACKS               | .329           | .434          | \$0.05        |
| JOIN BACK RISE & SEW PLEATS                    | 1.365          | 1.802         | \$0.20        |
| JOIN FRONT RISE, SLACKS                        | .545           | .719          | \$0.08        |
| JOIN INSEAMS, SLACKS                           | 2.091          | 2.760         | \$0.30        |
| JOIN RIB TO FRONT PANEL, MDU SLACK             | .822           | 1.085         | \$0.12        |
| PRESS MDU SLACKS                               | 2.379          | 3.140         | \$0.34        |
| <b>Busy Bees #2</b> PF&D 22.0% Incentive 10.0% |                |               |               |
| CLEAN 16 1/2" BOTTOM LEG OPENING, SLACK        | .626           | .826          | \$0.09        |
| CLEAN WAIST & SET LABEL, MDU SLACKS            | .979           | 1.293         | \$0.14        |
| CUT, TACK, SET ELASTIC, MDU SLACK              | 1.826          | 2.410         | \$0.26        |
| JOIN SIDESEAM, SLACKS                          | 1.877          | 2.478         | \$0.27        |
| TOPSTITCH RIB JOIN, MDU SLACKS                 | .365           | .481          | \$0.05        |
| <b>Total Minutes</b>                           | <b>19.241</b>  | <b>25.398</b> | <b>\$2.75</b> |
| <b>Total Hours</b>                             | <b>.321</b>    | <b>.423</b>   |               |

|                                                         |       |       |               |
|---------------------------------------------------------|-------|-------|---------------|
| <b>Material Group MARINE CORP KHAKI POLY/WOOL BLEND</b> |       |       | <b>\$2.75</b> |
| <b>Busy Bees #1</b> PF&D 22.0% Incentive 10.0%          |       |       |               |
| PRE-PRESS GARMENT                                       | 1.211 | 1.599 | \$0.17        |
| CLEAN BACK SIDESEAMS AND INSEAM, MDU SLACKS             | 1.682 | 2.220 | \$0.24        |
| CLEAN BACK RISE, SLACKS                                 | .647  | .854  | \$0.09        |
| CLEAN FRONT RISE, SLACKS                                | .499  | .658  | \$0.07        |
| CLEAN FRONT SIDES & RIB, MDU SLACKS                     | 1.999 | 2.638 | \$0.29        |
| INSPECT, TRIM, FOLD, BAG, SLACKS                        | .329  | .434  | \$0.05        |
| JOIN BACK RISE & SEW PLEATS                             | 1.365 | 1.802 | \$0.20        |
| JOIN FRONT RISE, SLACKS                                 | .545  | .719  | \$0.08        |
| JOIN INSEAMS, SLACKS                                    | 2.091 | 2.760 | \$0.30        |
| JOIN RIB TO FRONT PANEL, MDU SLACK                      | .822  | 1.085 | \$0.12        |
| PRESS MDU SLACKS                                        | 2.379 | 3.140 | \$0.34        |
| <b>Busy Bees #2</b> PF&D 22.0% Incentive 10.0%          |       |       |               |
| CLEAN 16 1/2" BOTTOM LEG OPENING, SLACK                 | .626  | .826  | \$0.09        |
| CLEAN WAIST & SET LABEL, MDU SLACKS                     | .979  | 1.293 | \$0.14        |
| CUT, TACK, SET ELASTIC, MDU SLACK                       | 1.826 | 2.410 | \$0.26        |
| JOIN SIDESEAM, SLACKS                                   | 1.877 | 2.478 | \$0.27        |

Plant CAL POLY POMONA CAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

| Workcenter/Operation                                    | Normal Minutes                        | Std. Minutes | Cost          |
|---------------------------------------------------------|---------------------------------------|--------------|---------------|
| <b>Material Group MARINE CORP KHAKI POLY/WOOL BLEND</b> |                                       |              |               |
| <b>Busy Bees #2</b>                                     | <b>PF&amp;D 22.0% Incentive 10.0%</b> |              |               |
| TOPSTITCH RIB JOIN, MDU SLACKS                          | .365                                  | .481         | \$0.05        |
| Total Minutes                                           | 19.241                                | 25.398       | <b>\$2.75</b> |
| Total Hours                                             | .321                                  | .423         |               |
| <b>Material Group SOLID FABRIC, NO ALIGNMENT</b>        |                                       |              | <b>\$2.75</b> |
| <b>Busy Bees #1</b>                                     | <b>PF&amp;D 22.0% Incentive 10.0%</b> |              |               |
| PRE-PRESS GARMENT                                       | 1.211                                 | 1.599        | \$0.17        |
| CLEAN BACK SIDESEAMS AND INSEAM, MDU SLACKS             | 1.682                                 | 2.220        | \$0.24        |
| CLEAN BACK RISE, SLACKS                                 | .647                                  | .854         | \$0.09        |
| CLEAN FRONT RISE, SLACKS                                | .499                                  | .658         | \$0.07        |
| CLEAN FRONT SIDES & RIB, MDU SLACKS                     | 1.999                                 | 2.638        | \$0.29        |
| INSPECT, TRIM, FOLD, BAG, SLACKS                        | .329                                  | .434         | \$0.05        |
| JOIN BACK RISE & SEW PLEATS                             | 1.365                                 | 1.802        | \$0.20        |
| JOIN FRONT RISE, SLACKS                                 | .545                                  | .719         | \$0.08        |
| JOIN INSEAMS, SLACKS                                    | 2.091                                 | 2.760        | \$0.30        |
| JOIN RIB TO FRONT PANEL, MDU SLACK                      | .822                                  | 1.085        | \$0.12        |
| PRESS MDU SLACKS                                        | 2.379                                 | 3.140        | \$0.34        |
| <b>Busy Bees #2</b>                                     | <b>PF&amp;D 22.0% Incentive 10.0%</b> |              |               |
| CLEAN 16 1/2" BOTTOM LEG OPENING, SLACK                 | .626                                  | .826         | \$0.09        |
| CLEAN WAIST & SET LABEL, MDU SLACKS                     | .979                                  | 1.293        | \$0.14        |
| CUT, TACK, SET ELASTIC, MDU SLACK                       | 1.826                                 | 2.410        | \$0.26        |
| JOIN SIDESEAM, SLACKS                                   | 1.877                                 | 2.478        | \$0.27        |
| TOPSTITCH RIB JOIN, MDU SLACKS                          | .365                                  | .481         | \$0.05        |
| Total Minutes                                           | 19.241                                | 25.398       | <b>\$2.75</b> |
| Total Hours                                             | .321                                  | .423         |               |

# Operator Report

Company ATRC APPAREL TECH & RESEARCH CENTER  
 Plant CAL POLY POMONACAL POLY POMONA  
 Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)  
 Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

| Value    | Standard Minutes |
|----------|------------------|
| Standard | 0.000            |
|          | 0.000            |

