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The Fort McMurray demonstration project in social marketing: health- and safety-related behaviour among oil sands workers

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This is the first round in a series of surveys conducted in Fort McMurray as part of the Fort McMurray Demonstration Project in social marketing. This component of the survey was intended to focus on the most prominent group of employed workers in the community and to compare their patterns of response with the community as a whole. Respondents to the survey were overwhelmingly male (96%), married (72.9%) and living in households of two to five persons (87.9%). They were predominantly aged 30–44 (55%) and graduates of high school (53.5%). Younger male workers (below age 30) were more likely to have a high school diploma (78.3%) or some additional technical or vocational training (21.7% compared to 12.5% overall) and to be unmarried or separated. Attitudes toward safety-related behaviours were stronger than for respondents from the community as a whole. Approximately 70–100% of all age groups and both sexes showed strong agreement with attitudes involving child car seats and the unacceptability of drinking and driving. These attitudes include strong advocacy of vigorous enforcement of occupational health and safety standards. However, they showed a variability similar to the community as a whole in behaviour at home compared to work, generally reporting more consistent use of personal protection on the job than in their own homes, particularly hearing protection. Even so, they were much less likely to perform stretching and warm-up exercises prior to exertion than community residents in general. The potential may exist to transfer the technology and attitudes from workplace health and safety to community safety. One possible strategy to accomplish this is to involve workers in this industry directly in community initiatives. This strategy may be generalizable to any community in which there are major employers who place a heavy emphasis on risk control and occupational health and safety.

Key words: Alberta; health promotion; injury control; oil sands; safe communities; social marketing; worker attitudes; workplace safety.

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INTRODUCTION

The Fort McMurray Demonstration Project in Social Marketing was created in 1991 in response to a request by Alberta Occupational Health and Safety (now the Occupational Health Division of Alberta Labour).¹ The challenge was to blend worksite and community

health and safety promotion activities in such a way as to be mutually reinforcing and to lead to an overall reduction in injuries, occupational and non-occupational. The Occupational Health Program at the University of Alberta Faculty of Medicine was asked to develop a mechanism for public education and a demonstration project relevant to occupational safety. The timeframe for this was very short and an innovative approach was needed.

In responding to this request, we designed an approach to community and occupational safety on

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the model of social marketing, a conceptual framework that has become increasingly popular in health education and health promotion. We applied this framework in the form of a demonstration project that would show the advantages of this approach and that would also reveal the disadvantages and practical problems, so that they could be identified and overcome. The objective was a model programme that could be replicated in other centres and that would 'synergize' with other community efforts.

We chose Fort McMurray as the site for the demonstration project for several reasons. The community is relatively isolated geographically, giving us an opportunity to isolate the effects of the project with a minimum of confounding factors. At the same time, the community is a fully developed small city so that it can serve as a model for both smaller communities and larger urban areas. Because of the dominance of the oil sands industry, there have been major and highly successful efforts to educate workers in Fort McMurray to health and safety issues; further improvement is therefore an indicator that the effect of the approach is not simply due to attention or the 'Hawthorne' effect. Finally, the city had an existing network of community agencies interested in and motivated to participate in community safety programmes; this ensured cooperation and enthusiasm for the project's activities, a critical issue given the short timeframe.

The demonstration project operates primarily through supporting community initiatives and networking with existing community sources. The demonstration project initiated several activities: cable TV education spots (in collaboration with ABC), the Safetysaurus visual identity mascot (with the Kinettes service club), and the outreach to schools (with the Ft. McMurray School Board.¹ In addition, the project conducted a series of community surveys to gather baseline data on which to plan community interventions and to use in follow-up to assess the impact of the project on community attitudes.²

This report describes the first round of a series of surveys conducted as part of the planning and outcome evaluation of the Fort McMurray Demonstration Project in Social Marketing.^{1,2} This report is restricted to workers in the oil sands industry, the dominant industry in the region and the major employer in the city. The industry is legendary in western Canada for its long and tumultuous history, the scientists that made commercial exploration of the oil sands possible, the massive scale of the operation and its role in Canada's domestic energy policy in the 1970's.³⁻⁵ The operations are described in *Athabasca*, an adventure pot boiler by novelist Alistair McLean.⁶

METHODS

In the spring of 1992, a telephone survey of Fort McMurray residents was conducted by an experienced

market survey professional (MW). Household telephone numbers were called repeatedly by random digit dialling until 150 responses from oil sands workers were obtained. The methodology was as previously described for the community survey except that only persons (over age 21) who were employed by a major oil sands enterprise were included in the sample. At the beginning of the interview, the workers were informed that this was an independent survey not sponsored by their employer or any group connected to the oil sands industry and that their individual responses would be kept confidential.

