# CE 631: Simulation and IT Applications in Construction Semester 1 - 2024

Test
Time: 1 Week

# **Question #1: Take Home**

Date: November 18, 2024 at 11:30 am

(3 pages including cover sheet)

<u>Include this questions booklet to your answer booklet and submit</u>
them online on or before Monday, November 25, 2024, at 8:30am

Name: PANZhiqing

ID #: 24037665G

Test: Q1 (November 18, 2024) at 11:30 am

<u>Problem No. 1</u>: (<u>Assume any missing information</u>) Name: PANZhiqing

Conduct a simulation of the precast concrete element plant modeled as attached. Assume that each batch results in the production of 2 concrete elements. Assume that the use of each form costs \$1,000/day. Assume that the daily (8-hour shift) cost of each additional crew is \$800. In the range of 2 to 5 crews and for 2, 4, 6, and 8 forms, using sensitivity analysis, determine which system will produce the optimum cost/element (i.e., minimum cost/unit). Data are given in the following tables.

**Table 1: System Time Attributes** 

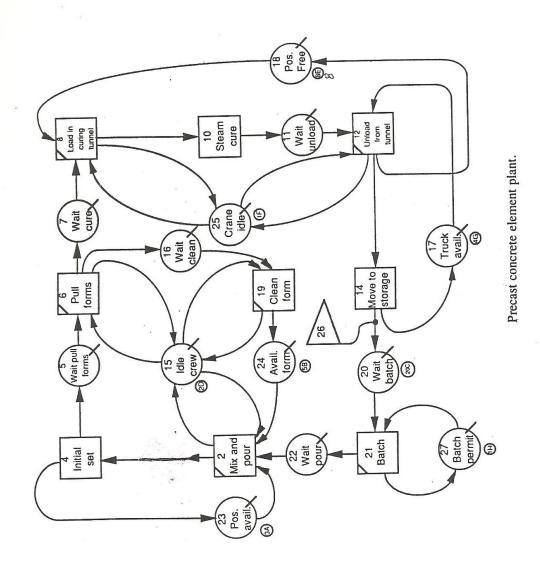
Element	Distribution	Set	Mean	Lower	Upper	Standard
Number		Number		Bound	Bound	Deviation
2	Normal	2	40	30	60	8
4	Constant	3	150	-	-	-
6	Constant	4	30	-	-	-
8	Normal	5	35	18	52	7
10	Constant	6	400	-	-	-
12	Normal	5	25	14	42	5
14	Normal	7	45	20	64	8.5
19	Normal	8	65	37	83	20
21	Normal	9	38	19	57	8

**Table 2: Ingredience-Constrained Work Tasks** 

			Activities		
Ingredient	2	6	8	12	19
ingiculant	Mix and	<b>Pull Forms</b>	Load in	Unload form	Clean Form
	pour		<b>Curing Tunnel</b>	Tunnel	
1	Crew at 15	Batch and	Batch at 7	Batch at 11	Crew at 15
		form at 5			
2	Batch at 22	Crew at 15	Cure position at	Truck at 17	Form at 16
			18		
3	Set position at		Crane at 25	Crane at 25	
	23				
4	Form at 24				

## **Questions**:

- a) Develop EzStrobe and AnyLogic models to simulate the attached precast concrete model.
- b) Run the models to determine the average precast concrete element's production.
- c) Generate complete sets of reports from both programs.
- d) Select the best alternative.



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# **EzStrobe Model**

## Model building

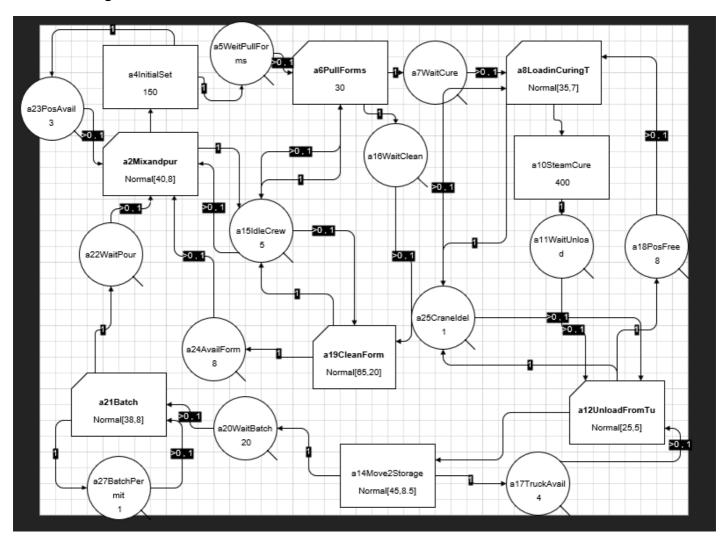


Figure 1: EzStrobe model of the precast concrete production line

I manually adjusted the resource values of nodes 15(2,3,4,5) and 24(2,4,6,8) to find the optimal combination (4\*4). The combination of crew2 form4 can ensure the minimum waiting time of the two, so I chose this combination, and the cost of this combination is relatively small.

# **AnyLogic Model**

## Model building

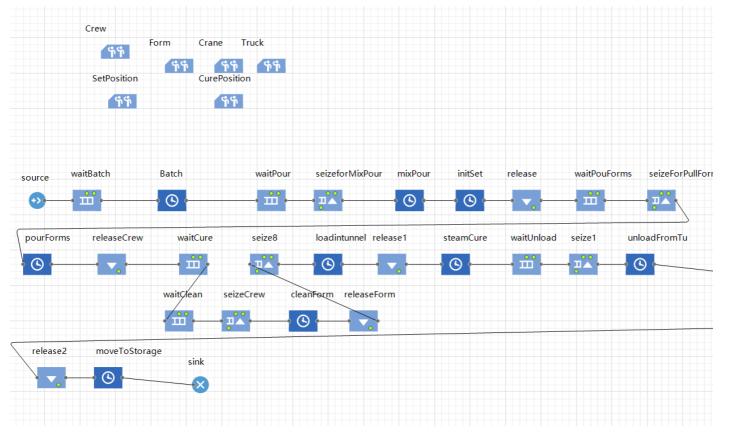


Figure 2: AnyLogic model of the precast concrete production line

However, from the results of the AnyLogic model, the combination of crew=3 and form=2 can make better use of the system resources other than crew and form, thereby improving production efficiency. From the picture in the appendix, it means that no resources are green, that is, no resources are idle. At the same time, this combination does not have obvious bottlenecks, and can better balance the utilization of various resources.

# Conclusion

Therefore, I choose the result of the AnyLogic model, that is, the combination of crew=3 and form=2. This combination can better utilize system resources and improve production efficiency. At the same time, the cost is relatively small.

I visualized the output results of the EzStrobe model for better understanding. I plotted the heatmap of the average waiting time to understand the performance of different combinations. In the following figure, rows and columns represent the values of crew and form, and each subplot represents the average waiting time of a queue. The closer the color is to black, the shorter the idle time of the resource, and the higher the production efficiency.

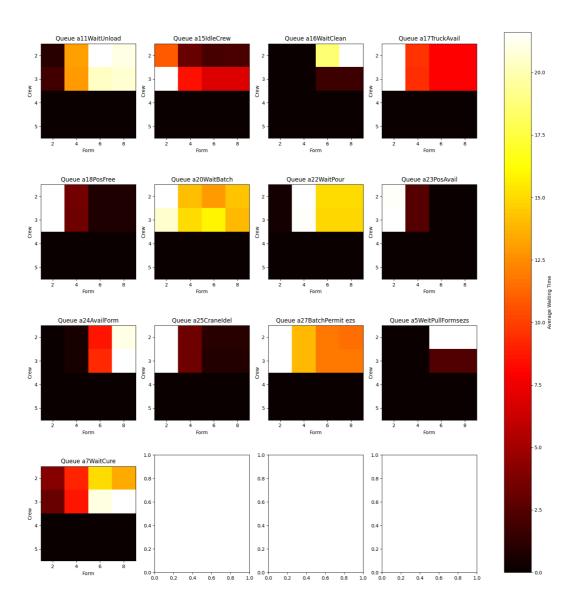


Figure 3: Heatmap of average waiting time in queues

We can find that as long as the combination is located in the lower left corner of the figure, both Crew and Form can be efficiently utilized, thereby improving production efficiency. Considering the results of the AnyLogic model, we chose the combination of crew=3 and form=2 according to the utilization of other resources.