| Code            | Description                                             | Time    | Freq. | Occur. | Ext. Time |
|-----------------|---------------------------------------------------------|---------|-------|--------|-----------|
| SATO-WS-CLFRIS  | CLEAN FRONT RISE, SLACKS                                | 0.49878 | 1.00  | 1.00   | 0.49878   |
| BATS-WS-CLFRTRS | HANDLING, CLEAN FRONT RISE, SLACKS                      | 0.04300 | 1.00  | 1.00   | 0.04300   |
| W5              | STEP FROM M/C#4 BACK TO M/C#2                           | 0.01075 | 4.00  | 1.00   | 0.04300   |
| SATS-WS-CLRS6"  | CLEAN 6" FRONT RISE, SLACKS                             | 0.45578 | 1.00  | 1.00   | 0.45578   |
| SATS-WSK-ASS BK | ASSEMBLE 2 PANELS & ATTACH W/STRAIGHT PIN               | 0.13545 | 1.00  | 1.00   | 0.13545   |
| SATM-WS-CLRS6"  | OVERLOCK CLEAN 6" FRONT RISE, 1 SIDE OF 1 PIECE         | 0.16016 | 2.00  | 1.00   | 0.32033   |
| SATO-WS-JNFRIS  | JOIN FRONT RISE, SLACKS                                 | 0.54478 | 1.00  | 1.00   | 0.54478   |
| BATS-WS-JNFRTRS | HANDLING, JOIN FRONT RISE                               | 0.03225 | 1.00  | 1.00   | 0.03225   |
| W5              | STEP FROM M/C#2 TO M/C#3                                | 0.01075 | 3.00  | 1.00   | 0.03225   |
| SATS-WS-JNRS6"  | JOIN 6" RISE                                            | 0.51253 | 1.00  | 1.00   | 0.51253   |
| SUVE-APP-FS     | ALIGN TOP END OF FRONT RISE (MAJOR ALIGNMENT)           | 0.02580 | 1.00  | 1.00   | 0.02580   |
| SUVE-APN-FL     | ALIGN END OF ASSY UNDER NEEDLE                          | 0.02365 | 1.00  | 1.00   | 0.02365   |
| F2              | DROP PRESSER FOOT                                       | 0.00430 | 1.00  | 1.00   | 0.00430   |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00  | 1.00   | 0.02150   |
| M4G1 M4P0       | GRASP LEGS OF SLACKS AND PUSH BACK ON TABLE             | 0.01935 | 1.00  | 1.00   | 0.01935   |
| SUVE-RHP-AM     | REGRAASP PLYS 3X                                        | 0.01935 | 3.00  | 1.00   | 0.05805   |
| SUVE-APP-FS     | ALIGN PLYS TOGETHER 3X                                  | 0.02580 | 3.00  | 1.00   | 0.07740   |
| F2              | PEDAL TO SEW 3X                                         | 0.00430 | 3.00  | 1.00   | 0.01290   |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainslitch, 1770 RPM,normal | 0.01662 | 2.00  | 1.00   | 0.03324   |
| SUVF-CHU-2E     | Sew 2", US56300 single ndl chainslitch, 1770 RPM, exact | 0.02092 | 1.00  | 1.00   | 0.02092   |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00  | 1.00   | 0.02150   |