RESULTS

Findings from the survey are summarized in the Tables.

Sample characteristics

Table 1 presents the demographic features of the sample. Respondents to the survey were overwhelmingly male (96%), married (72.9%) and living in households of two to five persons (87.9%). They were predominantly aged 30-44 (55%) and graduates of high school (53.5%). Younger male workers (below age 30) were more likely to have a high school diploma (78.3%) or some additional technical or vocational training (21.7% compared to 12.5% overall) and to be either unmarried or separated or to be cohabiting without marriage. Older male workers, over 45 years, were more likely to be divorced, however (19.5% compared to 7.6% overall). Because of the small numbers of women responding, results will not be separately discussed except for certain key points that are not dependent on age distribution. Compared to males in the general population, oil sands workers were more highly educated ($p < 0.001$) and more likely to be married ($p = 0.006$).

Table 2 presents detailed information on the smoking and alcohol consumption habits of this group of workers. Given the paucity of such data for most occupational groups, the data are presented in detail.

The percentage of smokers is higher than the general population of either Canada or this community (47.9% male, 33.3% female), and the distribution of smokers is more even than the general community; younger workers who smoke, however, tend to smoke less than older smoking workers. The consumption of alcoholic beverages is roughly similar to Canada as a whole.

Employment and income

The median income for men in the sample was over \$80,000—exceptionally high for Canada as a whole but consistent with the highly technical industrial base of this energy resource industry. This is significantly higher than the \$55,000 median income for men in the previous community-based survey. The median income for women was approximately \$55,000, much

Table 1. Characteristics of respondents, all of whom are oil sands workers, Fort McMurray, 1992. All values given as percentages

	Male			Female	
	< 30 yrs (n = 23) 15%	30-44 yrs (n = 80) 56%	45+ yrs (n = 41) 28%	Total (n = 144) 100%	Total (n = 6) 100%
Martial status					
Married, living with spouse	44	79	78	73	33
Unmarried, living with companion	22	11	2	10	—
Single, never married	26	6	—	8	33
Divorced/separated	9	4	20	9	33
Other	—	—	—	—	—
Education, highest level attained					
Elementary	—	5	10	6	—
Junior High	—	24	39	24	—
High school	78	53	42	54	83
Vocational/technical	22	13	7	13	17
University	—	6	—	4	—
Job satisfaction					
1. Very dissatisfied	—	—	—	—	—
2.	—	3.8	—	2.1	16.7
3.	4.3	5.0	2.5	4.2	—
4.	8.7	5.0	7.3	6.3	—
5.	39.1	31.3	24.4	30.6	50.0
6.	26.1	26.3	26.8	26.4	—
7. Very satisfied	21.7	28.8	39.0	30.6	33.3

Table 2. Smoking habits and alcohol consumption patterns of oil sands workers, Fort McMurray, 1992. All values given as percentages unless otherwise indicated.

	Male			Female	
	< 30 yrs (n = 23) 15%	30-44 yrs (n = 80) 56%	45+ yrs (n = 41) 28%	Total (n = 144) 100%	Total (n = 6) 100%
Alcoholic beverages in the past 12 months					
Never	4.3	7.5	24.4	11.8	33.3
Less than once a month	13.0	18.8	29.3	20.8	16.7
Once or twice a month	30.4	20.0	19.5	21.5	33.3
Once a week	21.7	25.0	17.1	22.2	16.7
2-3 times a week	26.1	22.5	4.9	18.1	—
4-6 times a week	4.3	1.2	—	1.4	—
Every day	—	5.0	4.9	4.2	—
Number of alcoholic beverage drinks* on an average day when alcohol is consumed					
Mean	5.3	3.6	3.6	3.9	3.2
Standard deviation	3.6	2.4	2.6	2.7	0.5
Number of years smoked tobacco					
None	43.5	23.8	9.8	22.9	33.3
0-4	4.3	8.8	—	5.6	—
5-9	21.7	7.5	7.3	9.7	—
1-14	26.1	16.3	9.8	16.0	33.3
15-19	4.3	12.5	7.3	9.7	33.3
20-24	—	16.3	19.5	14.6	—
25-29	—	12.5	9.8	9.7	—
30-34	—	2.5	14.6	5.6	—
35+	—	—	22.0	6.3	—
Currently smoke tobacco	47.8	48.7	46.3	47.9	33.3
No. cigarettes on average day (smokers)					
	(n = 11)	(n = 39)	(n = 19)	(n = 69)	(n = 2)
< 15	27.3	28.2	10.5	23.2	50.0
15-24	45.5	33.3	36.8	36.2	50.0
25+	27.3	38.5	52.6	40.6	—