# **Appendix**

# **Python Code for EzStrobe Output**

```
import re
import pandas as pd
import os
import matplotlib.pyplot as plt
import numpy as np

def parse_simulation_data(file_content):
    """

解析包含Queue部分的表格数据,返回DataFrame
"""
```

```
lines = file content.splitlines()
   queue section = []
   capture = False
   for line in lines:
       if "Queue" in line and "Res" in line:
           # 也保留标题行
           queue_section.append(line.strip())
           capture = True
           continue
       if "Activity" in line and "Cur" in line:
       if capture:
           queue_section.append(line.strip())
    # 删除 ===== 分割线
   queue section = [line for line in queue section if not re.match(r"=+", line)]
    # 解析Queue表格为DataFrame
   if queue section:
       # print(queue section)
       return parse_table(queue_section, header_row=0)
   return None
def parse_table(section_data, header row=0):
   解析段落中的表格数据为 Pandas DataFrame。
   参数:
   section_data (list of str): 包含表格数据的文本列表,每行为一个字符串。
   header_{row} (int): 表示标题行的索引, 默认为 0。
   pd.DataFrame: 包含解析结果的 DataFrame。
   if not section data:
       raise ValueError("输入的表格数据为空。")
    # 提取标题行
   headers = re.split(r"\s{2,}", section_data[header_row].strip())
    # 提取数据行
   data lines = section data[header row + 1:]
   data = []
   for line in data lines:
       if line.strip(): # 跳过空行
           row = re.split(r"\s{2,}", line.strip())
           if len(row) == len(headers): # 确保数据行列数与标题一致
               data.append(row)
           else:
               # 如果列数不一致,补充空值或截断
               row = row[:len(headers)] + [""] * (len(headers) - len(row))
               data.append(row)
    # 检查是否存在有效数据
   if not data:
       raise ValueError("未找到有效的表格数据行。")
    # 将数据转换为 DataFrame
   df = pd.DataFrame(data, columns=headers)
    # 尝试将列数据转换为数值类型(若可能)
   for col in df.columns:
       df[col] = pd.to_numeric(df[col], errors='ignore')
   return df
def filePath(numCrew, numForm):
   return os.path.join(PATH, f'crew{numCrew}form{numForm}.txt')
def readData(numCrew, numForm):
   with open(filePath(numCrew, numForm), 'r') as file:
       content = file.read()
   return content
def parseData(numCrew, numForm):
   content = readData(numCrew, numForm)
   queue data = parse simulation data(content)
   return queue_data
```

```
def parseDataAll():
    data = \{\}
    for crew in numCrew:
        for form in numForm:
           data[(crew, form)] = parseData(crew, form)
    return data
## Visualization
# 热力图 每一个队列的平均等待时间
def plotHeatMap(data):
    queueNames = data[(2,2)]['Queue'].values
    # 共 13 个子图 4 * 3
    fig, axs = plt.subplots(4, 4, figsize=(20, 20))
    fig.suptitle('Heat Map of Average Waiting Time in Queues', fontsize=20)
    for index, Value in enumerate(queueNames):
        # 一个 4 * 4 的矩阵
        tmp = np.zeros((4,4))
        for key, value in data.items():
            tmp[key[0]//2-1][key[1]//2-1] = value['AvWait'][index]
        # 绘制热力图
        ax = axs[index//4][index%4]
        im = ax.imshow(tmp, cmap='hot')
        # 设置标题
        ax.set_title(f'Queue {Value}')
        # 设置坐标轴
        ax.set_xticks(np.arange(4))
        ax.set yticks(np.arange(4))
        ax.set_xticklabels(numForm)
        ax.set yticklabels(numCrew)
        ax.set xlabel('Form')
        ax.set_ylabel('Crew')
    # 添加 colorbar
    cbar = fig.colorbar(im, ax=axs.ravel().tolist())
    cbar.set label('Average Waiting Time')
    # 保存图片
    plt.savefig(os.path.join(PATH, 'heatMap.png'))
# 示例文件路径
DIR = os.path.dirname(_ file__)
PATH = os.path.join(DIR, '..', 'output')
PATH1 = os.path.join(PATH, 'crew2form2.txt')
numCrew = [2, 3, 4, 5]
numForm = [2, 4, 6, 8]
if __name_
           == " main__":
    # 测试解析所有文件
    data = parseDataAll()
    plotHeatMap(data)
```

### **EzStrobe Model Output**

```
crew=2, form=2
                                                       Tot AvWait Avcont 697.00 2.27 0.02
                      Queue Res Cur
                                                              Tot AvWait AvCont SDCont MinCont MaxCont
0
          allWaitUnload ezs 0.0
                                                                                                        0.12
                                                                                                                    0.0
             a15IdleCrew ezs 1.0
a16WaitClean ezs 0.0
                                                        2103.00 50.05 1.05
700.00 0.00 0.00
                                                                                                         0.66
                                                                                                                       0.0
                                                                                                         0.00
                                                                                                                      0.0
           a17TruckAvail ezs 4.0
                                                           701.00 500.85 3.51
                                                                                                         0.57
                                                                                                                      2.0
                                                           705.00 676.94 4.77
717.00 11.31 0.08
             a18PosFree ezs 5.0
a20WaitBatch ezs 0.0
                                                                                                         0.66
                                                                                                                      4.0
                                                           717.00
                                                                                                         0.98
                                                                                                                      0.0
             a22WaitPour ezs 15.0 717.00 2028.04 14.54 1.03
                                                                                                        0.00
                                                                                                                    16.0

      a23PosAvail
      ezs
      1.0
      703.00
      237.10
      1.67

      a24AvailForm
      ezs
      0.0
      702.00
      0.17
      0.00

      a25CraneIdel
      ezs
      1.0
      1398.00
      41.66
      0.58

                                                                                                                     1.0
                                                                                                         0.63
8
                                                                                                         0.04
                                                         1398.00 41.66 0.58
                                                                                                         0.49
                                                                                                                      0.0
10 a27BatchPermit ezs 1.00 718.0
11 a5WeitPullFormsezs 0.00 700.0
12 a7WaitCure ezs 0.0
                                                         101.36 0.73 0.45
0.00 0.00 0.00
700.00 2.84 0.02
                                                                                                        0.00
                                                                                                                     1.0
                                                                                                         0.00
                                                                                                                       1.0
                                        0.0
                                                                                                         0.14
                                                                                                                      0.0
crew=2, form=4
                                          Cur Tot AvWait AvCont SDCont MinCont MaxCont
                      Oueue Res
```

