

HT
395
.C3A22
no.6/A-5

KUO, CHUN-YAN

February 17, 1976

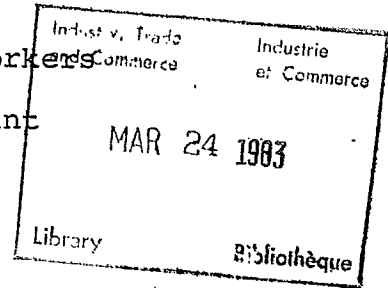
An Analysis of the Construction
Workers at the Glace Bay Heavy
Water Plant

Appendix 5

To Annex "A"

To Part 6

An Analysis of the Construction Workers
at the Glace Bay Heavy Water Plant



by

Chun-Yan Kuo*

Program Evaluation Division
Department of Regional
Economic Expansion

* The author is very grateful
to John C. Evans for
helpful comments.

February 17, 1976

I Introduction

In 1971, Atomic Energy of Canada Ltd (AECL) bought the Glace Bay Heavy Water Plant from Deuterium of Canada Ltd., and started to reconstruct the plant. This construction project was contracted out by AECL to Canatom Mon-Max. Canatom Mon-Max began to work with a small number of workers in 1971/72, increased to the peak period with more than 1,100 workers in June-August 1974, and then gradually employment declined until all the workers were laid-off by December 18, 1975, because of completion of the project.¹ Table 1 shows the variations of the monthly AECL construction work force at Glace Bay from January 1973 to December 1975. One has to keep in mind that the composition of construction workers varies according to the construction phases. For example, Table 2 presents the demand for various trades during the peak period of the heavy water plant construction. The project did not have the same trades-mix in the earlier or later stages of construction.

Table 1 also shows the percentage of the absentees each month from the daily attendance records of the company employees. The percentages of absentees were high, approximately 5.85% in 1973, 8.39% in 1974, and 8.36% in 1975. This suggests that

1

It should be noted that, during the reconstruction period, there was a general strike in July 7 - 28, 1974, starting with boilermakers and then all other tradesmen followed.

in Cape Breton Island the demand for workers in the construction activities can be expected to be about 9% more than the actual man-years required for any project.¹

The purpose of this paper is to provide some idea as to where most of the tradesmen would be drawn from if there were a large construction project such as the new steel complex in Gabarus Bay or the Sydney area, as well as to investigate the general characteristics of this particular segment of the work force in Cape Breton Island.

II The Data

The data used in the analysis are the last jobs of those construction workers who were employed by Canatom Mon-Max to reconstruct the heavy water plant in Glace Bay since 1971. The total population for analysis is 2,945. Of the 2,945 workers, 28 were hired in 1971, 224 in 1972, 1,145 in 1973, 1,124 in 1974, and 443 in 1975.

In terms of trades, the total population is composed of 840 pipefitters, 501 pipefitter welders, 397 labourers, 271 carpenters, 189 boilermakers, 166 iron workers, 132 insulators, 117 electricians, 109 painters, 77 operating engineers, 40 sheet metal workers, 36 millwrights, 33 teamsters,

¹

This figure is obtained from $1/(1-0.084)$ where 8.4% is the rate of absentees.

25 bricklayers, and 2 surveyors.¹ With the exception of surveyors the numbers in each trade are sufficiently large to offer some insight into the general characteristics of the tradesmen in Cape Breton Island.

Table 3 provides a detailed breakdown of tradesmen employed each year by Canatom Mon-Max for this project.

III Work Force Characteristics

The labour-force characteristics will be discussed briefly without the breakdown of trades and analysed in detail for specific tradesmen.

1. Age: The age of the worker discussed in the paper is calculated as of the date at which he was hired. As is indicated in the last column of Table 4, the average age of construction workers was 34 years. The overall age distribution shows that about 45% of the construction workers began to work with the company under 30 years old. Less than 10% of the workers were over 50 years old.