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|               |                                                          |         |      |      |         |
|---------------|----------------------------------------------------------|---------|------|------|---------|
| SUVE-RNW-AA   | REPOSITION NEEDLE USING HANDWHEEL                        | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-RPR-FL   | ROTATE AROUND NEEDLE TO SEW OVER SEAM 2ND                | 0.02795 | 1.00 | 1.00 | 0.02795 |
| M4G1 M4P0     | GRASP LEGS OF SLACKS AND PUSH OUT OF WAY                 | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2            | PEDAL TO SEW 2X                                          | 0.00430 | 2.00 | 1.00 | 0.01935 |
| SUVF-CHU-3N   | Sew 3", US56300 single ndl chainstitch, 1770 RPM,normal  | 0.02171 | 1.00 | 1.00 | 0.00860 |
| SUVF-CHU-3E   | Sew 3", US56300 single ndl chainstitch, 1770 RPM, exact  | 0.02601 | 1.00 | 1.00 | 0.02171 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                      | 0.02150 | 1.00 | 1.00 | 0.02601 |
| SUVE-CPX-SA   | CUT THREAD                                               | 0.03440 | 1.00 | 1.00 | 0.02150 |
| SUVE-CPX-SA   | CUT 2ND THREAD                                           | 0.01075 | 1.00 | 1.00 | 0.03440 |
| SATO-WS-JNRIB | JOIN RIB TO FRONT PANEL, MDU SLACK                       | 0.82201 | 1.00 | 1.00 | 0.01075 |
| SATS-WK-JNRIB | JOIN 25" RIB TO FRONT, MARINE MATERNITY                  | 0.82201 | 1.00 | 1.00 | 0.82201 |
| SUVE-RHP-AL   | REPOSITION RH TO START CORNER OF FRONT PANEL             | 0.02150 | 1.00 | 1.00 | 0.82201 |
| SUVE-OOO-NM   | LH GRASP END OF RIB PANEL & LIFT FROM STACK              | 0.02365 | 1.00 | 1.00 | 0.02150 |
| SUVE-APN-SL   | ALIGN CORNER OF RIB UNDER NEEDLE                         | 0.01720 | 1.00 | 1.00 | 0.02365 |
| F2            | PEDAL TO DROP PRESSER FOOT TO HOLD RIB                   | 0.00430 | 1.00 | 1.00 | 0.01720 |
| SUVE-RHP-AL   | LH REGRASP FRONT PANEL                                   | 0.02150 | 1.00 | 1.00 | 0.00430 |
| SUVE-OOO-FS   | GRASP CORNER OF RIB FROM UNDER PRESSER                   | 0.03010 | 1.00 | 1.00 | 0.02150 |
| SUVE-APP-FS   | ALIGN CORNERS OF RIB AND FRONT PANEL                     | 0.02580 | 1.00 | 1.00 | 0.03010 |
| SUVE-APN-FS   | ALIGN ASSY UNDER NEEDLE                                  | 0.01935 | 1.00 | 1.00 | 0.02580 |
| F2            | PEDAL TO START SEW                                       | 0.00430 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-1N   | Sew 1", Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00 | 1.00 | 0.00430 |
| SUVE-RHP-AS   | REGRASP FRONT PANEL APPROX. 4" FRONT START               | 0.01720 | 1.00 | 1.00 | 0.01095 |
| SUVE-APP-SS   | ALIGN FRONT PANEL TO RIB PANEL AT EDGE                   | 0.01935 | 1.00 | 1.00 | 0.01720 |
| F2            | PEDAL TO START SEW                                       | 0.00430 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-3N   | Sew 3", Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01995 | 1.00 | 1.00 | 0.00430 |
| SUVE-RHP-AM   | REGRASP FRONT PANEL                                      | 0.01935 | 1.00 | 1.00 | 0.01995 |
| M3P0          | PULL FRONT PANEL TO LEFT TO MOVE EXCESS BULK             | 0.00645 | 1.00 | 1.00 | 0.01935 |
| SUVE-RHP-AM   | REGRASP FRONT PANEL NEAR CENTER                          | 0.01935 | 1.00 | 1.00 | 0.00645 |
| SUVE-FPS-FS   | FOLD FRONT RISE JOIN SEAM DOWN FLAT, SLACKS              | 0.02580 | 1.00 | 1.00 | 0.01935 |
| SUVE-APP-SS   | ALIGN FRONT PANEL TO RIB NEAR CENTER                     | 0.01935 | 1.00 | 1.00 | 0.02580 |
|               |                                                          |         | 1.00 | 1.00 | 0.01935 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                            |         |      |         |
|-----------------|------------------------------------------------------------|---------|------|---------|
| M4G1 M2P2       | RH GRASP UNDER FRONT TO RIB & PULL TO ALIGN                | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AS     | LH REPOSITION HAND APPROX 4" IN FRONT OF                   | 0.01720 | 1.00 | 0.05160 |
| M1P2            | MINOR ALIGN FRONT PANEL TO RIB (3X)                        | 0.00645 | 1.00 | 0.01935 |
| F2              | PEDAL TO START SEW (3X)                                    | 0.00430 | 1.00 | 0.01290 |
| SUVF-LSS-3N     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 1.00 | 0.05985 |
| SUVE-RHP-AL     | LH GRASP LEGS OF SLACKS                                    | 0.02150 | 1.00 | 0.04300 |
| M3P0            | PUSH LEGS OF SLACKS BACK ON MACHINE TABLE                  | 0.00645 | 1.00 | 0.00645 |
| SUVE-RHP-AM     | LH REGRASP FRONT PANEL AT END                              | 0.01935 | 1.00 | 0.01935 |
| M3G1            | RH GRASP RIB PANEL AT END                                  | 0.00860 | 1.00 | 0.00860 |
| SUVE-APP-FS     | ALIGN ENDS OF FRONT PANEL AND RIB TOGETHER                 | 0.02580 | 1.00 | 0.02580 |
| M4G1 M2P2       | RH GRASP UNDER FRONT TO RIB & PULL TO ALIGN                | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AS     | LH GRASP FRONT PANEL APPROX. 4" IN FRONT OF                | 0.01720 | 1.00 | 0.05160 |
| M1P2            | MINOR ALIGN FRONT PANEL TO RIB (3X)                        | 0.00645 | 1.00 | 0.01935 |
| F2              | PEDAL TO START SEW (3X)                                    | 0.00430 | 1.00 | 0.01290 |
| SUVF-LSS-3N     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 1.00 | 0.05985 |
| J2              | REGRASP CORNER OF ASSY TO MOVE FINGERS OUT                 | 0.00430 | 1.00 | 0.00430 |
| F2              | PEDAL TO SEW                                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3N     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01995 | 1.00 | 0.01995 |
| SUVE-CPS-SA     | CUT PART with SCISSORS - SOME alignment care               | 0.03440 | 1.00 | 0.03440 |
| SATO-WS-CLRBFT  | CLEAN FRONT SIDES & RIB, MDU SLACKS                        | 1.99860 | 1.00 | 1.99860 |
| BATS-WS-CLRB    | BUNDLING- MATERNITY SLACKS M/C#2, CLEAN RIB                | 0.03225 | 1.00 | 0.03225 |
| W5              | STEP TO MACHINE #2, REGRASP JN SEAM EN ROUTE               | 0.01075 | 1.00 | 0.03225 |
| SATS-WK-CLNRBJN | CLEAN RIB JOIN ON MARINE MATER SKIRT/SLACK                 | 0.26079 | 1.00 | 0.26079 |
| SUVE-APT-SM     | LAY FRONT PANEL TO MIC TABLE TO LEFT OF NEEDLE             | 0.01075 | 1.00 | 0.01075 |
| SUVE-RHP-AM     | REGRASP FRONT/RIB JOIN AT END                              | 0.01935 | 1.00 | 0.01935 |
| SUVE-APN-SS     | ALIGN END OF RIB JOIN SEAM TO PRESSER FOOT                 | 0.01290 | 1.00 | 0.01290 |
| F2              | PEDAL TO START SEW                                         | 0.00430 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM, normal   | 0.01662 | 1.00 | 0.01662 |
| SUVE-RHP-AM     | REPOSITION HAND ON SEAM TO GUIDE TO NEEDLE                 | 0.01935 | 1.00 | 0.05805 |
| F2              | PEDAL START MACHINE (3X)                                   | 0.00430 | 1.00 | 0.01290 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                         |         |      |      |         |
|-----------------|---------------------------------------------------------|---------|------|------|---------|
| SUVF-CHU-7N     | Sew 7", US56300 SN chainst, 3540 RPM,normal stop        | 0.02425 | 3.00 | 1.00 | 0.07274 |
| SUVE-RHP-AS     | REGRASP AT FRONT RISE JOIN SEAM, SLACKS                 | 0.01720 | 1.00 | 1.00 | 0.01720 |
| M1P0            | SLIDE FINGERS TO HOLE FRONT RISE JOIN SEAM              | 0.00215 | 1.00 | 1.00 | 0.00215 |
| J2              | REGRASP TO MOVE FINGERS OUT OF WAY OF                   | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                            | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATS-WS-CLFRSDS | CLEAN 48" FRONT LEFT/RIGHT SIDESEAM, MARINE             | 0.49337 | 1.00 | 1.00 | 0.49337 |
| M4P0            | PULL FRONT BACK FROM BEHIND NEEDLE                      | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL AT SIDE BOTTOM                      | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APN-SM     | ALIGN BOTTOM FRONT CORNER TO NEEDLE                     | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2              | PEDAL TO SEW ON TO FRONT                                | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL (6X)                                | 0.01720 | 6.00 | 1.00 | 0.10320 |
| F2              | PEDAL TO START SEW (6X)                                 | 0.00430 | 6.00 | 1.00 | 0.02580 |
| SUVF-CHU-6N     | Sew 6", US56300 single ndl chainstitch, 2950 RPM,normal | 0.02476 | 6.00 | 1.00 | 0.14854 |
| SUVE-RHP-AS     | REGRASP FRONT AT RIB JOIN SEAM                          | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-FPS-SS     | FOLD RIB JOIN SEAM OVER, SIMPLE FOLD                    | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL TO START M/C (REDUCED SPEED NEXT 4"               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 2.00 | 1.00 | 0.03324 |
| SUVE-RHP-AM     | RH GRASP END OF RIB; RH GRASP APPROX. 6" FROM           | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL START SEW                                         | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-CHU-3N     | Sew 3", US56300 single ndl chainstitch, 1770 RPM,normal | 0.02171 | 1.00 | 1.00 | 0.02171 |
| SUVF-CHU-3N     | Sew 3", US56300 single ndl chainstitch, 1770 RPM,normal | 0.02171 | 1.00 | 1.00 | 0.02171 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                            | 0.01290 | 1.00 | 1.00 | 0.01290 |
| SATS-WS-CLFRINS | CLEAN 35" LH/RH INSEAM, SLACKS                          | 0.71883 | 1.00 | 1.00 | 0.71883 |
| M4P0            | PULL FRONT BACK FROM BEHIND NEEDLE                      | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL AT LH BOTTOM INSEAM                 | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APN-SM     | ALIGN INSEAM TO NEEDLE                                  | 0.01505 | 1.00 | 1.00 | 0.01505 |
| F2              | PEDAL TO SEW                                            | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 1.00 | 1.00 | 0.01662 |