0 1 2 3 4 5 6 7 8	allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel	ezs ezs ezs ezs ezs ezs ezs ezs ezs	0.0 0.0 2.0 3.0 0.0 9.0 0.0	1332.00 4017.00 1338.00 1334.00 1340.00 1350.00 1350.00 1341.00 2670.00	4.98 1.36 230.25 119.51 7.43 683.42 34.15 5.02 7.27	0.20 0.02 3.07 1.60 0.10 9.23 0.46 0.07 0.19	0.45 0.47 0.13 0.60 0.70 0.95 0.80 0.51	0.0 0.0 1.0 0.0 0.0 0.0 0.0	
10 11 12	a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure	0.00	1338.0	36.09 7.90 1338.00		0.31	0.00 0.00 0.32	2.0	
cre	w=2, form=6								
0	Queue allWaitUnload	Res	Cur		AvWait 33.43		SDCont MinCont 0.62		
1	alfidleCrew			1440.00	0.82		0.20		
2	a16WaitClean			1447.00			0.67		
3 4	a17TruckAvail a18PosFree			1444.00			0.72 0.91		
5	a20WaitBatch			1460.00			0.99		
6	a22WaitPour			1459.00			0.92		
7 8	a23PosAvail a24AvailForm			1452.00 1453.00			0.46		
9		ezs		2888.00	4.61		0.34		
10	a27BatchPermit ezs						0.00		
11 12	a5WeitPullFormsezs a7WaitCure	1.00 ezs		43.17			0.00		
		ezs	0.0	1447.00	10.30	0.24	0.43	0.0	
cre	w=2, form=8 Queue	Res	Cur	m = ±	7\ = = TAT = + -	717C0=+	SDCont MinCont	MayCant	
0	allWaitUnload			1454.00	36.99		0.64		
1	a15IdleCrew	ezs		4385.00	0.71		0.19		
2	a16WaitClean a17TruckAvail	ezs		1461.00 1454.00	47.27 205.30		0.76 0.70		
4	a1/TruckAvair a18PosFree			1454.00			0.70		
5	a20WaitBatch	ezs		1470.00			1.02		
6	a22WaitPour			1470.00			0.97		
7 8	a23PosAvail a24AvailForm	ezs ezs		1464.00 1466.00	14.99 166.61		0.45 0.80		
9	a25CraneIdel			2911.00	4.22	0.12	0.33		
10	a27BatchPermit ezs			30.20	0.44		0.00		
10 11 12			1461.0			0.82	0.00 0.00 0.49	3.0	
11 12	a5WeitPullFormsezs a7WaitCure	0.00	1461.0	48.27	0.71	0.82	0.00	3.0	
11 12 cre	a5WeitPullFormsezs a7WaitCure w=3, form=2 Queue	0.00	1461.0 2.0	48.27 1461.00	0.71 19.99	0.82 0.29 AvWait A	0.00 0.49 AvCont SDCont M	3.0 0.0 inCont Ma	
11 12 cre	a5WeitPullFormsezs a7WaitCure w=3, form=2 Queue a11WaitUnload	0.00 ezs Res ezs	1461.0 2.0 Cur 0.0	48.27 1461.00	0.71 19.99 Tot 2	0.82 0.29 AvWait A	0.00 0.49 avCont SDCont M 0.01	3.0 0.0 inCont Ma 0.10	0.0
11 12 cre 0 1	a5WeitPullFormsezs a7WaitCure w=3, form=2 Queue	0.00 ezs	1461.0 2.0 Cur 0.0 3.0	48.27 1461.00	0.71 19.99 Tot 7 598.00 .06.00	0.82 0.29 AvWait A	0.00 0.49 AvCont SDCont M	3.0 0.0 inCont Ma	
11 12 cre 0 1 2 3	a5WeitPullFormsezs a7WaitCure w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail	0.00 ezs  Res ezs ezs ezs ezs	2.0 Cur 0.0 3.0 1.0 3.0	48.27 1461.00	0.71 19.99 Tot 7 598.00 .06.00 701.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61	0.0 1.0 0.0 2.0
11 12 cre 0 1 2 3 4	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree	Res ezs ezs ezs ezs ezs ezs	Cur 0.0 3.0 1.0 3.0 6.0	48.27 1461.00	0.71 19.99 Tot 2 598.00 .06.00 701.00 701.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61 0.74	0.0 1.0 0.0 2.0 4.0
11 12 cre 0 1 2 3	a5WeitPullFormsezs a7WaitCure w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail	Res ezs ezs ezs ezs ezs ezs ezs	Cur 0.0 3.0 1.0 3.0 6.0 0.0	48.27 1461.00	0.71 19.99 Tot 2 598.00 .06.00 701.00 701.00 717.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61 0.74 1.00	0.0 1.0 0.0 2.0 4.0 0.0
11 12 cre 0 1 2 3 4 5 6 7	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail	Res ezs ezs ezs ezs ezs ezs	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0	48.27 1461.00	0.71 19.99 Tot 2 598.00 .06.00 701.00 706.00 717.00 126.34	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72	0.0 1.0 0.0 2.0 4.0 0.0 16.0
11 12 cre 0 1 2 3 4 5 6 7 8	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0	48.27 1461.00	0.71 19.99 Tot 25 598.00 .06.00 .01.00 .01.00 .01.00 .01.00 .01.00 .026.34 .04.00 .02.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0
11 12 cre 0 1 2 3 4 5 6 7	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0	48.27 1461.00	0.71 19.99 Tot 2598.00 .06.00 .001.00 .001.00 .006.00 .006.00 .006.34 .004.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58	3.0 0.0 inCont Ma 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72	0.0 1.0 0.0 2.0 4.0 0.0 16.0
11 12 cre 0 1 2 3 4 5 6 7 8 9	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0 1.0	48.27 1461.00	0.71 19.99 Tot 3 598.00 .06.00 701.00 701.00 177.00 126.34 704.00 899.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00	3.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0
11 12 cre 0 1 2 3 4 5 6 7 8 9 10	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0 1.0 718.0	48.27 1461.00	0.71 19.99 Tot 3 598.00 001.00 001.00 001.00 017.00 0126.34 004.00 02.00 899.00 001.53	0.82 0.29 AvWait A 1.32 97.54 0.00 5500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73	0.00 0.49 avCont SDCont M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44	3.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0
11 12 0 1 2 3 4 5 6 7 8 9 10 11 12	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0 718.0 701.0 1.0	48.27 1461.00	0.71 19.99 Tot 75 598.00 .06.00 701.00 706.00 717.00 704.00 702.00 702.00 702.00 702.00 702.00 702.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08	0.00 0.49 AVCONT SDCONT M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03	3.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.00 0.17	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0
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11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 1 9 1 1 2 1 1 2 1 1 1 1 2 1 1 1 1 1 1	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0 1.0 718.0 701.0 1.0  Cur 0.0 2.0 0.0 0.0 1.0 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	48.27 1461.00 6 21 7 717.00 20 7 13 13 13 14 13 14 13 14 13 14 13 13 13 13 13 13 13 13 13 13 13 13 13	0.71 19.99  Tot 3 598.00 0.06.00 01.00 01.00 01.00 02.00 02.00 03.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53 0.00 01.53	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08 AvCont 0.22 1.14 0.00 3.04 1.47 0.11 9.06 0.39 0.08 0.17 0.50 0.01	0.00 0.49  AVCONT SDCONT M  0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03  SDCONT MINCONT  0.43 0.76 0.01 0.62 0.72 0.94 0.79 0.53 0.28 0.38	3.0 0.0 0.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.17 MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0
11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a2WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 6.0 0.0 15.0 2.0 0.0 1.0 718.0 701.0 1.0  Cur 0.0 2.0 0.0 0.0 1.0 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	48.27 1461.00  66 21 77 717.00 26 77 717.00 26 77 717.00 27 713 71 713 71 71 71 71 71 71 71 71 71 71 71 71 71	0.71 19.99  Tot 2 598.00 .06.00 .01.00 .02.00 .02.00 .099.00 .01.53 0.00 .01.00  AvWait 16.08 27.73 0.00 221.69 106.52 7.98 653.34 28.02 5.89 6.25 0.47 0.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08 AvCont 0.22 1.14 0.00 3.04 1.47 0.11 9.06 0.39 0.08 0.17 0.50 0.01	0.00 0.49  AVCONT SDCONT M  0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03  SDCONT MINCONT  0.43 0.76 0.01 0.62 0.72 0.94 0.79 0.53 0.28 0.38 0.00 0.00	3.0 0.0 0.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.17 MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0
11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 12 12 12 12 12 12 12 12 12 12 12	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail a2WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=6 Queue	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 0.0 1.0 718.0 701.0 1.0  Cur 0.0 2.0 0.0 1.0 3.0 6.0 0.0 1.0 718.0 701.0 1.0 Cur 0.0 2.0 0.0 1.0 2.0 1.0 2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	48.27 1461.00  66 21 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 7136.00 1375.00 1376.00 1377.00 1378.00 1378.00 2743.00 34.03 0.01 1375.00	0.71 19.99  Tot 2 598.00 .06.00 01.00 01.00 026.34 04.00 .07.00 029.00 .01.53 0.00 .01.53 0.00 .01.60 .01.53 0.00 .00 .00 .00 .00 .00 .00 .00 .00 .	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08 AvCont 0.22 1.14 0.00 3.04 1.47 0.11 9.06 0.39 0.08 0.17	0.00 0.49  AVCONT SDCONT M  0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03  SDCONT MinCont  0.43 0.76 0.01 0.62 0.72 0.94 0.79 0.53 0.28 0.38 0.00 0.00 0.34  SDCONT MinCont	3.0 0.0 0.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.17 MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0
11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 2 2 3 4 5 6 7 8 8 9 1 0 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 1 1 2 1 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 2 2 2 2 3 3 3 3	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a2WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a5WeitPullFormsezs a7WaitCure  w=3, form=6 Queue a11WaitUnload	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 1.0 3.0 1.0 2.0 0.0 15.0 2.0 0.0 1.0 718.0 701.0 1.0  Cur 0.0 2.0 0.0 0.0 1.0 2.0 1.0 2.0 0.0 0.0 0.0 0.0 0.0 0.0 1388.0 1.0  Cur	48.27 1461.00  66 21 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 71369.00 1375.00 1376.00 1377.00 1378.00 1378.00 1378.00 2743.00 34.03 0.01 1375.00  Tot 1564.00	0.71 19.99  Tot 3 598.00 06.00 0701.00 0701.00 0706.00 0717.00 0706.00 0701.00	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08 AvCont 0.22 1.14 0.00 3.04 1.47 0.11 9.06 0.39 0.08 0.17 0.50 0.01 0.12	0.00 0.49  AVCONT SDCONT M 0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03  SDCONT MinCont 0.43 0.76 0.01 0.62 0.72 0.94 0.79 0.53 0.28 0.38 0.00 0.00 0.34  SDCONT MinCont 0.34	3.0 0.0 0.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.17 MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0
11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 12 12 12 12 12 12 12 12 12 12 12	a5WeitPullFormsezs a7WaitCure  w=3, form=2 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail a2WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=4 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=3, form=6 Queue	0.00 ezs  Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 0.0 3.0 1.0 3.0 1.0 3.0 1.0 2.0 0.0 15.0 2.0 0.0 1.0 718.0 701.0 1.0  Cur 0.0 2.0 0.0 2.0 0.0 1.0 2.0 0.0 0.0 0.0 0.0 0.0 1388.0 1375.0 1.0  Cur	48.27 1461.00  66 21 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 77 717.00 20 7136.00 1375.00 1376.00 1377.00 1378.00 1378.00 2743.00 34.03 0.01 1375.00	0.71 19.99  Tot 3 598.00 .06.00 0701.00 0701.00 0706.00 0717.00 026.34 004.00 0702.00 0899.00 .01.53 0.00 0701.00  AvWait 16.08 27.73 0.00 221.69 106.52 7.98 653.34 28.02 5.89 6.25 0.47 0.00 9.09  AvWait 26.39 18.74	0.82 0.29 AvWait A 1.32 97.54 0.00 500.31 676.63 12.17 14.53 236.90 0.17 41.63 0.73 0.00 4.08 AvCont 0.22 1.14 0.00 3.04 1.47 0.11 9.06 0.39 0.17 0.50 0.01 0.12	0.00 0.49  AVCONT SDCONT M  0.01 2.05 0.00 3.51 4.78 0.09 1.08 1.67 0.00 0.58 0.44 0.00 0.03  SDCONT MinCont  0.43 0.76 0.01 0.62 0.72 0.94 0.79 0.53 0.28 0.38 0.00 0.00 0.34  SDCONT MinCont	3.0 0.0 0.0 0.0 0.0 0.10 0.77 0.00 0.61 0.74 1.00 0.00 0.72 0.04 0.49 0.00 0.17 MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0 1.0 0.0 2.0 4.0 0.0 16.0 1.0 0.0 0.0