The age distribution differs slightly, however, from trade to trade. The average age of each trade ranged from 31 years old for insulators to 40 years old for

1

29 workers were unknown by their trades from the personnel records.

bricklayers. The age distribution within the trades shows the following tradesmen with more than half of the workers under 30 years old : pipefitter welders (50%), boiler-makers (55%), ironworkers (52%) electricians (57%), insulators (57%) and painters (50%). The trades with relatively older workers were carpenters (38 years), operating engineers (39 years) and bricklayers (40 years). About 22% of carpenters, 10% of operating engineers and 32% of bricklayers were over 50 years of age.

2. Marital Status and Number of Dependents

Table 5 indicates that about three quarters of the total construction workers sampled were married; 62% of the workers had at least one dependent. Marital status and the number of dependents vary, as might be expected according to age group. For example, 59% of the workers under 30 years old were married, compared with 87% for those who were older than 30 years of age. Similarly, 46% of the workers under 30 years, as opposed to 76% of those over 30 years old, had more than one dependent. This suggests that younger workers have fewer family ties and responsibilities than older workers.

The marital status also varied from trade to trade. As is indicated in Table 6, a slightly higher percent-

age of single workers was found in boilermakers, electricians, insulators, painters, and labourers, despite the fact that these tradesmen were found to be young when compared with other groups of workers (see Table 4).

3. Place of Residence and Citizenship

Table 7 shows where the construction workers were drawn from to build the Glace Bay Heavy Water Plant. Overall, almost 70% of the workers were residents of Cape Breton Island, and of these workers about three quarters were living permanently in Cape Breton County. About 18% of the workers migrated from other parts of Nova Scotia, 6% came from the Atlantic Region other than Nova Scotia, and 5% from the rest of Canada.

The degree to which construction workers were drawn from local residents was very different among the various trades. More than 85% of the tradesmen employed in the AECL project as carpenters, operating engineers, electricians, bricklayers, teamsters, sheet metal workers, insulators, painters, surveyors and labourers were all coming from Cape Breton Island. The second largest group of tradesmen supplied locally were iron workers (74%), pipefitters (60%), and boilermakers (56%); more than 20% of these workers were hired from other parts

of Nova Scotia, mainly the Halifax area.

For other tradesmen employed in this project, Cape Breton Island supplied only 35% of the pipefitter-welders and 25% of the millwrights. The balance migrated from outside the island. For example, 27% of pipefitters welders were hired from other parts of Nova Scotia, 31% from other provinces and 7% from Scotland. As for millwrights, 72% of the workers came from elsewhere in Nova Scotia, and 3% from other provinces in the Atlantic Region. These data reveal a short supply of pipefitter welders and millwrights locally when there is a large construction project in Cape Breton Island.

If one examines the age patterns of construction workers from different areas to this project, one can find no significant difference between local residents and migrants. This is because the majority of workers were under 40 years old. For example, the average age of workers from Cape Breton County was 34 years, 35 years for those from the rest of Cape Breton Island, 34 years from elsewhere in Nova Scotia, 33 years from the rest of the Atlantic Region, 37 years from the rest of Canada and 35 years from Scotland. This observation applies to the

separate groups of tradesmen with the exception of millwrights. For millwrights, the average age of workers from Cape Breton Island was 43 years, compared with 34 years for migrants.

Most of the construction workers with this project were Canadian. However, 34 pipefitter welders were hired by Canatom Mon-Max from the United Kingdom in 1974 and 1 pipefitter welder was brought in from the United States. This seems to imply that there would be a shortage of pipefitter welders in Canada if a large construction project were to be initiated.

4. Duration of Employment

As is indicated in Table 8, the average duration of employment was 8.4 months. More than 60% of the construction workers were employed for less than half a year with the heavy water plant; of these workers 17% were employed for less than one month, and 59% had worked between one to three months. Only about 24% of the people worked beyond one year. This reveals a short duration of employment that is characteristic of construction activity. A majority of construction workers tend to collect unemployment insurance benefits after working a relatively short time period.