Company ATRC APPAREL TECH & RESEARCH CENTER  
 Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)  
 Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                         |         |      |      |         |
|-----------------|---------------------------------------------------------|---------|------|------|---------|
| SUVE-RHP-AM     | REGRASP SLACKS (EXCESS) 2X                              | 0.01935 | 2.00 | 1.00 | 0.03870 |
| M4P0            | PUSH EXCESS OUT OF WAY 2X                               | 0.00860 | 2.00 | 1.00 | 0.01720 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL (5X)                                | 0.01720 | 5.00 | 1.00 | 0.08600 |
| F2              | PEDAL TO START SEW (5X)                                 | 0.00430 | 5.00 | 1.00 | 0.02150 |
| SUVE-CHU-6N     | Sew 6", US56300 single ndl chainstitch, 2950 RPM,normal | 0.02476 | 5.00 | 1.00 | 0.12378 |
| SUVE-RHP-AS     | REGRASP RISE JOIN SEAM                                  | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-FPS-SS     | FOLD SEAM OVER, SIMPLE FOLD                             | 0.01935 | 1.00 | 1.00 | 0.01935 |
| F2              | PEDAL TO START M/C (REDUCED SPEED NEXT 4"               | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM,normal | 0.01662 | 2.00 | 1.00 | 0.03324 |
| SUVE-RHP-AS     | REGRASP RH FRONT PANEL (5X)                             | 0.01720 | 5.00 | 1.00 | 0.08600 |
| F2              | PEDAL START MACHINE (5X)                                | 0.00430 | 5.00 | 1.00 | 0.02150 |
| SUVE-CHU-6N     | Sew 6", US56300 single ndl chainstitch, 2950 RPM,normal | 0.02476 | 5.00 | 1.00 | 0.12378 |
| SUVE-CPS-SA     | CUT THREAD WITH SNIPS                                   | 0.03440 | 1.00 | 1.00 | 0.03440 |
| M4G1 M4P0       | GRASP START END AND PULL BACK                           | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-CPX-SA     | CUT THREAD ON START END                                 | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATS-WS-CLFRSDS | CLEAN 48" FRONT LEFT/RIGHT SIDESEAM, MARINE             | 0.49337 | 1.00 | 1.00 | 0.49337 |
| SATO-WS-CLBKRS  | CLEAN BACK RISE, SLACKS                                 | 0.64684 | 1.00 | 1.00 | 0.64684 |
| SATS-WS-CLRS20" | CLEAN 20" BACK RISE, SLACKS                             | 0.64684 | 1.00 | 1.00 | 0.64684 |
| BATS-WS-CLBKRS  | HANDLING, CLEAN BACK RISE, SLACKS                       | 0.06450 | 1.00 | 1.00 | 0.06450 |
| SATS-WSK-ASS BK | ASSEMBLE 2 PANELS & ATTACH W/STRAIGHT PIN               | 0.13545 | 1.00 | 1.00 | 0.13545 |
| SATM-WS-CLRS20" | OVERLOCK CLEAN 20" BACK RISE, 1 SIDE OF 1 PIECE         | 0.22344 | 2.00 | 1.00 | 0.44689 |
| SATO-WS-JNBKRIS | JOIN BACK RISE & SEW PLEATS                             | 1.36500 | 1.00 | 1.00 | 1.36500 |
| BATS-WS-JNBKRS  | HANDLING, JOIN BACK RISE, SLACKS                        | 0.03225 | 1.00 | 1.00 | 0.03225 |
| W5              | STEP FROM M/C#2 TO M/C#3                                | 0.01075 | 3.00 | 1.00 | 0.03225 |
| SATS-WS-JNRS20" | JOIN 20" RISE                                           | 0.55123 | 1.00 | 1.00 | 0.55123 |
| SUVE-APP-FL     | ALIGN TOP END OF BACK RISE                              | 0.03010 | 1.00 | 1.00 | 0.03010 |
| SUVE-APN-FL     | ALIGN END OF ASSY UNDER NEEDLE                          | 0.02365 | 1.00 | 1.00 | 0.02365 |
| F2              | DROP PRESSER FOOT                                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| M4G1 M4P0       | GRASP LEGS OF SLACKS AND PUSH BACK ON TABLE             | 0.01935 | 1.00 | 1.00 | 0.01935 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|               |                                                         |         |      |      |         |
|---------------|---------------------------------------------------------|---------|------|------|---------|
| SUVE-RHP-AM   | REGRASP PLYS 5X                                         | 0.01935 | 5.00 | 1.00 | 0.09675 |
| SUVE-APP-FS   | ALIGN PLYS TOGETHER 5X                                  | 0.02580 | 5.00 | 1.00 | 0.12900 |
| F2            | PEDAL TO SEW 5X                                         | 0.00430 | 5.00 | 1.00 | 0.02150 |
| SUVF-CHU-4N   | Sew 4", US56300 single ndl chainsitch, 2950 RPM,normal  | 0.01866 | 4.00 | 1.00 | 0.07462 |
| SUVF-CHU-4E   | Sew 4", US56300 single ndl chainsitch, 2950 RPM, exact  | 0.02296 | 1.00 | 1.00 | 0.02296 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| M4G1 M4P0     | GRASP LEGS OF SLACKS AND PUSH OUT OF WAY                | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-CPS-SA   | CUT THREAD                                              | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SUVE-CPX-SA   | CUT 2ND THREAD                                          | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SATS-WK-WKPLT | MAKE 1 8" PLEAT ON BACK WOMEN'S MARINE                  | 0.39076 | 2.00 | 1.00 | 0.78153 |
| M4P0          | PULL BACK PANEL BACK FROM BEHIND NEEDLE                 | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-RHP-AM   | REPOSITION HANDS TO TO AREA OF PLEAT                    | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVE-FPP-FA   | PINCHFOLD PLEAT ALIGNING NOTCHES                        | 0.01720 | 1.00 | 1.00 | 0.01720 |
| SUVE-APT-SL   | LIFT AND LAY FOLDED PLEAT TO TABLE                      | 0.01505 | 1.00 | 1.00 | 0.01505 |
| J2            | REPOSITION FINGERS ON FOLDED EDGE                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APN-SM   | ALIGN END OF PLEAT TO FRONT OF PRESSER FOOT             | 0.01505 | 1.00 | 1.00 | 0.01505 |
| J2            | REMOVE FINGERS FROM UNDER PRESSER FOOT                  | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-APP-FS   | REALIGN TOP EDGES OF PLEAT                              | 0.02580 | 1.00 | 1.00 | 0.02580 |
| SUVE-APN-FS   | ALIGN END OF PLEAT UNDER PRESSER FOOT                   | 0.01935 | 1.00 | 1.00 | 0.01935 |
| J2            | REMOVE FINGERS FROM UNDER PRESSER FOOT                  | 0.00430 | 1.00 | 1.00 | 0.00430 |
| F2            | DROP PRESSER FOOT                                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVE-RHP-AM   | REPOSITION RH FROM LEVER TO FOLDED PLEAT                | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M2P5          | REALIGN BOTTOM OF PLEAT                                 | 0.01505 | 1.00 | 1.00 | 0.01505 |
| SUVE-RHP-AS   | REPOSITION LH TO HOLD CENTER OF FOLD                    | 0.01720 | 1.00 | 1.00 | 0.01720 |
| F1            | PEDAL TO MAKE 7 SEW BURST                               | 0.00215 | 7.00 | 1.00 | 0.01505 |
| SUVF-LSS-1N   | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 7.00 | 1.00 | 0.07666 |
| SUVF-LSS-1E   | Sew 1",Singer 591 Single Ndl Lockstitch, 2000 RPM,exact | 0.01525 | 1.00 | 1.00 | 0.01525 |
| SUVE-SBL-AA   | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |



## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                          |         |      |         |
|-----------------|----------------------------------------------------------|---------|------|---------|
| SUVE-CPS-FS     | CUT THREAD ON BOTTOM OF PLEAT WITH SNIPS                 | 0.04085 | 1.00 | 0.04085 |
| SUVE-CPX-SA     | CUT THREAD ON TOP OF PLEAT                               | 0.01075 | 1.00 | 0.01075 |
| SATO-WS-CLBK    | CLEAN BACK SIDESEAMS AND INSEAM, MDU SLACKS              | 1.68214 | 1.00 | 1.68214 |
| BATS-WS-CLBK    | BUNDLING- MATERNITY SLACKS M/C#2, CLEAN BACK             | 0.03225 | 1.00 | 0.03225 |
| W5              | STEP FROM M/C#3 TO M/C#2, REGRASP IN ROUTE               | 0.01075 | 3.00 | 0.03225 |
| SATS-WS-CLBKSS  | CLEAN 48" BACK LEFT/RIGHT SIDESEAM, MARINE MATER         | 0.46553 | 1.00 | 0.46553 |
| M4P0            | PULL FRONT BACK FROM BEHIND NEEDLE                       | 0.00860 | 1.00 | 0.00860 |
| SUVE-RHP-AS     | REGRASP FRONT PANEL AT SIDE BOTTOM                       | 0.01720 | 1.00 | 0.01720 |
| SUVE-APN-SM     | ALIGN BOTTOM FRONT CORNER TO NEEDLE                      | 0.01505 | 1.00 | 0.01505 |
| F2              | PEDAL TO SEW ON TO FRONT                                 | 0.00430 | 1.00 | 0.00430 |
| SUVF-CHU-2N     | Sew 2", US53600 single ndl chainstitch, 1770 RPM, normal | 0.01720 | 1.00 | 0.01720 |
| SUVE-RHP-AS     | REGRASP BACK PANEL (7X)                                  | 0.00430 | 7.00 | 0.03010 |
| F2              | PEDAL TO START SEW (7X)                                  | 0.02476 | 7.00 | 0.17330 |
| SUVF-CHU-6N     | Sew 6", US56300 single ndl chainstitch, 2950 RPM, normal | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | RH GRASP END OF RIB; RH GRASP APPROX. 6" FROM            | 0.00430 | 1.00 | 0.00430 |
| F2              | PEDAL START SEW                                          | 0.02171 | 1.00 | 0.02171 |
| SUVF-CHU-3N     | Sew 3", US56300 single ndl chainstitch, 1770 RPM, normal | 0.02171 | 1.00 | 0.02171 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                             | 0.01290 | 1.00 | 0.01290 |
| SATS-WS-CLFRINS | CLEAN 35" LH/RH INSEAM, SLACKS                           | 0.71883 | 1.00 | 0.71883 |
| SATS-WS-CLBKSS  | CLEAN 48" BACK LEFT/RIGHT SIDESEAM, MARINE MATER         | 0.46553 | 1.00 | 0.46553 |
| SATO-WS-JNINSM  | JOIN INSEAMS, SLACKS                                     | 2.09070 | 1.00 | 2.09070 |
| BATS-WS-JNINS   | HANDLING, JOIN 35" INSEAMS, SLACKS                       | 0.09245 | 1.00 | 0.09245 |
| W5              | STEP TO TABLE                                            | 0.01075 | 1.00 | 0.03225 |
| SUVE-OOO-NL     | OBTAIN FRONT ASSY FROM TABLE                             | 0.02795 | 1.00 | 0.02795 |
| W5              | STEP TO M/C#3                                            | 0.01075 | 3.00 | 0.03225 |
| SATS-WS-JNINSM  | JOIN INSEAMS, SLACKS                                     | 1.99825 | 1.00 | 1.99825 |
| SUVE-RHP-AL     | REGRASP FRONT ASSY AT CROTCH                             | 0.02150 | 1.00 | 0.02150 |
| SUVE-RHP-AL     | REGRASP BACK ASSY AT CROTCH                              | 0.02150 | 1.00 | 0.02150 |
| SUVE-APP-FL     | ALIGN FRONT AND BACK AT INSEAM                           | 0.03010 | 1.00 | 0.03010 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                |         |       |      |         |
|-----------------|------------------------------------------------|---------|-------|------|---------|
| SUVE-FPS-FS     | FOLD RISE SEAMS BACK SIMPLE                    | 0.02580 | 4.00  | 1.00 | 0.10320 |
| SUVE-APS-FL     | STRAIGHTEN LHS INSEAM BY SLIDING RH DOWN       | 0.02795 | 1.00  | 1.00 | 0.02795 |
| SUVE-APP-FS     | MINOR ALIGNMENT OF FIRST 4" OF INSEAM          | 0.02580 | 1.00  | 1.00 | 0.02580 |
| SUVE-APT-NL     | LAY ASSY TO TABLETOP                           | 0.01075 | 1.00  | 1.00 | 0.01075 |
| SUVE-RHP-AS     | GRASP ASSY AT CROTCH                           | 0.01720 | 1.00  | 1.00 | 0.01720 |
| M1G1 M1P0       | STRAIGHTEN FRONT & BACK RISE SEAMS             | 0.00645 | 4.00  | 1.00 | 0.02580 |
| SATM-WS-JNINS35 | SEW BACKTACK, LEVER                            | 0.80240 | 1.00  | 1.00 | 0.80240 |
| SUVE-RHP-AL     | REGRASP SLACKS                                 | 0.02150 | 1.00  | 1.00 | 0.02150 |
| SUVE-APT-SL     | ALIGN SLACKS ON TABLE BY FLIPPING OVER TO      | 0.01505 | 1.00  | 1.00 | 0.01505 |
| SUVE-RHP-AL     | REGRASP AT CROTCH                              | 0.02150 | 1.00  | 1.00 | 0.02150 |
| SUVE-APS-FM     | STRAIGHTEN INSEAMS PLYS BY SLIDING FINGERS     | 0.02580 | 1.00  | 1.00 | 0.02580 |
| SUVE-APP-FS     | MINOR ALIGN PLYS APPROX. 4" FROM NEEDLE        | 0.02580 | 1.00  | 1.00 | 0.02580 |
| SATM-WS-JNINS35 | JOIN 35" INSEAMS, SLACKS                       | 0.80240 | 1.00  | 1.00 | 0.80240 |
| FATO-WS-PREPRSS | PRE-PRESS GARMENT                              | 1.21140 | 1.00  | 1.00 | 1.21140 |
| BATS-WS-PREPRSS | HANDLING, PRE-PRESS SLACKS                     | 0.25800 | 1.00  | 1.00 | 0.25800 |
| W5              | STEP TO IRONING BOARD                          | 0.01075 | 12.00 | 1.00 | 0.12900 |
| W5              | STEP TO MIC#4                                  | 0.01075 | 12.00 | 1.00 | 0.12900 |
| FATS-WS-PREPRSS | PRE-PRESS INSEAMS, RISE, PLEATS, MATERNITY     | 0.95340 | 1.00  | 1.00 | 0.95340 |
| SUVE-APT-SL     | LAY SLACKS TO IRONING BOARD, RH LAY INSEAM     | 0.01505 | 2.00  | 1.00 | 0.03010 |
| M4G3 M2P0       | STRAIGHTEN FABRIC                              | 0.01935 | 2.00  | 1.00 | 0.03870 |
| M4G1 M4P2       | GET IRON; PSN TO BOTTOM OF RH INSEAM; SIMO: LH | 0.02365 | 2.00  | 1.00 | 0.04730 |
| 465 MODS        | TIME TO IRON RH INSEAM                         | 1.00000 | 0.15  | 1.00 | 0.15000 |
| 465 MODS        | TIME TO IRON LH INSEAM                         | 1.00000 | 0.15  | 1.00 | 0.15000 |
| M4P2            | ASIDE IRON                                     | 0.01290 | 2.00  | 1.00 | 0.02580 |
| M4G3 M4P0       | GRASP RH LEG AND LIFT FROM IRONING BOARD       | 0.02365 | 2.00  | 1.00 | 0.04730 |
| SUVE-APT-SL     | ROTATE GARMENT TO IRON FRONT RISE SEAM         | 0.01505 | 2.00  | 1.00 | 0.03010 |
| M4G3 M2P0       | STRAIGHTEN FABRIC                              | 0.01935 | 2.00  | 1.00 | 0.03870 |
| M4G1 M4P2       | GET IRON; PSN TO SEAM; SIMO: LAY SEAM FLAT     | 0.02365 | 2.00  | 1.00 | 0.04730 |
| 465 MODS        | TIME TO IRON FRONT RISE SEAM                   | 1.00000 | 0.08  | 1.00 | 0.08300 |
| 465 MODS        | TIME TO IRON BACK RISE SEAM                    | 1.00000 | 0.11  | 1.00 | 0.11000 |