3	a17TruckAvail	ezs		1566.00				59	1.0		
4 5	a18PosFree		0.0	1570.00	24.43			67	0.0		
6	a20WaitBatch a22WaitPour	ezs ezs	1.0	1582.00 1581.00	7.33	0.12 7.18		97 79	0.0		
7	a23PosAvail	ezs	0.0	1574.00	0.78	0.01		12	0.0		
8	a24AvailForm	ezs	2.0	1576.00	88.87			68	0.0		
9	a25CraneIdel	ezs	0.0	3133.00	1.99			24	0.0		
10	a27BatchPermit ezs	1.00	1582.0	25.37	0.40	0.49	0.	00	1.0		
11	a5WeitPullFormsezs	0.00	1571.0	5.50	0.09		0.	00	1.0		
12	a7WaitCure	ezs	1.0	1571.00	15.01	0.24	0.	43	0.0		
cre	w=3, form=8 Queue	Res	Cur	Tot	AvWait	AvCont	SDCont MinCo	nt	MaxCont		
0	a11WaitUnload	ezs	1.0	1564.00	25.71			51	0.0		
1	a15IdleCrew	ezs	1.0	4719.00	19.04	0.90	0.	91	0.0		
2	a16WaitClean	ezs	0.0		2.85			21	0.0		
3	a17TruckAvail	ezs	3.0	1566.00				60	1.0		
4 5	a18PosFree a20WaitBatch	ezs	0.0	1571.00 1582.00	25.04 8.01	0.39		68 00	0.0		
6	a20WaitBacch a22WaitPour	ezs ezs	7.0	1582.00				77	0.0		
7	a23PosAvail		0.0	1575.00	0.88			13	0.0		
8	a24AvailForm	ezs	4.0	1579.00	215.56			71	2.0		
9	a25CraneIdel	ezs	1.0	3135.00	2.04	0.06	0.	24	0.0		
10	a27BatchPermit ezs		1583.0	24.92	0.39			00	1.0		
11 12	a5WeitPullFormsezs a7WaitCure		1572.0	5.77	0.09 13.37			00 41	1.0		
		ezs	0.0	1571.00	13.37	0.21	0.	41	0.0		
cre	w=4, form=2	_	~				a			<u> </u>	
0	Queue a11WaitUnload	Res ezs	Cur 0.0		TOT 1	AvWait A	0.01	. M1:	nCont Ma 0.12	0.0	
1	a15IdleCrew	ezs	3.0		18.00		3.06		0.72	2.0	
2	a16WaitClean	ezs	0.0				0.00		0.00	0.0	
3	a17TruckAvail	ezs	4.0		06.00		3.51		0.59	2.0	
4	a18PosFree		6.0		10.00		4.75		0.70	4.0	
5 6	a20WaitBatch		1.0	721.00 20		10.65	0.08		0.93	0.0	
7	a22WaitPour a23PosAvail	ezs ezs	15.0 2.0		708.00	14.51	1.00		0.67	16.0	
8	a24AvailForm	ezs	0.0		06.00		0.00		0.04	0.0	
9	a25CraneIdel	ezs	1.0		107.00	41.19	0.58		0.49	0.0	
10		1.00	722.0			0.73	0.45		0.00	1.0	
11		0.00	705.0		0.00	0.00	0.00		0.00	1.0	
			0 0	_	0.4.00	0 01			0 1 4	0 0	
12	a7WaitCure	ezs	0.0	7	04.00	3.01	0.02		0.14	0.0	
	w=4, form=4							ont		0.0	
			Cur			AvCont	SDCont MinCo	41	MaxCont 0.0	0.0	
cre 0 1	w=4, form=4 Queue allWaitUnload al5IdleCrew	Res ezs ezs	Cur 1.0 3.0	Tot 1366.00 4121.00	AvWait 15.12 52.10	AvCont 0.21 2.15	SDCont MinCo	41 77	MaxCont 0.0 0.0	0.0	
o 0 1 2	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean	Res ezs ezs ezs	Cur 1.0 3.0 0.0	Tot 1366.00 4121.00 1372.00	AvWait 15.12 52.10 0.00	AvCont 0.21 2.15 0.00	SDCont MinCo	41 77 00	MaxCont 0.0 0.0 0.0	0.0	
0 1 2 3	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail	Res ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0	Tot 1366.00 4121.00 1372.00 1369.00	AvWait 15.12 52.10 0.00 222.28	AvCont 0.21 2.15 0.00 3.04	SDCont MinCo	41 77 00 61	MaxCont 0.0 0.0 0.0 1.0	0.0	
0 1 2 3 4	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree	Res ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00	AvWait 15.12 52.10 0.00 222.28 109.22	AvCont 0.21 2.15 0.00 3.04 1.50	SDCont MinCo	41 77 00 61 72	MaxCont 0.0 0.0 0.0 1.0	0.0	
0 1 2 3	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail	Res ezs ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0 0.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1384.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11	SDCont MinCo 0. 0. 0. 0. 0.	41 77 00 61	MaxCont 0.0 0.0 0.0 1.0	0.0	
cre 0 1 2 3 4 5 6 7	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail	Res ezs ezs ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0 0.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1384.00 1375.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39	SDCont MinCo 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0	0.0	
cre 0 1 2 3 4 5 6 7 8	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1384.00 1375.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09	SDCont MinCo 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0	0.0	
cre 0 1 2 3 4 5 6 7 8 9	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1384.00 1375.00 2737.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18	SDCont MinCo 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54 29 38	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0	
cre 0 1 2 3 4 5 6 7 8 9	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1384.00 1375.00 2737.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18	SDCont MinCo 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54 29 38	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0	0.0	
cre 0 1 2 3 4 5 6 7 8 9	w=4, form=4 Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm	Res ezs ezs ezs ezs ezs ezs ezs ezs o.00	Cur 1.0 3.0 0.0 4.0 1.0 0.0 10.0 1.0 0.0 1385.0 1372.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1375.00 1375.00 2737.00 34.29 0.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00	SDCont MinCo 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54 29 38	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0	
0 1 2 3 4 5 6 7 8 9 10 11 12	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs	Res ezs ezs ezs ezs ezs ezs ezs ezs o.00	Cur 1.0 3.0 0.0 4.0 1.0 0.0 10.0 1.0 0.0 1385.0 1372.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1375.00 1375.00 2737.00 34.29 0.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00	SDCont MinCo 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54 29 38 00	MaxCont 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0	0.0	