Looking at specific trades, we find that more

than three quarters of the bricklayers, sheet metal workers, insulator and painters had worked no longer than six months. Their average durations of employment were 4.5 months, 4.1 months, 2.4 months and 4.4 months, respectively. In addition, the trades where more than half of the workers were employed for less than six months were pipefitters (53%), pipefitter welders (68%), boilermakers (69%), carpenters (63%), iron workers (66%), millwrights (61%), teamsters (50%), and labourers (56%). The average lengths of employment of these workers were, respectively, 6.4 months, 7.0 months, 7.7 months, 7.5 months, 8.2 months, 4.1 months, and 10.5 months. Such a high turnover rate is also reflected in the expected overall unemployment rate in the construction industry during July 1972 to December 1974 (27%).¹

It is interesting to see the reasons for such a short period of employment in construction activity. Table 9, shows that almost 62% of the workers left their employment with the AECL project because of a reduction in the labour force whereas 27% of them quit their employment. The other minor reasons were dismissal (7%), and failure in the skill test (4 %).

1

This figure is calculated from dividing the expected unemployed workers by the labour force in the construction industry.

These reasons for termination reflect generally the nature of construction activities and the instability of employment in this sector.

The termination reasons differed, however, from trade to trade. Most of the tradesmen such as boiler-makers, carpenters, iron workers, operating engineers, electricians, bricklayers, teamsters, sheet metal workers, insulators, painters, and labourers had at least 60% of the workers being laid off. A smaller proportion, but still with a large number of the workers being laid off were pipefitters, pipefitter welders and millwrights. These trades had a larger proportion of the workers quitting their jobs if compared with other trades.

From Table 10, one can see that the workers who quit or were dismissed had on average a shorter duration of employment than the workers laid-off (5.3 months or 4.0 months versus 10.7 months). 72% of the quitting workers, while only 51% of the laid off workers had worked in the Glace Bay Heavy Water plant for less than half a year. Similarly, nearly 80% of discharged workers were employed for less than half a year. As for those who failed the skill test, 90% of them worked no longer than one month because of failing the test and not being qualified to continue working.

The characteristics of the construction workers seem different according to the place where they were drawn from. As is indicated in Table 11, about 75% of the workers coming from the Cape Breton Island left their employment because of a reduction in the labour force, 17% and 6% of the workers were quitting and dismissed, respectively. As for the migrants, only 31% of them were laid off while 48% quit and 10% were dismissed.

Table 12 shows, furthermore, that the local construction workers tend to work longer than the migrants. For example, the average length of employment was about 10.5 months for those who came from the Cape Breton County and 9 months for those from other parts of Cape Breton Island. As for the migrants, those from elsewhere in Nova Scotia worked 5.1 months, those from the Atlantic Region other than Nova Scotia 2.7 months, those from the rest of Canada 3.2 months, those from the United Kingdom 4 months. These data, together with the reasons for leaving employment, suggest that a great proportion of the construction migrants just came to Cape Breton Island to work a short period. They may then have moved on to other construction projects or returned home to collect unemployment insurance benefits.

The duration of employment is also different between tradesmen according to their place of residence. This differential could be due in part to the requirements for particular labour services in the construction of a heavy water plant.

5. Previous Employment Experience

About 70% of the construction workers with the AECL project had never been employed before by Canatom Mon-Max; the remainder had at least one previous job with the company.

We also found that at least 80% of the total construction workers including labourers were hired from the unemployment pool. The percentage was different according to the place where they came from. This is important when we estimate the foregone earnings by labour source. As is indicated in Table 13, the proportions of workers not having employment before joining the AECL project were 77.3% for those living in Cape Breton County, 81% for those coming from other parts of Cape Breton Island, 80.6% for those from elsewhere in Nova Scotia, 89.4% for those from other parts of the Atlantic Region, and 93.8% for those from the rest of Canada. On average, at least 78% of the construction workers hired from

Cape Breton Island, while 85% for the migrant workers, did not have employment before working with this project.

About 89% of the tradesmen with the heavy water plant reconstruction had journeyman's certificates and only 8% were apprentices. It should be noted that 73% of the journeymen were under 40 years old of whom 56% were not more than 30 years of age. That such highly skilled tradesmen should be largely unemployed reveals the instability of employment in the construction industry of Cape Breton Island.

6. Wage

Table 14 provides the hourly wage rates which were part of the collective agreement between Canatom Mon-Max and the various trades unions. On average, the hourly wage of the construction trades today in Cape Breton Island is more than \$8, which would be more than twice of the unemployment insurance benefits (\$133 per week)¹ if workers become unemployed. This was also true in 1972 to 1974.