* i.e., one bottle of beer or glass of draft beer, or one small glass of wine, or one shot or mixed drink with hard liquor

Table 3. Reported health status and health care utilization among oil sands workers responding to survey, Fort McMurray, 1992. All values given as percentages unless otherwise indicated.

	Male			Total (n = 144) 100%	Female
	< 30 yrs (n = 23) 15%	30-44 yrs (n = 80) 56%	45+ yrs (n = 41) 28%		Total (n = 6) 100%
In general, health compared to other persons					
Much better	—	5.0	9.8	5.6	—
Better	34.8	45.0	26.8	38.2	33.3
The same	65.2	43.8	63.4	52.8	50.0
Worse	—	6.3	—	3.5	16.7
Much worse	—	—	—	—	—
Exercise at least 15 minutes per week					
Daily	26.1	18.8	14.6	18.8	16.7
5-6 times a week	4.3	16.3	12.2	13.2	16.7
3-4 times a week	30.4	31.3	43.9	34.7	16.7
1-2 times a week	21.7	18.8	9.8	16.7	33.3
< 1 time a week	13.0	5.0	2.4	5.6	—
Never	4.3	10.0	17.1	11.1	16.7
Last time visited a doctor just for a check up					
Week(s) ago	13.0	6.3	14.6	9.8	16.7
Month(s) ago	34.8	45.6	56.1	46.9	83.3
Year(s) ago	52.2	43.0	29.3	40.6	—
Never	—	5.1	—	2.8	—
Felt rested at the peak during the past two weeks					
All of the time	4.3	5.0	2.4	4.2	—
Most of the time	30.4	37.5	56.1	41.7	50.0
Some of the time	52.2	38.8	34.1	39.6	16.7
A little of the time	8.7	15.0	4.9	11.1	33.3
None of the time	4.3	3.8	2.4	3.5	—
Number of different kinds of prescription drugs used in the past week					
0	78.3	77.5	65.9	74.3	83.3
1	17.4	15.0	26.8	18.8	16.7
2	4.3	5.0	2.4	4.2	—
3	—	2.5	2.4	2.1	—
4	—	—	2.4	0.7	—
Number of different kinds of non-prescription drugs used in the past week					
0	60.9	58.8	65.9	61.1	33.3
1	26.1	35.0	26.8	31.3	33.3
2	13.0	6.3	7.3	7.6	16.7
3	—	—	—	—	16.7

higher than the \$15,000 figure for women in the community survey. The distribution of income is much more even for both men and women than in the community at large. For men, income was roughly correlated with age and educational level. Job satisfaction is high in this group in all age groups (87.9% declared themselves satisfied). This is much higher than the reported level of job satisfaction in the community as a whole.

Perceptions of Fort McMurray as a safe community

Oil sands workers think of their community as relatively unsafe compared to other residents of their own community (31.9% consider the level of crime to be higher, 36.2% the same as other communities); 17%

report having been victims of crime in the last year, both men and women. They are particularly concerned about certain problems in their community: child abuse (63.9%), crimes against property (51.4%), impaired driving (45.1%), drug trafficking (42.4%), family violence (29.2%) and sexual assaults (22.9%). This rank order is generally consistent with overall community responses but places more emphasis on crimes against property and less on family violence. The Pearson χ^2 test comparing oil sands workers to community males show a perceived difference for drug trafficking (less) and child abuse (more) at $p = 0.021$ and $p = 0.032$. Responses by women oil sands workers were also consistent with this pattern, being more like the responses of their male counterparts in the industry than other women in the community. Both groups generally felt safe walking after dark.

