

# **INSTRUCTIONS FOR THE SURVEY OF PLANT CAPACITY UTILIZATION DURING THE FOURTH QUARTER 2005**

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## PUBLIC REPORTING

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## WHO SHOULD REPORT?

This report covers the manufacturing plant or printing facility named in the address box of the form. If your company operates more than one location, **REPORT ONLY FOR THOSE PLANTS SELECTED FOR THIS SAMPLE SURVEY.** A report form and instruction sheet are enclosed for each plant selected.

Since some of the information necessary to complete this form may not be in your records, **CONSULT THE PLANT MANAGER** on questions regarding full production capability and emergency production.

## WHAT TO REPORT?

This survey form primarily asks for 3 levels of operating capability of this plant in the fourth quarter of 2005:

- (1)** the market value of actual goods produced;
- (2)** the value of products that could have been produced if the plant was operating at full capacity in the fourth quarter; and
- (3)** the value of products that could have been produced if required in a national emergency.

If 2004 data are NOT printed on the form, you do not need to enter data for that period.

## WHEN TO REPORT

Complete the survey form and return it in the enclosed return envelope by the date printed on the top of the form. If you have misplaced the return envelope, mail the completed form to:

U.S. Census Bureau  
1201 East 10th Street  
Jeffersonville, IN 47132-0001

## HOW TO REPORT

Answer all questions on the report form. Follow the instructions for each item given on this sheet.

Report market value of production figures in **thousands of dollars**. For example, if value of production is 1,125,788 dollars, enter the figure as follows:

Mil.	Thou.
1	126

## NAME AND ADDRESS

Review the name and address of this plant printed in the top right corner of the report form. Line out any errors and make any necessary corrections or additions in the address box.

## Item 1 – OPERATIONAL STATUS

Report the status of operations at this plant at the end of 2005 by marking the appropriate box. If:

**In Operation** – Complete items 2 through 6.

**Idle Plants** – Complete items 2 through 6.

- a.** If this plant was temporarily idle during the **entire fourth quarter** report actual operations as zero where appropriate.
- b.** If this plant was temporarily idle during **only part of the fourth quarter** report the actual operations for the time the plant was in operation.

## Item 1 – OPERATIONAL STATUS – Continued

For both cases, report full production and emergency production capabilities based on the plant's **peak** quarterly production during 2005.

**Sold or Leased Plant** – If this plant was sold or leased to another company, indicate the month and year this action took place.

- a. If you still maintain records for this plant, complete items 2 through 6.
- b. If you do not have 4th quarter information about this plant, complete item 6 only and return the form.

**Permanently Ceased Operations** – Indicate the month and year when operations ceased at this plant. If the plant was in operation at ANY time during the fourth quarter of 2005, complete items 2 through 6. Report full production and emergency production capabilities, as if the plant operated the **entire** quarter.

SPECIAL NOTE:

### Seasonal Operations

- a. If this plant is usually temporarily idle during the fourth quarter *due to seasonal factors*, report as instructed for idle plants.
- b. If this plant was not temporarily idle during the fourth quarter, but its operations vary substantially from quarter to quarter, *due to seasonal factors*, complete items 2 through 6, and report full production and national emergency production capabilities based on the plant's **peak** quarterly production during the year.

For both types of seasonal operations, check "Seasonal Operations" in item 4a if actual operations are less than full production capability.

## Item 2 – VALUE OF PRODUCTION

### Item 2a – MARKET VALUE OF PRODUCTION

Report the value of production based on estimated sales price(s) of what was produced during the fourth quarter, not fourth quarter sales. If production at this plant consists of only interplant transfers, use method (2) below to calculate market value of production.

**Three methods** – to estimate market value of goods produced during the fourth quarter:

- (1) Estimate the sales price(s) of item(s) produced, then multiply the sales price(s) by the total number of items produced during the fourth quarter.
- (2) Use book figures of actual production costs plus an estimate of markup to cover overhead and profit.

- (3) Use fourth quarter value of shipments f.o.b. (freight on board) from the plant (including the value of interplant transfers within a company, in addition to direct costs of production, but excluding resales and miscellaneous receipts) plus any additions or subtractions to the finished stock of inventories present before the fourth quarter (excluding materials and supplies). [Value of production = value of shipments + value of ending inventory – value of beginning inventory].