¹ The maximum insured earnings are \$200 per week in 1976. The unemployment insurance benefits are two-thirds of the insured earnings if the claimant has no dependent and are three quarters of the insured earnings if he has dependents.

IV Conclusion

In the period between 1973 to 1975, more than 80% of newly employed construction workers hired by Canatom Mon-Max came from the unemployment pool. This reflects the slack market for this particular segment of the labour force in Cape Breton Island during the above period. Since all these people will have been laid off before December 19, 1975, there appears to be a sizeable pool of construction workers who could potentially be available for any major construction project on the island.

The average duration of employment on the project was 8.4 months, but more than 60% of the construction workers had employment for no longer than half a year. Of this latter group, 76% worked less than three months. These facts, together with the high unemployment rate in the construction industry, reveal the extreme instability of employment on the island. This is due partially to the nature of construction activities.

We also found that with the exception of pipefitters, pipefitter welders, boilermakers, iron workers, and millwrights, more than 85% of the workers in each trade were residents of Cape Breton Island. In other words, the rest of the workers must be drawn from outside the island. For example, 24% of

of the pipefitters, 27% of the pipefitter-welders, 38% of the boilermakers, 20% of the iron workers, and 72% of the millwrights migrated from other parts of Nova Scotia. Overall, 6% of the construction workers came from other provinces in the Atlantic Region and only 5% from the rest of Canada.

It should be noted that the construction workers supplied locally tended to stay on the job longer than those migrating from outside the island (10 months versus 5 months). This is coincident with the greater proportion of migrants over Cape Bretoners who quit or were discharged. Finally, it is also found that at least 78% of the construction workers hired from the island, as opposed to 85% of the migrant workers, did not have employment before working with this project.

TABLE 1

Estimate of AECL Construction Workers at Glace Bay

	<u>1973</u>		<u>1974</u>		<u>1975</u>	
	Work Force	Absen- tee	Work Force	Absen- tee	Work Force	Absen- tee
January	306	15	922	64	832	96
February	266	19	959	94	839	97
March	342	16	940	74	808	77
April	428	16	964	73	789	55
May	502	26	949	55	790	58
June	535	30	1102	84	761	83
July	608	36	1152	112	753	88
August	765	48	1110	117	560	35
September	902	52	1037	79	520	31
October	937	58	979	89	468	26
November	954	69	858	69	460	34
December	950	68	847	69	371*	21*

Data Source : Daily records in Canatom Mon-Max.

* Data are used up to December 12, 1975.

TABLE 2

Composition of AECL Construction Workers
at Glace Bay in Peak Periods

	<u>July</u> <u>1974</u>	<u>August</u> <u>1974</u>
1. Pipefitters	460	430
2. Pipefitter Welders	196	182
3. Boilermakers	109	116
4. Carpenters	71	74
5. Iron Workers	47	41
6. Operating Engineers	24	24
7. Electricians	29	37
8. Millwrights	11	11
9. Bricklayers	7	7
10. Teamsters	14	14
11. Sheet Metal Workers	3	1
12. Painters	40	42
13. Labourers	133	121
14. Unknown	8	10
<hr/>		
Total Workers	1,152	1,100
<hr/> <hr/>		

TABLE 3

AECL Construction Workers at Glace Bay
by Hiring Year and Trade

	1971	1972	1973	1974	1975
1. Pipefitter	2	10	352	401	75
2. Pipefitter Welders	-	4	241	245	11
3. Boilermaker	-	16	18	137	18
4. Carpenter	2	57	132	42	38
5. Iron Worker	1	20	90	43	12
6. Operating Engineer	2	13	35	27	-
7. Electrician	3	6	26	63	19
8. Millwright	-	6	11	8	11
9. Bricklayer	-	2	17	3	3
10. Teamster	1	5	13	4	10
11. Sheet Metal	1	11	4	8	16
12. Insulator	-	3	2	8	119
13. Painter	-	1	22	34	52
14. Surveyor	-	-	-	-	2
15. Labourer	16	70	185	100	26
Total Workers	28	224	1,148	1,125	412