Health status

Table 3 presents the reported health status and utilization of health care services by oil sands workers. Self-reported health status is generally good for the oil sands workers; the majority of both sexes reported that they are as well or better off than most other people. Compared to the general population, relatively few oil sands workers, mostly older, took prescription drugs (25.8%); many more had taken non-prescription drugs (38.9% men, 66.7% women). Similarly, fewer men (18.8% compared to 23%) but many more women (33.3% compared to 16%) had undergone some sort of therapeutic intervention during the previous year. Only about half of men (45.9%) and women (50.0%) reported that they had felt rested most or all of the time during their peak activity periods in the previous two weeks. This is compatible with findings in the community at large.

Regular visits to physicians for prevention, in the absence of a health problem, are more common among younger oil sands workers; over half (56.7% of men, 100% of women) had done so in the previous year.

Health and safety-related behaviours and attitude

Table 4 presents health and safety-related behaviours at home and at work. These responses are reported in a frequency scale from 'never' to 'always'. Personal involvement in activities for health promotion and disease prevention is high. A large percentage of oil sands workers (66.7% of men, 50.1% of women) exercise for at least 15 minutes more than twice a week; this is lower, however, than the community at large.

A majority of men (62.5%) and many women (33.3%) usually take steps to protect themselves from exposure to the sun at home, particularly older men. The high frequency of older men and the lower frequency of women who report consistently using protection from the sun at home is the reverse of the trend observed for the community at large. By comparison, a larger percentage of both men (68.3%) and women (66.7%) usually take steps to protect themselves from exposure to the sun at work, again particularly older men.

Warm-up or stretching exercises were reported to be a regular feature of preparation for exercise or strenuous activities at home among about half of men (46.5%) and most women (83.3%). Compared to community response rates, this suggests that warm-up practices among male oil sands workers are similar to those in the community at home but that women in oil sands-related work are more likely to engage in warm-up exercises. Warm-up preparation at work was reported as unusual for a smaller proportion of men (21.5%, about half the proportion reported among men in the community as a whole $p < 0.01$) and women (60.0%, about double the proportion reported among women in the community as a whole). In keeping with reports from the community as a whole, younger male

workers were more likely to engage in warm-up exercises at work or at home.

The use of eye protection when engaging in hazardous activities was almost universal at work (men 98.5%, women 100%) among all age groups of men. At home, however, the use of eye protection was more variable (80.2% among men, 80.0% among women reporting unusual use of eye protection at home). Older male workers were more likely to use eye protection at home than younger male workers. Oil sands workers used eye protection at home more often than other men in the community but the difference was not significant (t -test, $p = 0.061$).

The use of hearing protection at work in noisy surroundings is usually for men (90.8%) and women (100%). However, only about half of men (51.6%) and a quarter of women (25%) reported usually using hearing protection at home in noisy situations. More oil sands workers reported doing so than other men in the community however ($p < 0.05$).

The regular use of seat belts while driving at home and at work is reported to be nearly universal by men (99.3% work, 94.1% home) and women (100% both places). Similarly high levels of compliance were observed for requiring passengers to secure their seat-belts at home and at work, at response rates much higher than in the community as a whole (t -test, $p = 0.002$).

Table 5 presents attitudes toward safety-related issues among oil sands workers. Attitudes toward safety-related behaviours are stronger than for respondents from the community as a whole ($p < 0.05$ for all comparisons). Approximately 70% to 100% of all age groups and both sexes show strong agreement with attitudes involving personal responsibility for safe behaviour involving child car seats and the unacceptability of drinking and driving. These attitudes include strong advocacy of vigorous enforcement of occupational health and safety standards. In contrast to community respondents, among whom older men were more likely to disagree (7.5%), there was no disagreement among older oil sands workers but younger oil sands workers were more likely to express mild disagreement (8.7%) or neutral opinion (4.3%).

Environmental concerns and behaviour

Concern about the environment is high among oil sands workers (men 86.5%, women 100%), particularly among women and younger men, as in the community as a whole.

Reported compliance with safe disposal of solvents and other common chemical hazards was high (men 86.9%, women 83.3%). There is no way to know whether this reflects actual practice.