SPECIAL NOTE:

Do **not** include manufacturing contracted to others. If you contract out all of your manufacturing, please state this in the "Remarks" section, complete item 6, and return the form.

**Job shops and custom orders:** For actual production, report value of work done in the fourth quarter of 2005.

**Publishing/printing plants:** For actual production, report your printing sales only (NOT advertising sales) for the location named in the address box of the form. Do not include any printing that is contracted out. **If you do not perform any printing activities, please indicate so in the remarks section on the back of the form.**

### Item 2b – FULL PRODUCTION CAPABILITY

Read the definition and assumptions regarding full production capability. Estimate your market value of products that would have been produced if the plant was operating at full capacity in the fourth quarter. Use one of the two methods suggested below or your own computations.

**Full Production Capability** – The maximum level of production that this establishment could reasonably expect to attain under **normal** and **realistic** operating conditions fully utilizing the machinery and equipment in place. In estimating market value at full production capability, consider the following:

- Assume **only** the machinery and equipment in place and ready to operate will be utilized. Do not include facilities or equipment that would require extensive reconditioning before they can be made operable.
- Assume **normal** downtime, maintenance, repair, and cleanup. If full production requires additional shifts or hours of operation, then appropriate downtime should be considered in the estimate.
- Assume number of shifts, hours of plant operations, and overtime pay that can be sustained under **normal** conditions and a **realistic** work schedule.
- Assume labor, materials, utilities, etc. are fully available.
- Assume a product mix that was **typical** or representative of your production during the fourth quarter. If your plant is subject to short-run variation assume the product mix of the current period.

## Item 2b – FULL PRODUCTION CAPABILITY – Continued

- Do not assume increased use of productive facilities outside the plant for services (such as contracting out subassembly work) in excess of the proportion that would be normal during the fourth quarter.

### SPECIAL NOTE:

**Job shops and custom orders:** For full production, estimate the market value of work that you could have accomplished under sustainable operating conditions and if you had sufficient orders.

**Publishing/printing plants:** For full production, report printing sales for this location as if it were running at peak circulation.

**Two Methods** to estimate market value of production when operating at full production capability:

- (1) If you have a reliable or accurate estimate of your plant's sustainable capacity utilization rate: **Divide** your market value of production at **actual** operations (item 2c) by your current **rate of capacity** utilization (in decimal form). For example, if your value of actual operations for the fourth quarter is \$1,200,000 and your plant is currently at 80% capacity, divide \$1,200,000 by 0.80 for a full production capability of \$1,500,000.

$$\begin{array}{r} \text{Actual Value of} \\ \text{Production} \end{array} / \begin{array}{r} \text{Capacity} \\ \text{Utilization} \\ \text{Rate} \end{array} = \begin{array}{r} \text{Market value of} \\ \text{production at} \\ \text{Full Capacity} \end{array}$$

Your plant's capacity utilization rate should be based on a capacity output measure that your plant could have sustained under **normal**, not emergency, conditions.

- (2) For each product, estimate the number of items that could have been produced if operating at full production, as defined by the assumptions given. Multiply the number of items produced by its sales price (or market value). For example, if you can produce 25,000 items in the fourth quarter, under full production criteria, and the sales price (market value) for each item is \$4.50, then multiply 25,000 times \$4.50 for a full production capability of \$112,500.

$$\begin{array}{r} \text{Number of} \\ \text{items} \\ \text{produced} \end{array} \times \begin{array}{r} \text{Sales price} \\ \text{(Market} \\ \text{Value)} \end{array} = \begin{array}{r} \text{Market value of} \\ \text{production at} \\ \text{Full Capacity} \end{array}$$

If producing **more than one product**, **sum** the market values of production at full production estimated for each product (assuming the same product mix) for a **total** value of full production for the plant.

Enter your estimate for value of full production in item 2b.

## Item 2c – CAPACITY UTILIZATION

- (1) Divide your estimate for actual production (Item 2a) by full production (Item 2b) capability. Multiply this number by 100. Enter this percentage in the box.
- (2) **Is this a reasonable percentage of your sustainable capacity use in the 4th quarter of 2005?** Mark (X) yes or no. If no, please review your full production capability estimate. If yes, continue with the next item.