TABLE 4

Frequency Distribution of Construction Workers by Age Group

	≤ 20	21-30	31-40	41-50	51-60	60 +	Total Workers	Av. Age
1. Pipefitter	6.2	33.2	30.9	17.5	9.5	2.6	838	35
2. Pipefitter Welder	2.0	48.3	34.9	12.5	2.2	-	495	32
3. Boilermaker	7.0	48.1	26.7	13.9	3.7	0.5	187	32
4. Carpenter	4.5	30.9	24.9	17.5	14.5	7.8	269	38
5. Iron Worker	5.5	46.7	25.5	17.0	4.8	0.6	165	33
6. Operating Engineer	1.3	26.0	29.9	32.5	9.1	1.3	77	39
7. Electrician	2.6	54.7	25.6	7.7	6.8	2.6	117	33
8. Millwright	-	44.4	25.0	25.0	5.6	-	36	36
9. Bricklayer	8.0	32.0	12.0	16.0	28.0	4.0	25	40
10. Teamster	9.1	30.3	36.4	15.2	6.1	3.0	33	34
11. Sheet Metal	-	38.5	46.2	15.4	-	-	39	33
12. Insulator	9.1	47.7	25.8	12.9	4.5	-	132	31
13. Painter	15.9	33.6	25.2	16.8	8.4	-	107	32
14. Surveyor	-	50.0	50.0-	-	-	-	2	34
15. Labourer	7.3	40.3	25.7	15.9	9.1	1.8	397	34
Total	163	1,160	850	466	222	58	2,919	34
(%)	(5.6)	(39.7)	(29.1)	(16.0)	(7.6)	(2.0)	(100.0)	-

Percentage distribution is read from the left to the right.

TABLE 5

Frequency Distribution of Construction Workers
by Age Group and Married Status & Dependents

	Marital Status			No. of Dependents (Excl. Wife)					Total Workers
	Single	Married	Widow	0	1	2	3	4 +	
≤ 20	94.5	5.5	-	98.8	0.6	0.6	-	-	163
21 - 30	33.5	66.4	0.2	48.1	22.7	20.2	5.9	3.1	1152
31 - 40	12.2	87.1	0.7	17.6	13.0	24.5	21.3	23.7	846
41 - 50	12.8	86.7	0.4	24.2	12.4	16.3	14.6	32.4	466
51 - 60	9.0	89.6	1.4	37.6	19.0	17.2	8.1	18.1	221
61 +	17.5	82.5	-	57.9	19.3	12.3	7.0	3.6	57
Aggregate	25.2	74.3	0.4	37.6	16.7	19.3	11.6	14.7	2905

TABLE 6

Frequency Distribution of Construction Workers
by Marital Status and Number of Dependents.

	Marital Status			No. of Dependents (Excluding Wife)					Total Workers
	Single	Married	Widow	0	1	2	3	4 +	
1. Pipefitter	23.9	75.8	0.2	37.4	15.3	18.6	12.1	16.6	835
2. Pipefitter Welder	21.7	77.5	0.8	33.3	17.9	22.6	12.5	13.7	496
3. Boilermaker	28.1	71.4	0.5	40.0	16.2	21.1	11.9	10.8	185
4. Carpenter	17.3	81.9	0.7	34.8	20.0	17.8	10.4	17.0	270
5. Iron Worker	25.5	73.9	0.6	40.7	17.9	12.3	14.8	14.2	162
6. Operating Engineer	7.8	92.2	-	23.4	13.0	24.7	18.2	20.8	77
7. Electrician	27.6	72.4	-	41.4	25.0	19.0	9.5	5.2	116
8. Millwright	22.2	77.8	-	27.8	22.2	16.7	16.7	16.7	36
9. Bricklayer	12.0	88.0	-	33.3	20.8	25.0	4.2	16.6	24
10. Teamster	24.2	75.8	-	39.4	15.2	18.2	12.1	15.2	33
11. Sheet Metal	12.8	87.2	-	20.5	12.8	25.6	23.1	18.0	39
12. Insulator	34.8	64.4	0.8	44.3	15.3	21.4	12.2	6.8	131
13. Painter	40.7	58.3	0.9	46.3	11.1	17.6	8.3	16.6	108
14. Surveyor	50.0	50.0	-	50.0	-	50.0	-	-	2
15. Labourer	33.4	66.3	0.3	43.0	15.3	18.6	7.6	15.5	393
Aggregate	25.2	74.4	0.4	37.6	16.6	19.4	11.6	14.7	2,907