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cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6 Queue al1WaitUnload a15IdleCrew al6WaitClean a17TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 0.0 1385.0 1372.0 0.0 2.0 2.0 2.0 2.0 0.0 1584.0 1572.0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  Tot 1565.00 4722.00 1572.00 1572.00 1573.00 1583.00 1583.00 1575.00 1577.00 3137.00 25.38 1.44	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 7.77 452.07 0.18 94.22 1.86 0.40 0.02	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00 0.12  AvCont 0.42 1.88 0.01 2.91 0.36 0.12 7.16 0.00 1.49 0.06 0.49 0.15	SDCont MinCo  0.  0.  0.  0.  0.  0.  0.  0.  0.  0	41 77 00 61 72 96 81 54 29 38 00 00 32 nt 52 16 61 68 98 88 00 61 61 72 96 81 90 61 90 61 90 61 90 61 90 90 90 90 90 90 90 90 90 90 90 90 90	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre  0 1 2 3 4 5 6 7 8 9 10 11 12 cre  0 1 2 3 4 5 6 7 8 9 10 11 12 cre	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6 Queue al1WaitUnload a15IdleCrew al6WaitClean a17TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 1.0 1.0 1.0 0.0 1385.0 1372.0 0.0  Cur 0.0 3.0 0.0 2.0 2.0 0.0 8.0 0.0 2.0 1.0 1584.0 1572.0 1.0  Cur	Tot 1366.00 4121.00 1372.00 1372.00 1375.00 1375.00 2737.00 34.29 0.00 1372.00 1372.00 1567.00 1572.00 1573.00 1583.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00 1573.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 23.17 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait	AvCont	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 00 61 72 96 81 54 29 38 00 00 32 20 16 10 61 68 88 80 80 88 80 80 80 80 80 80 80 80 80	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre  0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 10 11 12	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue al1WaitUnload	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 1.0 1.0 3.0 0.0 1385.0 1372.0 0.0  Cur 0.0 3.0 0.0 2.0 2.0 0.0 8.0 0.0 1.584.0 1572.0 1.0  Cur 2.0 Cur	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  Tot 1567.00 1572.00 1573.00 1583.00 1575.00 1577.00 3137.00 25.38 1.44 1572.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 23.17 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait 27.61	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00 0.12  AvCont 0.42 1.88 0.01 2.91 0.36 0.12 7.16 0.00 1.49 0.06 0.49 0.15 0.29  AvCont 0.43	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 000 61 72 96 81 52 93 80 00 32 81 52 16 61 68 98 88 00 00 61 61 61 61 61 61 61 61 61 61 61 61 61	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6  Queue allWaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue al1WaitUnload a15IdleCrew w=4, form=8	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 0.0 1.0 1.0 0.0 1385.0 1372.0 0.0  Cur 0.0 3.0 0.0 2.0 2.0 0.0 8.0 0.0 1.584.0 1572.0 1.0  Cur 2.0 0.0 1584.0 1572.0 1.0  Cur	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  Tot 1562.00 4722.00 1573.00 1573.00 1583.00 1573.00 1583.00 1575.00 1577.00 3137.00 25.38 1.44 1572.00  Tot 1568.00 4731.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 23.17 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait 27.61 39.75	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00 0.12  AvCont 0.42 1.88 0.01 2.91 0.36 0.12 7.16 0.00 1.49 0.15 0.29  AvCont 0.43 1.88	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 000 61 72 96 81 52 38 00 00 32 81 52 16 10 66 61 68 98 88 00 00 47	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre  0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 2 2 3 4 5 6 7 8 9 10 11 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue al1WaitUnload a15IdleCrew a16WaitClean	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 1.0 1.0 0.0 1385.0 1372.0 0.0  Cur 0.0 2.0 2.0 0.0 8.0 0.0 1584.0 1572.0 1.0  Cur 2.0 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  Tot 1565.00 4722.00 1573.00 1583.00 1573.00 1583.00 1575.00 1577.00 3137.00 25.38 1.44 1572.00  Tot 1568.00 4731.00 1575.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 23.17 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait 27.61 39.75 0.85	AvCont	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 000 61 72 96 81 52 93 80 00 32 81 52 16 10 61 68 98 88 00 00 47 80 10 10 10 10 10 10 10 10 10 10 10 10 10	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6  Queue allWaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue al1WaitUnload a15IdleCrew w=4, form=8	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 0.0 1385.0 1372.0 0.0  Cur 0.0 2.0 2.0 0.0 8.0 0.0 1.0 1584.0 1572.0 1.0  Cur 2.0 0.0 1584.0 1572.0 1.0  Cur 2.0 3.0 0.0 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  Tot 1562.00 4722.00 1573.00 1573.00 1583.00 1573.00 1583.00 1575.00 1577.00 3137.00 25.38 1.44 1572.00  Tot 1568.00 4731.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 23.17 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait 27.61 39.75 0.85 185.04	AvCont	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 000 61 72 96 81 52 38 00 00 32 81 52 16 10 66 61 68 98 88 00 00 47	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	
cre  0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 12 cre 0 1 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3	w=4, form=4 Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=6 Queue al1WaitUnload a15IdleCrew a16WaitClean a17TruckAvail a18PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs a7WaitCure  w=4, form=8 Queue a11WaitUnload a15IdleCrew a16WaitClean a17TruckAvail	Res ezs ezs ezs ezs ezs ezs ezs ezs ezs e	Cur 1.0 3.0 0.0 4.0 1.0 0.0 1.0 1.0 0.0 1385.0 1372.0 0.0  Cur 0.0 2.0 0.0 2.0 0.0 1.0 1584.0 1572.0 1.0  Cur 2.0 0.0 1584.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Tot 1366.00 4121.00 1372.00 1369.00 1373.00 1385.00 1375.00 2737.00 34.29 0.00 1372.00  **Tot** 1565.00 4722.00 1572.00 1573.00 1575.00 1577.00 3137.00 25.38 1.44 1572.00	AvWait 15.12 52.10 0.00 222.28 109.22 7.91 658.48 28.58 6.34 6.58 0.47 0.00 8.40  AvWait 26.93 39.78 0.60 185.47 7.77 452.07 0.18 94.22 1.86 0.40 0.02 18.70  AvWait 27.61 39.75 0.85 185.04 21.48	AvCont 0.21 2.15 0.00 3.04 1.50 0.11 9.11 0.39 0.09 0.18 0.50 0.00 0.12  AvCont 0.42 1.88 0.01 2.91 0.36 0.02 7.16 0.00 1.49 0.06 0.49 0.15 0.29  AvCont 0.43 1.88 0.01 2.90 0.34	SDCont MinCo  0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	41 77 000 61 72 96 81 54 29 33 00 00 32 32 80 61 61 66 61 68 98 88 00 00 47 80 47 80 80 80 80 80 80 80 80 80 80 80 80 80	MaxCont 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0	