## Item 2d – Comparing full production capability between fourth quarters of 2004 and 2005

If the value of full production for the fourth quarter of 2005 differs from 2004, mark (X) the primary reasons for the change.

## Item 3 – WORK PATTERNS OF FOURTH QUARTER OPERATIONS

**Actual Operations** – In **columns 1 through 3**, report work patterns for the following characteristics covering each *production shift* of actual operations in the 4th quarter of 2004. Report based on the average number of shifts per day in the fourth quarter. Do not consider maintenance, administrative, or support operations as additional shifts. Do not consider overtime hours as additional shifts. If the plant did not operate a second or third shift, do not complete the corresponding columns.

**a. Days per week in operation** – For each shift, report the typical number of days per week in operation for the fourth quarter. If your plant has departments or assembly lines that operate varied number of days *within a shift*, report days per week in operation for the department operating the greatest number of days per week for that shift. For example, if one production line operates 7 days per week during the first shift and a second production line operates 5 days per week during the first shift, report that the first shift operates 7 days per week.

**b. Plant hours per week** – For each shift, report the typical number of **hours the plant was in production** during a single week. If your plant has departments or assembly lines that operate at varied periods of time *within a shift*, report hours per week in operation for the production department operating the greatest number of hours per week for that shift. **Do not report the number of person hours worked (see below).**

**c. Weeks in operation in the quarter** – For each shift, report the total number of weeks the plant operated during the fourth quarter. NOTE: The fourth quarter of the year covers 13 weeks.

**d. Total number of production workers** – For each shift, report the total number of production workers at this establishment, including both permanent (payroll) and temporary employees who were paid during the pay period which included November 12. Include all persons on paid sick leave, paid holidays, paid vacation during this pay period.

NOTE: **Include** workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., power plant), record keeping, and other closely associated services. Include truck drivers delivering ready-mixed concrete.

### Item 3 – WORK PATTERNS OF FOURTH QUARTER OPERATIONS – Continued

**Exclude** nonproduction personnel, including those engaged in supervision above line-supervisor level, sales, sales delivery (truck drivers and helpers), advertising, credit, collection, installation and servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional and technical.

#### e. Number of temporary production workers –

For each shift, report the number of *temporary production workers* **not** on the payroll (hired through temporary help agencies or as their own agent) and working during the pay period including November 12. Include temporary production workers who perform the same tasks as listed above. **Do not include part-time workers.**

#### f. Total hours worked by production workers –

For each shift, report number of hours worked by all production workers in the fourth quarters (both those on the payroll and temporary production workers). Include overtime hours, but excluded paid vacations, holidays, and sick leave.

#### g. Hours worked by temporary production workers –

For each shift, report number of hours worked by temporary production workers included in the total hours worked by production workers (line f). Include overtime hours worked by temporary production workers.

#### h. Overtime hours worked by production workers –

For each shift, report number of overtime hours included in the total hours worked by production workers (line f).

**Full production capability – In column 4,** report work patterns for each characteristic as if the plant operated at full production capability in the 4th quarter of 2005. Use the criteria defined for Full Production Capability in item 2b.

Enter the number of shifts per day at full capacity in the box provided in the upper right hand corner. **See examples of responses to item 3 on page 6.**

### Item 4 – FOURTH QUARTER ACTUAL OPERATIONS VS. FULL PRODUCTION CAPABILITY

Compare the actual value of production in the fourth quarter of 2005 to the estimated value of full production.

**Item 4a** – Mark (X) reasons why your actual operations were less than the estimated value of full production capability, if appropriate.

**Item 4b** – Select a time period that would have been reasonable to increase output to full production level.

### Item 5 – NATIONAL EMERGENCY PRODUCTION

Read the definition and assumptions regarding national emergency production. Estimate your value of production under national emergency conditions for the fourth quarter of 2005. Use your own computations or methods similar to those described for estimating full production capability.

**SPECIAL NOTE:** Your value of production at national emergency levels should be **greater than or equal to** your value of full production capability. If it is less than your full production capability, please review your computations.

**National Emergency Production** – The maximum level of production that this plant could expect to attain and sustain for one year or more under national emergency conditions.

National emergency conditions are situations, such as a military mobilization or natural disaster, which are likely to create widespread excess demand requiring additional work shifts.