TABLE 7

Frequency Distribution of Construction Workers
by Place of Residence

	Cape Breton County	Other C.B. Island	Other N.S.	Other Atlan- tic R.	Rest of Canada	U.K.	Total
1. Pipefitter	51.0	8.7	24.0	8.3	8.0	-	839
2. Pipefitter Welder	25.8	9.0	27.2	13.6	17.6	6.8	500
3. Boilermaker	42.9	13.2	38.1	5.3	0.5	-	189
4. Carpenter	66.8	24.4	8.9	-	-	-	271
5. Iron Worker	42.1	32.3	19.5	6.1	-	-	164
6. Operating Engineer	66.2	19.5	10.4	3.9	-	-	77
7. Electrician	75.9	19.8	2.6	1.7	-	-	116
8. Millwright	22.2	2.8	72.2	2.8	-	-	36
9. Bricklayer	52.0	48.0	-	-	-	-	25
10. Teamster	36.4	60.6	3.0	-	-	-	33
11. Sheet Metal	97.5	2.5	-	-	-	-	40
12. Insulator	78.6	19.1	1.5	0.8	-	-	131
13. Painter	83.5	11.9	4.6	-	-	-	109
14. Surveyor	100.0	-	-	-	-	-	2
15. Labourer	63.5	33.2	3.3	-	-	-	394
Total Workers	1,545	503	523	165	156	34	2,926
(%)	(52.8)	(17.2)	(17.9)	(5.6)	(5.3)	(1.2)	(100.0)

TABLE 8

Frequency Distribution of Construction Workers
by Length of Employment

Trade	Length (months)	Length of Employment (months)							Total Workers	Av. Dura- tion
		<1	1 - 3	4 - 6	7 - 9	10 12	13 14	25 36		
1. Pipefitter	4.9	32.0	16.5	7.3	7.8	16.8	14.5	0.1	819	10.0
2. Pipefitter Welder	26.5	27.0	14.2	9.1	4.3	11.9	6.8	0.2	486	6.4
3. Boilermaker	13.9	33.7	20.9	13.9	1.6	8.0	5.3	2.7	187	7.0
4. Carpenter	8.4	41.2	13.4	12.2	5.0	9.9	8.0	1.9	262	7.7
5. Iron Worker	8.6	39.9	17.2	5.5	5.5	16.0	6.1	1.2	163	7.5
6. Operating Engineer	10.5	21.1	10.5	11.8	7.9	28.9	7.9	1.3	76	10.4
7. Electrician	2.6	14.9	9.6	17.5	8.8	33.3	8.8	4.4	114	12.9
8. Millwright	2.8	44.4	13.9	11.1	5.6	11.1	11.1	-	36	8.2
9. Bricklayer	13.0	39.1	26.1	4.3	8.7	4.3	4.3	-	23	4.5
10. Teamster	6.3	34.4	9.4	-	9.4	15.6	12.5	12.5	32	4.1
11. Sheet Metal	25.0	55.0	7.5	7.5	-	-	2.5	2.5	40	4.1
12. Insulator	3.1	93.9	-	0.8	1.5	0.8	-	-	131	2.4
13. Painter	10.2	35.2	33.3	14.8	2.8	3.7	-	-	108	4.4
14. Surveyor	-	-	-	100.0	-	-	-	-	2	7.0
15. Labourer	6.2	38.0	12.1	9.0	5.7	12.4	10.3	6.2	387	10.5
Total Workers	297	1028	425	262	160	386	259	49	2,866	8.4
(%)	(10.4)	(35.9)	(14.8)	(9.1)	(5.6)	(13.5)	(9.0)	(1.7)	(100.0)	