6 7	a22WaitPour	ezs						0.82	0.0	
	a23PosAvail	ezs	0.0	1578.00	0.26			0.09	0.0	
8 9	a24AvailForm a25CraneIdel	ezs ezs	4.0	1582.00 3140.00	1.67			0.82	2.0	
9 10	a23Cranerder a27BatchPermit ezs		1586.0	25.33	0.40			0.00	1.0	
11	a5WeitPullFormsezs	0.00	1575.0	1.96				0.00	1.0	
12	a7WaitCure	ezs	1.0	1575.00	21.33			0.49	0.0	
cre	w=5, form=2	_	_							<u>.</u>
`	Queue	Res	Cur 0.0			AvWait A 2.29	vCont S	SDCont Mi	nCont Ma	
) 1	allWaitUnload al5IdleCrew	ezs ezs	4.0		396.00 .02.00		4.05		0.13	0.0
2	al6WaitClean	ezs	0.0		599.00	0.00	0.00		0.00	0.0
3	al7TruckAvail	ezs	4.0		00.00		3.51		0.58	2.0
4	a18PosFree	ezs	5.0		04.00		4.78		0.68	4.0
5	a20WaitBatch	ezs	1.0		16.00		0.08		0.99	0.0
6	a22WaitPour	ezs	15.0	715.00 20	35.16	14.55	1.05		0.00	16.0
7	a23PosAvail	ezs	2.0	7	02.00	237.99	1.67		0.65	1.0
8	a24AvailForm	ezs	0.0	7	00.00	0.16	0.00		0.04	0.0
9	a25CraneIdel	ezs	1.0		396.00		0.58		0.49	0.0
10	a27BatchPermit ezs		716.0		.01.91		0.44		0.00	1.0
11	a5WeitPullFormsezs		699.0		0.00		0.00		0.00	1.0
12	a7WaitCure	ezs	0.0	6	599.00	3.17	0.02		0.15	0.0
cre	w=5, form=4									
	Queue	Res	Cur	Tot	AvWait	AvCont	SDCont	MinCont		
0	a11WaitUnload	ezs	0.0	1372.00	15.79			0.42	0.0	
1	a15IdleCrew	ezs	4.0	4143.00	76.02			0.75	1.0	
2	a16WaitClean	ezs		1379.00	0.00			0.00	0.0	
3 4	a17TruckAvail	ezs	3.0	1375.00				0.62	1.0	
	a18PosFree	ezs	2.0		105.56			0.73	0.0	
5 6	a20WaitBatch a22WaitPour	ezs ezs	0.0 9.0	1391.00 1391.00	8.42			1.01	0.0	
7	a23PosAvail	ezs	0.0	1382.00	27.07			0.63	0.0	
8	a24AvailForm	ezs	0.0	1382.00	5.76			0.28	0.0	
9	a25CraneIdel	ezs	1.0	2751.00	6.32			0.38	0.0	
10	a27BatchPermit ezs	1.00	1392.0	33.87	0.47			0.00	1.0	
11	a5WeitPullFormsezs	0.00	1379.0	0.00	0.00			0.00	1.0	
12	a7WaitCure	ezs	1.0	1379.00	8.54	0.12		0.33	0.0	
cre	w=5, form=6									
	Queue	Res	Cur	Tot	AvWait	AvCont	SDCont	MinCont	MaxCont	
0	a11WaitUnload	ezs			24.93			0.51	0.0	
1	a15IdleCrew	ezs		4730.00	60.69			1.25	0.0	
2	a16WaitClean	ezs	0.0	1575.00	0.22			0.06	0.0	
3	a17TruckAvail	ezs		1570.00				0.60	1.0	
4	a18PosFree	ezs		1575.00	24.72			0.68	0.0	
5 6	a20WaitBatch a22WaitPour	ezs ezs	1.0	1586.00 1585.00	8.93 449.81			1.06	0.0	
7	a23PosAvail	ezs	0.0	1578.00	0.17			0.08	0.0	
8	a24AvailForm	ezs	1.0	1579.00	94.81			0.80	0.0	
9	a25CraneIdel	ezs	0.0	3141.00	1.94			0.24	0.0	
10	a27BatchPermit ezs	1.00	1586.0	24.94	0.40			0.00	1.0	
11	a5WeitPullFormsezs	0.00	1575.0	0.37	0.01			0.00	1.0	
12	a7WaitCure	ezs	1.0	1575.00	20.94	0.33		0.51	0.0	
	- F - F 0									
cre	w=5, iorm=8		~	Tot	AvWait	AvCont	SDCont	MinCont	MaxCont	
cre	w=5, form=8 Queue	Res	Cur	100						
		Res ezs	1.0	1568.00	25.21	0.40		0.51	0.0	
) 1	Queue				25.21 60.70			1.33	0.0	
0 1 2	Queue allWaitUnload al5IdleCrew al6WaitClean	ezs ezs ezs	1.0 3.0 0.0	1568.00 4730.00 1574.00	60.70 0.23	2.87		1.33	0.0	
0 1 2 3	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail	ezs ezs ezs ezs	1.0 3.0 0.0 3.0	1568.00 4730.00 1574.00 1570.00	60.70 0.23 184.93	2.87 0.00 2.90		1.33 0.06 0.62	0.0 0.0 1.0	
0 1 2 3 4	Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree	ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0	1568.00 4730.00 1574.00 1570.00 1575.00	60.70 0.23 184.93 24.32	2.87 0.00 2.90 0.38		1.33 0.06 0.62 0.68	0.0 0.0 1.0 0.0	
0 1 2 3 4 5	Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch	ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00	60.70 0.23 184.93 24.32 7.84	2.87 0.00 2.90 0.38 0.12		1.33 0.06 0.62 0.68 0.97	0.0 0.0 1.0 0.0	
0 1 2 3 4 5	Queue al1WaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour	ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00	60.70 0.23 184.93 24.32 7.84 450.39	2.87 0.00 2.90 0.38 0.12 7.14		1.33 0.06 0.62 0.68 0.97 0.82	0.0 0.0 1.0 0.0 0.0	
0 1 2 3 4 5 6	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail	ezs ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00	60.70 0.23 184.93 24.32 7.84 450.39 0.13	2.87 0.00 2.90 0.38 0.12 7.14 0.00		1.33 0.06 0.62 0.68 0.97 0.82	0.0 0.0 1.0 0.0 0.0 0.0	
0 1 2 3 4 5 6 7 8	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm	ezs ezs ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0 0.0 4.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00 1582.00	60.70 0.23 184.93 24.32 7.84 450.39 0.13 221.06	2.87 0.00 2.90 0.38 0.12 7.14 0.00 3.50		1.33 0.06 0.62 0.68 0.97 0.82 0.07	0.0 0.0 1.0 0.0 0.0 0.0 0.0	
0 1 2 3 4 5 6 7 8	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel	ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0 0.0 4.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00 1582.00 3142.00	60.70 0.23 184.93 24.32 7.84 450.39 0.13 221.06 1.94	2.87 0.00 2.90 0.38 0.12 7.14 0.00 3.50 0.06		1.33 0.06 0.62 0.68 0.97 0.82 0.07 0.87	0.0 0.0 1.0 0.0 0.0 0.0 0.0 2.0	
0 1 2 3 4 5 6 7 8 9	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm	ezs ezs ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0 0.0 4.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00 1582.00	60.70 0.23 184.93 24.32 7.84 450.39 0.13 221.06	2.87 0.00 2.90 0.38 0.12 7.14 0.00 3.50 0.06 0.49		1.33 0.06 0.62 0.68 0.97 0.82 0.07	0.0 0.0 1.0 0.0 0.0 0.0 0.0	
0 1 2 3 4 5 6 7 8	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs	ezs ezs ezs ezs ezs ezs ezs ezs ezs	1.0 3.0 0.0 3.0 1.0 0.0 7.0 0.0 4.0 1.0 1586.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00 1582.00 3142.00 25.40	60.70 0.23 184.93 24.32 7.84 450.39 0.13 221.06 1.94 0.40	2.87 0.00 2.90 0.38 0.12 7.14 0.00 3.50 0.06 0.49 0.08		1.33 0.06 0.62 0.68 0.97 0.82 0.07 0.87 0.24	0.0 0.0 1.0 0.0 0.0 0.0 0.0 2.0 0.0	
0 0 1	Queue allWaitUnload al5IdleCrew al6WaitClean al7TruckAvail al8PosFree a20WaitBatch a22WaitPour a23PosAvail a24AvailForm a25CraneIdel a27BatchPermit ezs a5WeitPullFormsezs	ezs ezs ezs ezs ezs ezs ezs ezs ezs o.00	1.0 3.0 0.0 3.0 1.0 0.0 7.0 0.0 4.0 1.0 1586.0	1568.00 4730.00 1574.00 1570.00 1575.00 1586.00 1585.00 1578.00 1582.00 3142.00 25.40 0.37	60.70 0.23 184.93 24.32 7.84 450.39 0.13 221.06 1.94 0.40	2.87 0.00 2.90 0.38 0.12 7.14 0.00 3.50 0.06 0.49 0.08		1.33 0.06 0.62 0.68 0.97 0.82 0.07 0.87 0.24 0.00	0.0 0.0 1.0 0.0 0.0 0.0 2.0 0.0 1.0	

