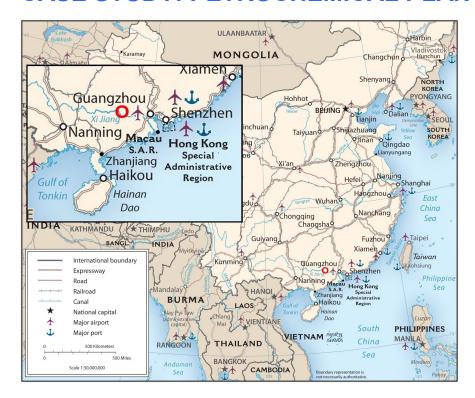
CASE STUDY: PETROCHEMICAL PLANT



NB: The Case Study is representative of these types of projects and does not represent any actual planned or constructed facility.

The approximate location of the planned facility is shown as a red circle on the map at the left in the lower right quadrant and on the map insert.

The planned construction project is a high temperature/high pressure polyester plant to be built in Kaiping, China with an estimated cost of 30,000,000 USD, estimated USGC direct field construction labor of 780,000 manhours, and an estimated construction schedule of 38 weeks after mobilization and prior to start-up and demobilization.

The plant will produce 140,000 metric tons per year of polyester chips. The closest labor market is Guangzhou, China. The productivity (Table 5 - Productivity (Canada – Edmonton to Egypt) for the location and project type is 77.3%.

For this case study we will assume that the planned construction project has the following additional characteristics:

- The daily temperature is estimated to be 80 degrees F with an average humidity of 65%
- The contractor has a current backlog of 4 months
- The laydown area is 50 feet from the construction area
- The union workforce will travel to the site using public transportation, will be paid on an hourly basis, and will be working 8 hours days and 5 days per week, and one shift per day
- It is expected that there will be moderate construction activity near the site during construction

The completed Estimated Direct Construction Field Labor Productivity Form is shown on the following page.

WORLDWIDE CONSTRUCTION LABOR PRODUCTIVITY

		Estimated Direct Constru		•		
Project: Polyester Chip Plant						Page
No.	Project Information					
1	Country of Construction China					
2	Origin of Workford	rce Guangzhou				
3	Project Type Petrochemical					
4	Base Productivity (percent) BP = 77.3					30
		Adju	stment Fac	tors		
5	Category	Item	Symbol	Value	F Value	
6		Project Size	Fps	780,000 USGC mh	-15.1	43
7	Project	Construction Schedule	Fsh	38 weeks	-2	44
8		Additional Safety Requirements	Fsr	na	0	45
9		Work in Operating Areas	Fop	na	0	46
10		Working Height	Fhe	-	0	47
11		Excessive Security	Fes	na	0	48
12		Climate - Temperature/Humidity	Fth	na	0	49
13	Construction Site	Climate - Precipitation	Fra	na	0	53
14		Climate - Wind Chill	Fwc	na	0	55
15		Climate - Wind	Fwn	na	0	56
16		Travel Time to Site	Ftv	Public Transportation	0	57
17		Level of Construction Activity	Fec	Moderate	-3.5	58
18	Contractor	Contractor Backlog	Fbk	4 months	0	59
19		Workforce Supervision	Fws	-	0	60
20	Construction Management	Work Week	Fwk	5 8-Hour days	0	62
21		Shifts per Day	Fsd	1	0	63
22		Workforce Pay Basis	Fpb	Hourly Rate	0	64
23		Laydown Area Access	Far	50 Feet	0	65
24		Workforce Catering	Fca	none	0	66
25		Workforce Accommodation	Fac	none	0	67
26		Workforce Congestion	Faw	-	0	68
27		Crew Loading	Fcv	-	0	69
28		Subcontract Labor	Fsu	na	0	70
29	Workforce	Workforce Organization	Fun	Union	-16	71
30		Workforce Experience	Fwx	-	-8	72
31		Learning Curve - Process Trains	Fcp	na	0	73
32		Learning Curve - Buildings/Units	Fcb	na	0	74
33		Workforce Morale	Fwm	na	0	75
34		Workforce Turnover	Fwt	na	0	76
35	Other					
36	Julei					
37	Post	Change Orders	Fsc			77
38	Construction	Stretched Schedule	Fss			78
39	Start					
40 Sum of Adjustment Factors (SumFactors) - F Values No. 6 through 39 inclusive -44.6						
41	Productivity = Estimated Direct Construction Field Labor Productivity (percent) Productivity = BP + (BP x SumFactors / 100) US Gulf Coast Productivity = 100% 42.8					

Figure 8 - Completed Productivity Form - Case Study: Petrochemical Plant