TABLE 9

Frequency Distribution of Construction Workers
by Reasons of Leaving Employment

	Lack of Work	Quit	Dismissed	Failed in test	Total Workers
1. Pipefitter	49.9	38.4	11.7	-	810
2. Pipefitter Welder	24.0	43.0	11.4	21.7	484
3. Boilermaker	73.6	22.0	4.4	-	182
4. Carpenter	83.8	13.9	2.3	-	259
5. Iron Worker	70.3	21.3	8.4	-	155
6. Operating Engineer	65.3	28.0	6.7	-	75
7. Electrician	73.0	26.1	0.9	-	111
8. Millwright	59.4	37.5	3.1	-	32
9. Bricklayer	96.0	-	4.0	-	25
10. Teamster	90.6	9.4	-	-	32
11. Sheet Metal	92.1	7.9	-	-	38
12. Insulator	94.6	5.4	-	-	130
13. Painter	78.5	18.7	2.8	-	107
14. Surveyor	100.0	-	-	-	2
15. Labourer	85.5	9.0	5.2	0.3	365
Total Workers	1738	756	207	106	2,807
(%)	(61.9)	(26.9)	(7.4)	(3.8)	(100.0)

TABLE 10

Frequency Distribution of Construction Workers
by Reason of Leaving Employment and Length of Employment

Reason	Length (months)								Total Workers	Average Duration of Employment
	< 1	1 - 3	4 - 6	7 - 9	10 - 12	13 24	25 36	37+		
Lack of Work	5.2	32.7	13.7	9.4	5.4	17.2	13.6	2.7	1,726	10.7
Quit	9.1	44.2	19.1	10.7	6.1	8.9	2.0	-	740	5.3
Dismissed	20.6	40.7	18.1	7.5	6.0	6.5	0.5	-	199	4.0
Failed in Test	89.8	9.3	-	-	0.8	-	-	-	118	-
Total Workers	304	984	414	256	152	376	250	47	2,783	8.4
(%)	(10.9)	(35.4)	(14.9)	(9.2)	(5.5)	(13.5)	(9.0)	(1.7)	(100.0)	

TABLE 11

Frequency Distribution of Construction workers
by Place of Residence and Reasons for leaving employment

	Lack of Work	Quit	Dis- mis- sed	Failed in Test	Total Workers
Cape Breton County	75.3	16.8	6.0	1.9	1,478
Other C.B. Island	74.4	18.6	5.8	1.2	484
Other N.S.	35.7	44.9	11.6	1.4	501
Other Atlantic R.	29.0	51.0	7.7	12.3	155
Rest of Canada	14.1	58.8	9.4	17.6	170
U.K.	52.9	35.3	11.8	-	34
Total Workers	1,739	755	206	122	2,822
(%)	(61.6)	(26.8)	(7.3)	(4.3)	(100.0)

TABLE 12

Duration of Employment of Construction Workers (months)
by Trade and Place of Residence

	Cape Breton County	Other C.B. Island	Other N.S.	Other Atlantic R.	Rest of Canada	U.K.	Total Average Duration
1. Pipefitter	14.0	10.9	5.6	3.3	3.2	-	10.0
2. Pipefitter Welder	11.9	10.6	4.8	2.1	3.2	4.0	6.4
3. Boilermaker	10.0	8.4	3.6	2.5	7.0	-	7.0
4. Carpenter	8.2	7.5	3.4	-	-	-	7.7
5. Iron Worker	8.5	8.6	5.2	2.4	-	-	7.5
6. Operating Engineer	11.6	10.8	4.5	2.7	-	-	10.4
7. Electrician	14.2	8.9	9.0	6.0	-	-	12.9
8. Millwright	13.4	8.0	6.6	7.0	-	-	8.2
9. Bricklayer	3.8	5.3	16.0	-	-	-	4.5
10. Teamster	10.5	17.0	-	-	-	-	4.1
11. Sheet Metal	4.2	-	-	-	-	-	4.1
12. Insulator	2.6	1.7	2.5	3.0	-	-	2.4
13. Painter	4.3	4.7	5.8	-	-	-	4.4
14. Surveyor	7.0	-	-	-	-	-	7.0
15. Labourer	11.5	9.1	6.2	-	-	-	10.5
Average Duration	10.5	9.0	5.1	2.7	3.2	4.0	8.4
Total Sample	1,521	499	507	160	154	33	2,874