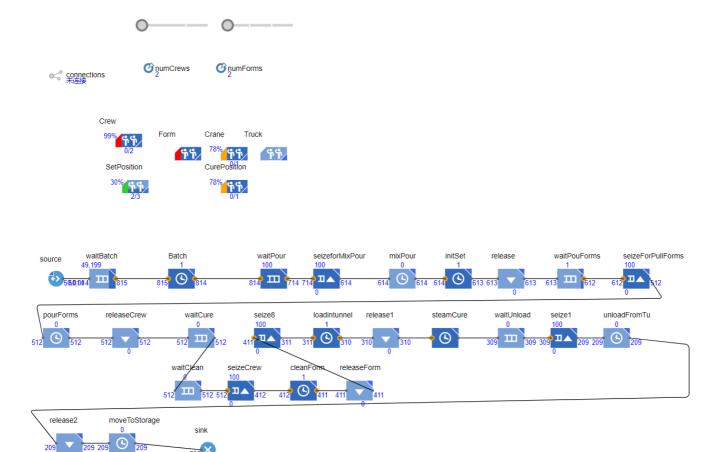


Figure 1: Crew=2, Form=2

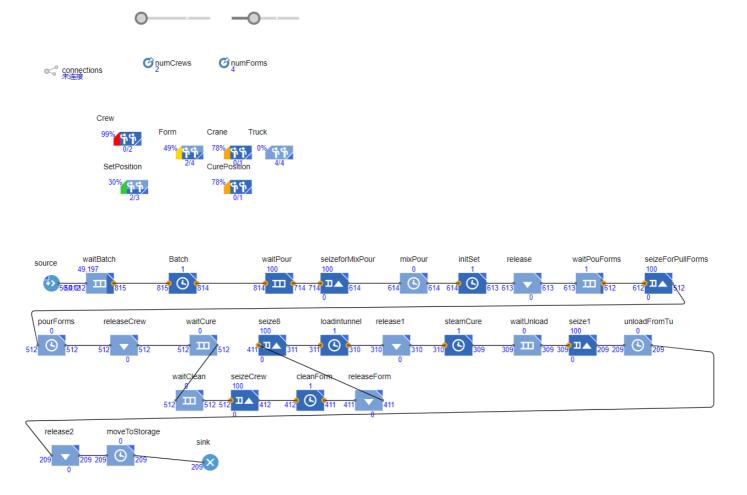


Figure 2: Crew=2, Form=4

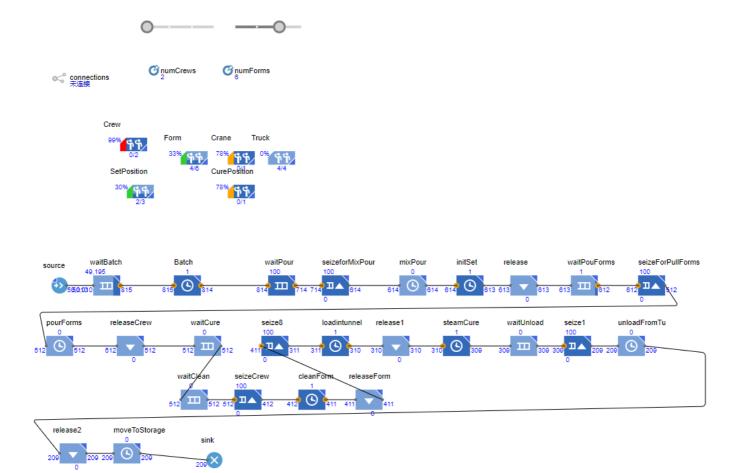


Figure 3: Crew=2, Form=6

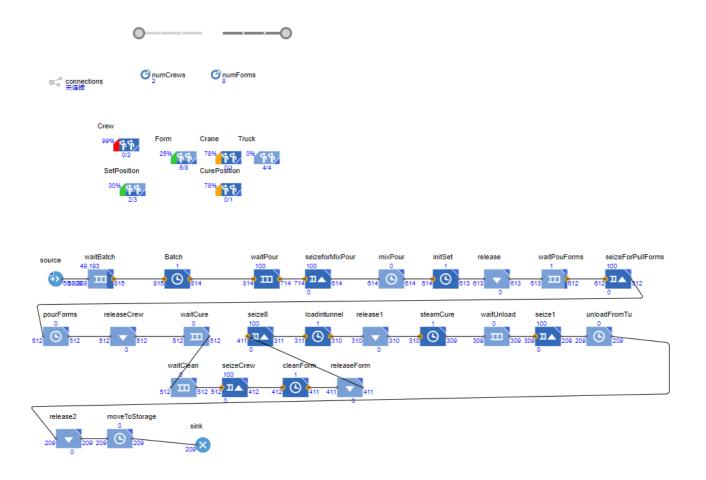


Figure 4: Crew=2, Form=8



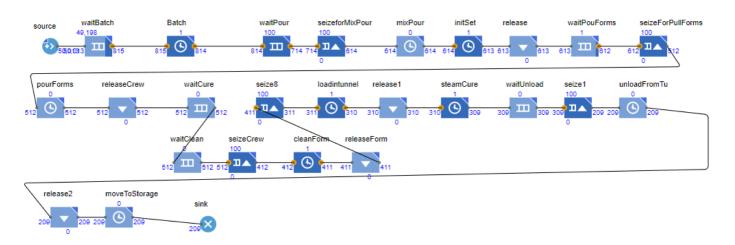


Figure 5: Crew=3, Form=2

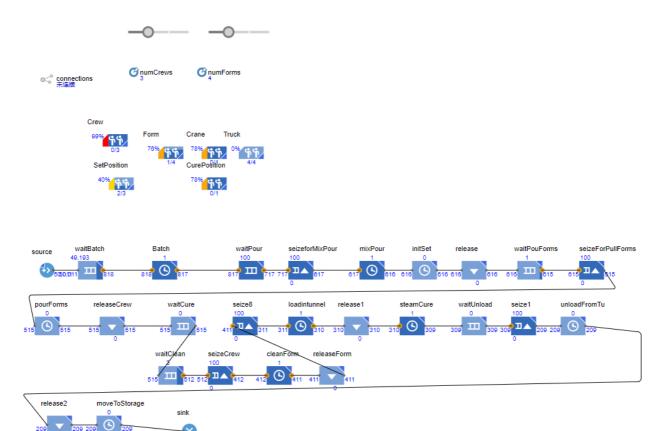
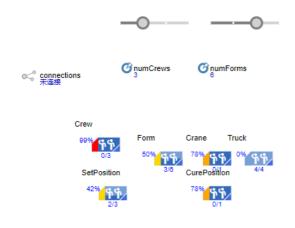


Figure 6: Crew=3, Form=4



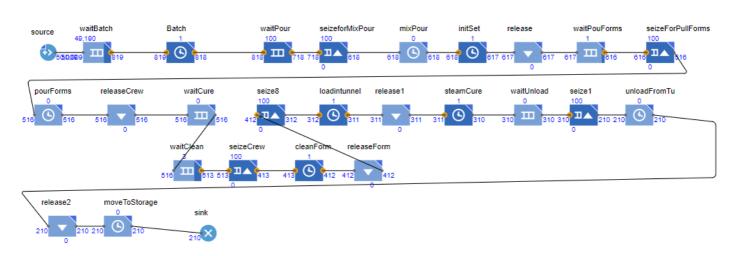
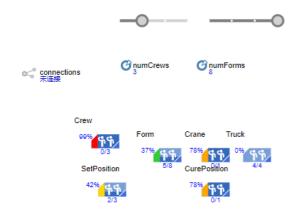