For example, military mobilization may require increased production of food, clothing, building supplies, and conversion of plants to produce alternative products in addition to traditional defense hardware. Devastation from natural disasters, such as hurricanes, floods, earthquakes, or fire, may require increased production of similar goods as well as increased production to compensate for plants damaged or destroyed.

In estimating national emergency production, consider the following:

- Assume full use of **all** machinery and equipment in place (including machinery and equipment that would require extensive reconditioning before they could be made operable).
- Assume minimal downtime and **multi-work shift** operations.
- Assume plant production as close to 168 hours per week as possible, including extra shifts (e.g., operating 7 days per week, 24 hours per day less minimal downtime).
- Assume overtime pay, availability of labor, materials, utilities, etc., are **fully available** to you and your suppliers.
- Assume you can sell all your output.
- Assume your product mix can change.
- Assume increased use of productive facilities outside the plant for services (such as contracting out subassembly work) in excess of the proportion that would be normal during the fourth quarter.

#### SPECIAL NOTE

**Jobs shops and custom orders:** For national emergency production, estimate the market value of work that could have been done if you received additional orders assuming maximum number of employees working multiple shifts that the facility can accommodate.

**Publishing/printing plants:** For national emergency production, report value of printing if operating machinery as close to 168 hours/week as possible.

**Item 5b** – Select a time period that would have been reasonable to increase output to emergency production level, if required.

**If you have any questions concerning the definitions or instructions, please contact the Special Studies Branch of the Manufacturing and Construction Division on (301) 763-4667.**

**Example 1. A plant with one 8-hour shift operating 5 days/week**

- a. Days per week in operation . . . . .
- b. Plant hours per week in operation . . . . .
- c. Weeks in operation in the quarter . . . . .
- d. **Total number of production workers** . . . . .
- e. **Temporary** production workers **included** in line d (not on the payroll and hired through temporary agencies or as their own agent; see instructions). . . . .
- f. **Total hours worked by production workers** . . . . .
- g. Hours worked by temporary production workers (**included** in line f) . . . . .
- h. Overtime hours worked by production workers (**included** in line f) . . . . .

Actual Operations									Full Production Capability		
Shift one (1)			Shift two (2)			Shift three (3)			Number of shifts (4)		
5									7		
40									56		
13									13		
32									44		
2									4		
Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.
	15	880								17	680
		240									600
		0									0

**Example 2. A plant with Two Production Shifts and One Maintenance Shift**

- a. Days per week in operation . . . . .
- b. Plant hours per week in operation . . . . .
- c. Weeks in operation in the quarter . . . . .
- d. **Total number of production workers** . . . . .
- e. **Temporary** production workers **included** in line d (not on the payroll and hired through temporary agencies or as their own agent; see instructions). . . . .
- f. **Total hours worked by production workers** . . . . .
- g. Hours worked by temporary production workers (**included** in line f) . . . . .
- h. Overtime hours worked by production workers (**included** in line f) . . . . .

Actual Operations									Full Production Capability		
Shift one (1)			Shift two (2)			Shift three (3)			Number of shifts (4)		
7			5						7		
56			40						112		
13			13						13		
110			50						210		
10			0						0		
Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.
	53	200		24	800					117	000
	1	200			0						0
		0			0						0

**Example 3. A plant in Continuous Operation**

- a. Days per week in operation . . . . .
- b. Plant hours per week in operation . . . . .
- c. Weeks in operation in the quarter . . . . .
- d. **Total number of production workers** . . . . .
- e. **Temporary** production workers **included** in line d (not on the payroll and hired through temporary agencies or as their own agent; see instructions). . . . .
- f. **Total hours worked by production workers** . . . . .
- g. Hours worked by temporary production workers (**included** in line f) . . . . .
- h. Overtime hours worked by production workers (**included** in line f) . . . . .

Actual Operations									Full Production Capability		
Shift one (1)			Shift two (2)			Shift three (3)			Number of shifts (4)		
7			7			7			7		
56			56			56			168		
13			13			13			13		
360			360			200			1080		
0			0			0			0		
Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.	Mil.	Thou.	Hrs.
	168	480		168	480		104	000		505	440
		0			0			0			0
		200			200			0			0