TABLE 13

The Labour Force Status of the Construction Workers
before joining AECL Project

	Cape Breton County			Other C.B. Island			Other N.S.			Other Atlantic R.			Rest of Canada			U.K.			TOTAL		
	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.	(a) %	(b) %	Workers No.
1. Pipefitter	71.9	28.1	406	76.5	23.5	68	75.7	24.3	185	89.7	10.3	68	96.9	3.1	65	-	-	-	76.8	23.2	783
2. Pipefitter Welder	64.2	35.8	123	82.9	17.1	41	78.9	21.1	128	86.2	13.8	65	91.1	8.9	79	100	-	34	80.0	20.0	470
3. Boiler-maker	80.3	19.7	71	66.7	33.3	24	79.2	20.8	72	100.0	-	10	100.0	-	1	-	-	-	79.2	20.8	178
4. Carpenter	75.0	25.0	168	82.3	17.7	62	90.9	9.1	22	-	-	-	-	-	-	-	-	-	78.2	21.8	252
5. Iron Worker	73.8	26.2	61	78.0	22.0	50	90.3	9.7	31	100.0	-	10	-	-	-	-	-	-	79.2	20.8	154
6. Operating Engineer	73.7	21.3	47	92.9	7.1	14	75.0	25.0	8	100.0	-	2	-	-	-	-	-	-	80.6	19.4	72
7. Electrician	90.4	9.6	83	87.0	13.0	23	100.0	-	3	-	-	-	-	-	-	-	-	-	90.2	9.8	112
8. Millwright	100.0	-	8	100.0	-	1	100.0	-	25	100.0	-	1	-	-	-	-	-	-	100.0	-	35
9. Bricklayer	66.7	33.3	12	83.3	16.7	12	-	-	-	-	-	-	-	-	-	-	-	-	75.0	25.0	24
10. Teamster	75.0	25.0	12	77.8	22.2	18	100.0	-	1	-	-	-	-	-	-	-	-	-	77.4	22.6	31
11. Sheet Metal	89.5	10.5	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89.5	10.5	38
12. Insulator	93.2	6.8	88	95.2	4.8	21	100.0	-	2	100.0	-	1	-	-	-	-	-	-	93.8	6.2	113
13. Painter	85.4	14.6	89	100.0	-	13	100.0	-	5	-	-	-	-	-	-	-	-	-	87.9	12.1	167
14. Surveyor	-	100.0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	2
15. Labour	79.6	20.4	225	79.5	20.5	127	83.3	16.7	12	-	-	-	-	-	-	-	-	-	79.8	20.2	366
Total Workers	1107	326	1433	384	90	474	398	96	494	143	17	160	136	9	145	34	-	34	2,207	540	2,747
%	(77.3)	(22.7)	-	(81.0)	(19.0)	-	(80.6)	(19.4)	-	(89.4)	(10.6)	-	(93.8)	(6.2)	-	(100.0)	-	-	(80.3)	(19.7)	-

(a) denotes the percentage of the workers who did not have employment before joining AECL project.

(b) denotes the percentage of the workers who had employment at that calendar year before joining AECL project.

TABLE 14

Hourly Wage Rate of the Construction Workers
between Canatom Mon-Max and Unions

	July 1/75	Jan 1/76
1. Pipefitter and Pipefitter Welder	\$ 7.75	\$8.37
2. Carpenter	7.43	8.02
3. Iron Worker	7.67	8.28
4. Operating Engineer (Group 1)	7.72	8.34
5. Electrician	7.88	8.51
6. Millwright	8.10	8.75
7. Bricklayer	7.72	8.34
8. Teamster	6.64	7.17
9. Sheet Metal	7.65	8.26
10. Insulator	7.83	8.46
11. Painter	6.70	7.24
12. Labourer	6.53	7.05

Sources: Collective Agreement between Canatom Mon-Max and Various Contractors and the Cape Breton Island Building and Construction Trades Council and Various Unions.