Company ATRC APPAREL TECH & RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                            |         |      |         |
|-----------------|------------------------------------------------------------|---------|------|---------|
| M3P2            | PSN IRON TO 1ST PLEAT                                      | 0.01075 | 1.00 | 0.01075 |
| 465 MODS        | TIME TO IRON 1ST PLEAT                                     | 1.00000 | 1.00 | 0.04100 |
| M4P2            | PSN IRON TO 2ND PLEAT                                      | 0.01290 | 1.00 | 0.01290 |
| 465 MODS        | TIME TO IRON 2ND PLEAT                                     | 1.00000 | 1.00 | 0.04100 |
| M4P2            | ASIDE IRON                                                 | 0.01290 | 1.00 | 0.02580 |
| M4G3 M4P0       | GRASP GARMENT AND LIFT                                     | 0.02365 | 1.00 | 0.02365 |
| 0 MOD           | REPEAT ELEMENTS TO COMPLETE LH INSEAM AND                  | 0.00000 | 1.00 | 0.00000 |
| SATO-WS-TSRIB   | TOPSTITCH RIB JOIN, MDU SLACKS                             | 0.36461 | 1.00 | 0.36461 |
| SATS-WK-TSRIBUN | TOPSTITCH 25" RIB JOIN, MARINE MATERNITY                   | 0.36461 | 1.00 | 0.36461 |
| SUVE-APN-FL     | ALIGN RIB JOIN SEAM UNDER NEEDLE                           | 0.02365 | 1.00 | 0.02365 |
| M1P2            | WIGGLE SEAM WITH FINGER LAY FLAT                           | 0.00645 | 1.00 | 0.01290 |
| SUVE-RNW-AA     | REPOSITION NEEDLE USING HANDWHEEL                          | 0.02365 | 1.00 | 0.02365 |
| SUVE-RHP-AL     | REPOSITION RH TO FRONT TO SPREAD SEAM FLAT                 | 0.02150 | 1.00 | 0.02150 |
| F2              | PEDAL START M/C (6X)                                       | 0.00430 | 1.00 | 0.02580 |
| SUVE-I-SS-4N    | Sew 4", Singer 591 Single Ndl Lockstitch, 3000 RPM, normal | 0.01845 | 1.00 | 0.11071 |
| SUVE-RHP-AS     | REPOSITION HANDS TO SPREAD SEAM (6X)                       | 0.01720 | 1.00 | 0.10320 |
| F2              | PEDAL START MACHINE                                        | 0.00430 | 1.00 | 0.00430 |
| SUVE-I-SS-1N    | Sew 1", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01095 | 1.00 | 0.01095 |
| F2              | PEDAL BACK TO CUT THREAD                                   | 0.00430 | 1.00 | 0.00430 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                               | 0.01290 | 1.00 | 0.01290 |
| SUVE-CPX-SA     | CUT STARTING END LOOSE THREAD                              | 0.01075 | 1.00 | 0.01075 |
| SATO-WS-JNSIDES | JOIN SIDESEAM, SLACKS                                      | 1.87693 | 1.00 | 1.87693 |
| BATS-WS-JNSDSM  | BUNDLING- MARINE MATER SLACKS M/C#4                        | 0.05000 | 1.00 | 0.05000 |
| 465 MODS        | TIME TO ROTATE M/C PRESSER FOOT TO JOIN SIDES              | 1.00000 | 1.00 | 0.05000 |
| SATS-WS-JNSS48  | JOIN 1 48" SIDESEAM, MATERNITY SLACKS                      | 0.91347 | 1.00 | 1.82693 |
| M4G1 M4P0       | PULL BACK FROM BEHIND NEEDLE                               | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | REGRASP TOP OF RIB AND TOP OF BACK PANEL                   | 0.01935 | 1.00 | 0.01935 |
| SUVE-APP-FL     | ALIGN RIB TO BACK PANEL AT TOP CORNER                      | 0.03010 | 1.00 | 0.03010 |
| SUVE-APS-FL     | ALIGN SIDESEAM BY SLIDING HAND DOWN FABRIC TO              | 0.02795 | 1.00 | 0.02795 |
| SUVE-APN-FL     | ALIGN ASSY UNDER NEEDLE                                    | 0.02365 | 1.00 | 0.02365 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                            |         |      |         |
|-----------------|------------------------------------------------------------|---------|------|---------|
| F2              | DROP PRESSER FOOT                                          | 0.00430 | 1.00 | 0.00430 |
| M4G3 M4P0       | GRASP OPPOSITE LEG AND PUSH TO BACK OF TABLE               | 0.02365 | 1.00 | 0.02365 |
| SUVE-APS-SL     | SLIDE HANDS TO BOTTOM OF LEG ALIGNING PLYS                 | 0.02150 | 1.00 | 0.02150 |
| SUVE-APP-SM     | ALIGN BOTTOM OF LEG PLYS TOGETHER                          | 0.02150 | 1.00 | 0.02150 |
| SUVE-RHP-AM     | RH REGRASP ASSY 1/3 OF THE WAY UP                          | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | LH GRASP ASSY FROM RH                                      | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | RH REGRASP ASSY 2/3 OF THE WAY UP                          | 0.01935 | 1.00 | 0.01935 |
| SUVE-RHP-AM     | LH GRASP ASSY FROM RH                                      | 0.01935 | 1.00 | 0.01935 |
| F2              | PEDAL TO START SEW                                         | 0.00430 | 1.00 | 0.00430 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 0.01505 |
| SUVE-RHP-AS     | LH REGRASP TOP PLY APPROX. 4" IN FRONT OF                  | 0.01720 | 1.00 | 0.03440 |
| F2              | PEDAL TO SEW                                               | 0.00430 | 1.00 | 0.00860 |
| SUVF-LSS-4N     | Sew 4", Singer 591 Single Ndl Lockstitch, 3000 RPM, normal | 0.01845 | 1.00 | 0.03690 |
| SUVE-RHP-AS     | REGRASP AT RIB JOIN SEAM                                   | 0.01720 | 1.00 | 0.01720 |
| SUVE-APP-FS     | ALIGN PLYS AT RIB JOIN SEAM                                | 0.02580 | 1.00 | 0.02580 |
| SUVF-LSS-2N     | Sew 2", Singer 591 Single Ndl Lockstitch, 2000 RPM, normal | 0.01545 | 1.00 | 0.01545 |
| SUVE-RHP-AS     | REGRASP APPROX. 6" FROM NEEDLE 6X                          | 0.01720 | 1.00 | 0.10320 |
| SUVE-APP-SS     | MINOR ALIGN PLYS 5X                                        | 0.01935 | 1.00 | 0.09675 |
| SUVF-LSS-6N     | Sew 6", Singer 591 Single Ndl Lockstitch, 3000 RPM, normal | 0.02445 | 1.00 | 0.14671 |
| F2              | PEDAL TO SEW                                               | 0.00430 | 1.00 | 0.02580 |
| SUVE-APP-FS     | ALIGN ENDS TOGETHER                                        | 0.02580 | 1.00 | 0.02580 |
| F2              | PEDAL TO SEW                                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-LSS-3E     | Sew 3", Singer 591 Single Ndl Lockstitch, 2000 RPM, exact  | 0.02425 | 1.00 | 0.02425 |
| SUVE-SBB-AA     | SEW BACKTACK, BUTTON                                       | 0.01505 | 1.00 | 0.01505 |
| SUVE-CPS-SA     | CUT THREAD WITH SCISSORS                                   | 0.03440 | 1.00 | 0.03440 |
| SUVE-CPX-SA     | CUT 2ND THREAD                                             | 0.01075 | 1.00 | 0.01075 |
| SATO-WS-CLWSTLB | CLEAN WAIST & SET LABEL, MDU SLACKS                        | 0.97942 | 1.00 | 0.97942 |
| BATS-SKR-MC5    | BUNDLE/HANDLING-CLEAN WAIST-MACHINE #5                     | 0.50310 | 1.00 | 0.50310 |
| W5              | STEP TO M/C #5, OVERLOCK; SIMO: TURN SKIRT                 | 0.01075 | 1.00 | 0.03225 |
| SATS-WS-TURN    | SLACKS, LH GRASP AND PULL RIGHT PANT LEG ONTO              | 0.15695 | 1.00 | 0.47085 |

## Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

| SATS-WK-CL-WAIST | CLEAN WAIST & SET LABEL, MARINE MATERNITY        | 0.47632 | 1.00 | 0.47632 |
|------------------|--------------------------------------------------|---------|------|---------|
| SUVE-RHP-AL      | REGASP WAIST AT LHS SIDESEAM                     | 0.02150 | 1.00 | 0.02150 |
| SUVE-APN-FM      | ALIGN WAIST UNDER PRESSER FOOT KEEPING SEAM      | 0.02150 | 1.00 | 0.02150 |
| M4G1 M4P0        | REPOSITION LEGS OF SLACKS BACK ONTO TABLE        | 0.01935 | 1.00 | 0.01935 |
| F2               | PEDAL TO START SEW                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVE-RHP-AS      | REGASP AT LHS PLEAT                              | 0.01720 | 1.00 | 0.01720 |
| SUVE-FPS-FS      | FOLD PLEAT TO SEW DOWN                           | 0.02580 | 1.00 | 0.02580 |
| F2               | PEDAL TO START SEW                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVE-RHP-AS      | REGASP AT BACK PANEL JOIN SEAM                   | 0.01720 | 1.00 | 0.01720 |
| SUVE-RPS-AS      | REPOSITION SEAM BY SMOOTHING FLAT                | 0.01075 | 1.00 | 0.01075 |
| J2               | LH REGASP TO HOLD SEAM DOWN                      | 0.00430 | 1.00 | 0.00430 |
| SUVE-OLB-SA      | Obtain label from box or roll at right table top | 0.02795 | 1.00 | 0.02795 |
| SUVE-APP-SM      | ALIGN LABEL TO CENTER BACK WAIST                 | 0.02150 | 1.00 | 0.02150 |
| F2               | PEDAL TO START MACHINE                           | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVE-RHP-AS      | REGASP RHS BACK PLEAT                            | 0.01720 | 1.00 | 0.01720 |
| SUVE-FPS-SS      | FOLD RHS PLEAT OVER                              | 0.01935 | 1.00 | 0.01935 |
| F2               | PEDAL TO START SEW                               | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVE-RHP-AS      | REGASP RHS SIDESEAM                              | 0.01720 | 1.00 | 0.01720 |
| SUVE-RPS-AS      | SMOOTH RHS SIDESEAM FLAT                         | 0.01075 | 1.00 | 0.01075 |
| F2               | PEDAL TO START MACHINE                           | 0.00430 | 1.00 | 0.00430 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |
| SUVE-RHP-AM      | REGASP WAIST AT CENTER FRONT (2X)                | 0.01935 | 1.00 | 0.03870 |
| F2               | PEDAL TO START MACHINE (2X)                      | 0.00430 | 1.00 | 0.00860 |
| SUVF-OL-3N       | Sew 9", US39500 OVERLOCK, 5200 RPM, NORMAL stop  | 0.02203 | 1.00 | 0.04406 |
| SUVF-OL-3N       | Sew 3", US39500 OVERLOCK, 3250 RPM, NORMAL stop  | 0.01476 | 1.00 | 0.01476 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                                |      |         |      |         |
|-----------------|------------------------------------------------|------|---------|------|---------|
| SUVE-CTK-AA     | CUT THREAD WITH UNDERTRIMMER                   | 1.00 | 0.00860 | 1.00 | 0.00860 |
| SATO-WS-CLNBT   | CLEAN 16 1/2" BOTTOM LEG OPENING, SLACK        | 1.00 | 0.62588 | 1.00 | 0.62588 |
| SATS-WS-CLLGOPN | CLEAN 16 1/2" LEG OPENINGS, SLACKS             | 1.00 | 0.62588 | 1.00 | 0.62588 |
| SUVE-RHP-AL     | REGRASP SLACKS AT LHS BOTTOM LEG OPENING       | 1.00 | 0.02150 | 1.00 | 0.02150 |
| SUVE-APT-NL     | FLIP GARMENT AROUND TO ALIGN LEG OPENING       | 1.00 | 0.01075 | 1.00 | 0.01075 |
| SUVE-RHP-AL     | REGRASP GARMENT AT LHS LEG OPENING             | 1.00 | 0.02150 | 1.00 | 0.04300 |
| SUVE-APN-SM     | ALIGN LHS LEG OPENING UNDER FOOT NEAR LHS      | 1.00 | 0.01505 | 1.00 | 0.03010 |
| SUVE-RHP-AS     | REGRASP SIDESEAM                               | 1.00 | 0.01720 | 1.00 | 0.03440 |
| SUVE-RPS-AS     | SMOOTH SIDESEAM FLAT                           | 1.00 | 0.01075 | 1.00 | 0.02150 |
| F2              | PEDAL TO START SEW                             | 1.00 | 0.00430 | 1.00 | 0.00860 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.02952 |
| SUVE-RHP-AM     | REGRASP LEG OPENING                            | 1.00 | 0.01935 | 1.00 | 0.03870 |
| F2              | PEDAL TO START SEW                             | 1.00 | 0.00430 | 1.00 | 0.00860 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.02952 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.02952 |
| SUVE-RHP-AS     | REGRASP RHS SIDESEAM                           | 1.00 | 0.01720 | 1.00 | 0.03440 |
| SUVE-RPS-AS     | SMOOTH RHS SIDESEAM FLAT                       | 1.00 | 0.01075 | 1.00 | 0.02150 |
| F2              | PEDAL TO START MACHINE                         | 1.00 | 0.00430 | 1.00 | 0.00860 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.02952 |
| SUVE-RHP-AM     | REGRASP AT FRONT (2X)                          | 1.00 | 0.01935 | 1.00 | 0.07740 |
| F2              | PEDAL TO START MACHINE (2X)                    | 1.00 | 0.00430 | 1.00 | 0.01720 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.05904 |
| M2P0            | ROTATE LEG OPENING OUT TO SEW OFF EDGE OF      | 1.00 | 0.00430 | 1.00 | 0.00860 |
| F2              | PEDAL TO START SEW                             | 1.00 | 0.00430 | 1.00 | 0.00860 |
| SUVF-OL-3N      | Sew 3",US39500 OVERLOCK, 3250 RPM, NORMAL stop | 1.00 | 0.01476 | 1.00 | 0.00860 |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                   | 1.00 | 0.01290 | 1.00 | 0.02580 |
| 0 MOD           | REPEAT TO SEW RIGHT LEG                        | 1.00 | 0.00000 | 1.00 | 0.00000 |
| SATO-WS-ELASTIC | CUT, TACK, SET ELASTIC, MDU SLACK              | 1.00 | 1.82609 | 1.00 | 1.82609 |
| BATS-WS-ELASTIC | BUNDLING/HANDLINE, ELASTIC OPERATION           | 1.00 | 0.14730 | 1.00 | 0.14730 |
| W5              | STEP TO MACHINE                                | 3.00 | 0.01075 | 1.00 | 0.03225 |

Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

| SUVE-DPT-NL     | ASIDE GARMENT TO TABLE                                  | 0.01505 | 1.00 | 1.00 | 0.01505 |
|-----------------|---------------------------------------------------------|---------|------|------|---------|
| 465 MODS        | TIME TO ROTATE PRESSER FOOT FOR TACK ELASTIC            | 1.00000 | 0.05 | 1.00 | 0.05000 |
| 465 MODS        | TIME TO ROTATE PRESSER FOOT FOR SET ELASTIC             | 1.00000 | 0.05 | 1.00 | 0.05000 |
| SATS-WK-CUTELAS | CUT 29" ELASTIC                                         | 0.10750 | 1.00 | 1.00 | 0.10750 |
| M5G1 M5P0       | GRASP ELASTIC AND PULL OUT FROM ROLL                    | 0.02365 | 1.00 | 1.00 | 0.02365 |
| SUVE-APT-FL     | ALIGN RIGHT END ELASTIC TO TABLE GUIDE                  | 0.02150 | 1.00 | 1.00 | 0.02150 |
| M3P5            | SLIDE LH TO TABLE GUIDE AT LOCATION OF CUT              | 0.01720 | 1.00 | 1.00 | 0.01720 |
| J2              | LH REGRASP AT LOCATION OF CUT                           | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-CPS-SA     | CUT ELASTIC WITH SNIPS                                  | 0.03440 | 1.00 | 1.00 | 0.03440 |
| SUVE-CPX-NA     | XTRA CUT TO CUT THROUGH ELASTIC                         | 0.00645 | 1.00 | 1.00 | 0.00645 |
| SATS-WK-TKELAST | TACK ELASTIC                                            | 0.22871 | 1.00 | 1.00 | 0.22871 |
| M4G1            | RH GRASP END OF ELASTIC                                 | 0.01075 | 1.00 | 1.00 | 0.01075 |
| SUVE-APP-FM     | ALIGN ENDS OF ELASTIC TOGETHER                          | 0.02795 | 1.00 | 1.00 | 0.02795 |
| SUVE-APN-FM     | ALIGN ASSY ENDS OF ELASTIC UNDER NEEDLE                 | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2              | DROP PRESSER FOOT                                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| SUVF-LSS-1E     | Sew 1",Singer 591 Single Ndl Lockstitch, 2000 RPM,exact | 0.01525 | 1.00 | 1.00 | 0.01525 |
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00 | 1.00 | 0.01095 |
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-1E     | Sew 1",Singer 591 Single Ndl Lockstitch, 2000 RPM,exact | 0.01525 | 1.00 | 1.00 | 0.01525 |
| SUVE-RPR-SM     | ROTATE 90 DEGREES AROUND NEEDLE                         | 0.01935 | 1.00 | 1.00 | 0.01935 |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095 | 1.00 | 1.00 | 0.01095 |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150 | 1.00 | 1.00 | 0.02150 |
| F2              | LIFT PRESSER FOOT                                       | 0.00430 | 1.00 | 1.00 | 0.00430 |
| M3P0            | PULL ELASTIC FROM UNDER PRESSER FOOT                    | 0.00645 | 1.00 | 1.00 | 0.00645 |
| SATS-WK-SETELAS | SET ELASTIC (36" STRETCHED) TO WAIST                    | 1.34258 | 1.00 | 1.00 | 1.34258 |
| M3G1 M3P2       | GRASP WAISTLINE OF SKIRT AT TABLETOP; PSN TO            | 0.01935 | 1.00 | 1.00 | 0.01935 |
| M3G1            | GRASP ELASTIC IN OPPOSITE HAND                          | 0.00860 | 1.00 | 1.00 | 0.00860 |
| SUVE-APP-FS     | ALIGN ELASTIC WAIST AT SEAM                             | 0.02580 | 1.00 | 1.00 | 0.02580 |

| Company         | ATRC                                                    | APPAREL TECH & RESEARCH CENTER   |
|-----------------|---------------------------------------------------------|----------------------------------|
| Plant           | CAL POLY POMONACA                                       | POLY POMONA                      |
| Part            | MDU-SLACKS                                              | MATERNITY DRESS UNIFORM (SLACKS) |
| Component       | MDU-SLACKS                                              | MATERNITY DRESS UNIFORM (SLACKS) |
| SUVE-FPS-FS     | SIMPLE FOLD TOP OF WAIST LINE DOWN OVER                 | 0.02580                          |
| J2              | REGRASP ASSY                                            | 0.00430                          |
| SUVE-APN-FM     | ALIGN ASSY UNDER NEEDLE                                 | 0.02150                          |
| SUVE-RPS-AS     | SMOOTH FOLDED WAISTBAND                                 | 0.01075                          |
| F2              | DROP PRESSER FOOT TO START SEW                          | 0.00430                          |
| M4G3 M4P2       | GRASP STRAIGHT PIN AND INSERT TO WAISTBAND              | 0.02795                          |
| M2P2            | PUSH PIN THROUGH TO HOLD IN PLACE (2X)                  | 0.00860                          |
| SUVF-LSS-1N     | Sew 1",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01095                          |
| SUVE-RHP-AS     | BH REGRASP ELASTIC/WAISTBAND EVERY 4"                   | 0.01720                          |
| SUVE-APP-FS     | ALIGN ELASTIC TO WAIST EVERY 4"                         | 0.02580                          |
| SUVE-FPS-FS     | FOLD WAISTBAND OVER ELASTIC EVERY 4"                    | 0.02580                          |
| J2              | RH REGRASP ASSY EVERY 4"                                | 0.00430                          |
| F2              | PEDAL TO START SEW EVERY 4"(NOTE: REDUCED M/C           | 0.00430                          |
| SUVF-LSS-2N     | Sew 2",Singer 591 Single Ndl Lockstitch,2000 RPM,normal | 0.01545                          |
| M4G1 M3P0       | GRASP BULK OF SKIRT AND ROTATE OUT OF WAY (3X)          | 0.01720                          |
| SUVE-SBL-AA     | SEW BACKTACK, LEVER                                     | 0.02150                          |
| F2              | PEDAL TO LIFT PRESSER FOOT                              | 0.00430                          |
| M3P0            | MOVE FROM UNDER NEEDLE                                  | 0.00645                          |
| SUVE-CTS-AA     | CUT THREAD WITH PALMED SNIPS                            | 0.01290                          |
| M3G1 M4P0       | GRASP AND REMOVE STRAIGHT PIN FROM WAIST                | 0.01720                          |
| M4G1            | REGRASP WAIST                                           | 0.01075                          |
| M3P0            | PULL & RELEASE WAIST ELASTIC 3X TO DISTRIBUTE           | 0.00645                          |
| SATO-WS-PRESS   | PRESS MDU SLACKS                                        | 2.37905                          |
| BATS-WS-PRESS   | HANDLING-PRESS MARINE MATERNITY SLACKS                  | 0.12900                          |
| W5              | WALK TO IRONING BOARD                                   | 0.01075                          |
| FATS-WS-PRESS   | PRESS LADIES MATERNITY SLACKS                           | 2.25005                          |
| SATS-WS-TURN    | TURN SLACKS                                             | 0.15695                          |
| FATM-WS-PRSDSM  | PRESS 1 SIDESEAM, MATERNITY SLACKS                      | 0.50210                          |
| SATS-WS-TURN    | TURN SLACKS                                             | 0.15695                          |
| FATM-WS-PRCREAS | PRESS CREASES, MATERNITY SLACKS                         | 0.93195                          |



Company ATRC APPAREL TECH &amp; RESEARCH CENTER

Plant CAL POLY POMONACAL POLY POMONA

Part MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

Component MDU-SLACKS MATERNITY DRESS UNIFORM (SLACKS)

|                 |                                               |      |         |      |         |
|-----------------|-----------------------------------------------|------|---------|------|---------|
| SATO-WS-FLDBAG  | INSPECT, TRIM, FOLD, BAG, SLACKS              | 1.00 | 0.32895 | 1.00 | 0.32895 |
| BATS-SKR-BAG    | HANDLING, FOLD & BAG MARINE MATERNITY         | 1.00 | 0.06450 | 1.00 | 0.06450 |
| W5              | STEP TO FOLDING TABLE                         | 6.00 | 0.01075 | 1.00 | 0.06450 |
| SATS-WS-INSFLD  | INSPECT, TRIM, FOLD MATERNITY SLACKS          | 1.00 | 0.13330 | 1.00 | 0.13330 |
| SUVE-APT-FL     | LAY CREASED SLACKS TO TABLE                   | 1.00 | 0.02150 | 1.00 | 0.02150 |
| SUVE-FPS-SL     | SIMPLE FOLD BOTTOM OF LEGS UP APPROX. 10"     | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | SIMPLE FOLD END UP APPROX 10" MORE            | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | SIMPLE FOLD END UP APPROX 10" MORE            | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SUVE-FPS-SL     | FOLD TOP OF SLACKS OVER TO COMPLETE FOLD      | 1.00 | 0.02795 | 1.00 | 0.02795 |
| SATS-WS-BAGSTKR | BAG GARMENT ADD STICKER BAG                   | 1.00 | 0.13115 | 1.00 | 0.13115 |
| M4G3 M4P0       | GRASP BAG & LAY TO TABLE                      | 1.00 | 0.02365 | 1.00 | 0.02365 |
| FUVM-BGM        | Bag folded garment manual                     | 1.00 | 0.07310 | 1.00 | 0.07310 |
| SUVE-OSR-AA     | Obtain sticker from roll and position to part | 1.00 | 0.03440 | 1.00 | 0.03440 |