Figure 7: Crew=3, Form=6



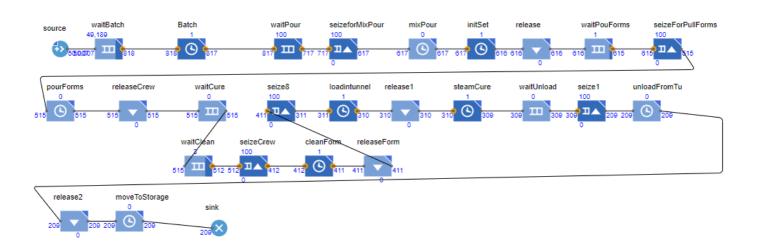


Figure 8: Crew=3, Form=8

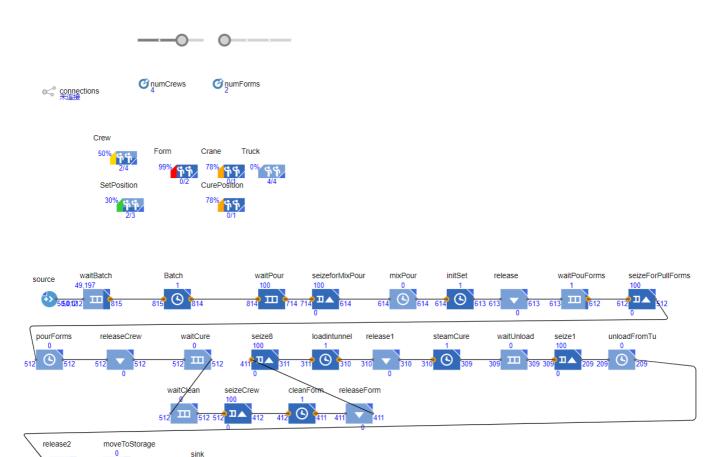


Figure 9: Crew=4, Form=2

(L)

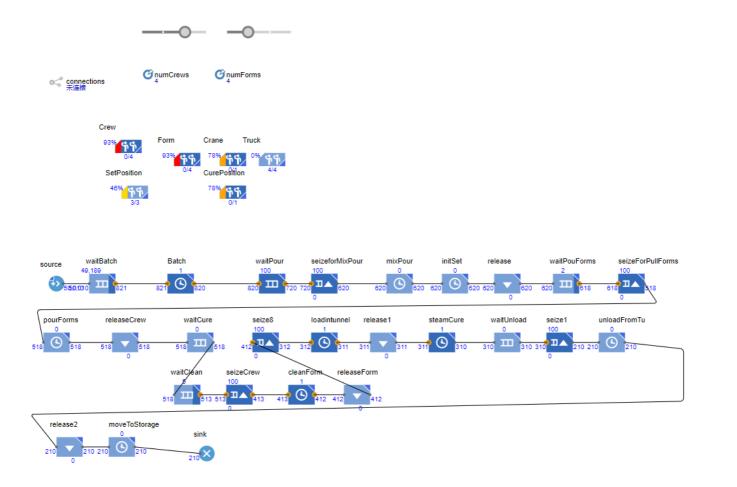


Figure 10: Crew=4, Form=4

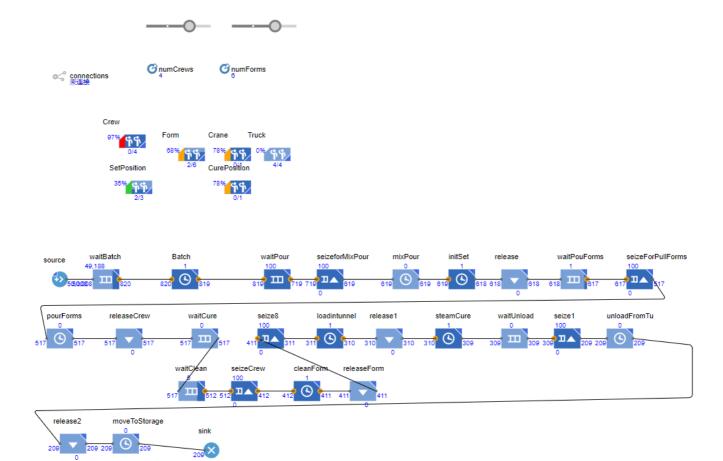


Figure 11: Crew=4, Form=6

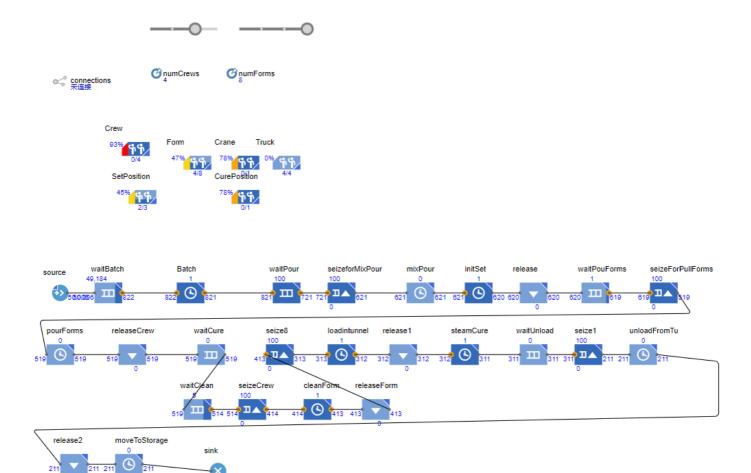
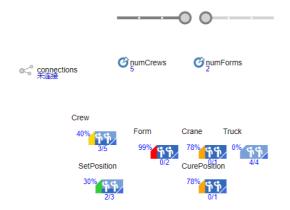


Figure 12: Crew=4, Form=8



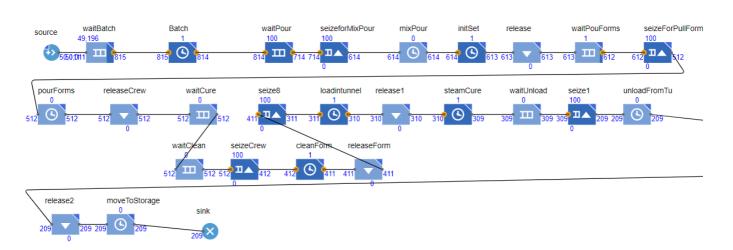
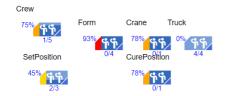


Figure 13: Crew=5, Form=2



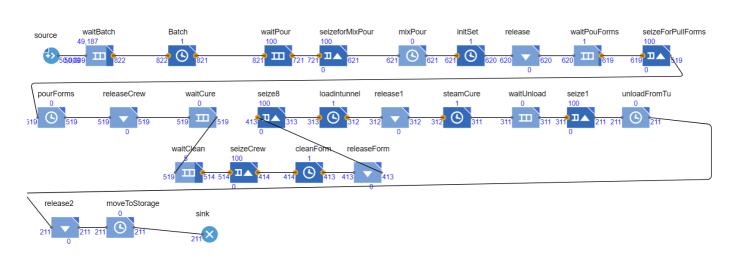


Figure 14: Crew=5, Form=4

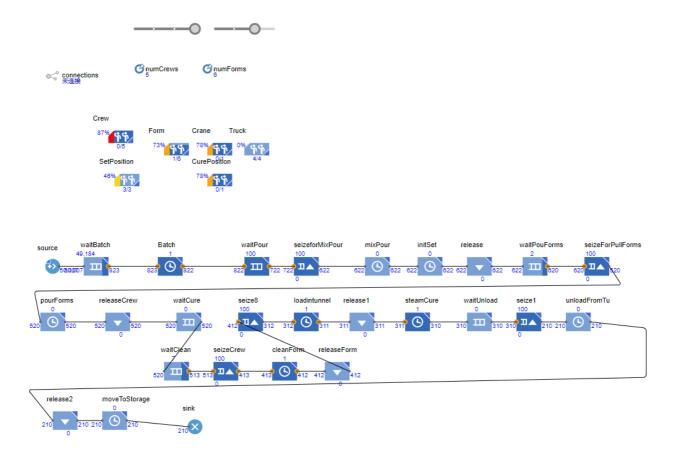


Figure 15: Crew=5, Form=6

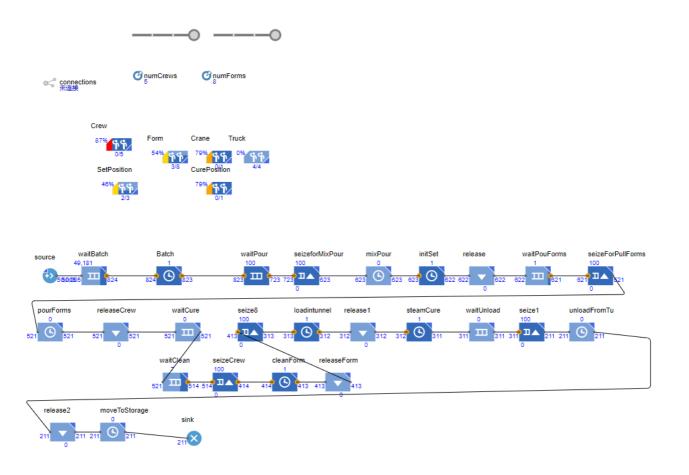


Figure 16: Crew=5, Form=8