Quality of life

Table 6 presents reported satisfaction and perception on the quality of life of oil sands workers. Indices of quality of life are generally more satisfactory for oil

Table 4. Health-and safety-related behaviour at home and at work reported by oil sands workers, Fort McMurray, 1992. All values given as percentages unless otherwise indicated.

	Male			Total	Female Total
	< 30 yrs	30-44 yrs	45+ yrs		
Take steps to protect self from the sun					
At Work	(n = 12)	(n = 67)	(n = 32)	(n = 111)	(n = 3)
1 Never	25.0	14.9	18.8	17.1	33.3
2	8.3	9.0	—	6.3	—
3	8.3	1.5	6.3	3.6	—
4	—	3.0	6.3	3.6	—
5	16.7	13.4	6.3	11.7	—
6	8.3	6.0	18.8	9.9	—
7 Always	33.3	52.2	43.8	47.7	66.7
At Home	(n = 22)	(n = 78)	(n = 41)	(n = 141)	(n = 6)
1 Never	9.1	12.8	17.1	13.5	—
2	18.2	10.3	—	8.5	33.3
3	4.5	5.1	4.9	5.0	16.7
4	9.1	11.5	9.8	10.6	16.7
5	22.7	23.1	17.1	21.3	16.7
6	18.2	6.4	19.5	12.1	—
7 Always	18.2	30.8	31.7	29.1	16.7
Do warm-up or stretching exercises before playing sports, participating in recreational or strenuous activities such as lifting or moving heavy equipment, etc.					
At Work	(n = 23)	(n = 73)	(n = 34)	(n = 130)	(n = 5)
1 Never	39.1	43.8	52.9	45.4	20.0
2	8.7	9.6	8.8	9.2	20.0
3	8.7	8.2	2.9	6.9	—
4	4.3	9.6	2.9	6.9	—
5	4.3	2.7	5.9	3.8	—
6	4.3	8.2	8.8	7.7	20.0
7 Always	30.4	17.8	17.6	20.0	40.0
At Home	(n = 23)	(n = 80)	(n = 41)	(n = 144)	(n = 6)
1 Never	21.7	25.0	41.5	29.2	—
2	4.3	7.5	7.3	6.9	16.7
3	4.3	10.0	4.9	7.6	—
4	4.3	10.0	12.2	9.7	—
5	13.0	5.0	14.6	9.0	—
6	8.7	5.0	4.9	5.6	50.0
7 Always	43.5	37.5	14.6	31.9	33.3
Use eye protection when painting, spraying or using chemicals etc.					
At Work	(n = 22)	(n = 74)	(n = 36)	(n = 132)	(n = 5)
1 Never	—	—	2.8	0.8	—
2	—	—	—	—	—
3	—	—	—	—	—
4	4.5	—	—	0.8	—
5	—	1.4	2.8	1.5	—
6	—	2.7	—	1.5	—
7 Always	95.5	95.9	94.4	95.5	100
At Home	(n = 22)	(n = 76)	(n = 33)	(n = 131)	(n = 6)
1 Never	18.2	9.2	6.1	9.9	20.0
2	9.1	1.3	—	2.3	—
3	4.5	5.3	3.0	4.6	—
4	—	2.6	6.1	3.1	—
5	9.1	14.5	3.0	10.7	20.0
6	4.5	9.2	3.0	6.9	—
7 Always	54.5	57.9	78.8	62.6	60.0
Wear protective ear plugs or muffs when operating noisy machinery equipment such as saws, lawnmowers etc.					
At Work	(n = 23)	(n = 73)	(n = 34)	(n = 130)	(n = 5)
1 Never	4.3	2.5	5.0	3.5	—
2	—	1.3	5.0	2.1	—
3	—	—	—	—	—
4	13.0	2.5	—	3.5	—
5	4.3	5.1	5.0	4.9	—
6	4.3	7.6	2.5	5.6	—
7 Always	73.9	81.0	82.5	80.3	100
At Home	(n = 23)	(n = 80)	(n = 41)	(n = 144)	(n = 6)
1 Never	47.6	30.1	20.6	30.5	75.0
2	4.8	4.1	5.9	4.7	—
3	—	8.2	2.9	5.5	—
4	9.5	6.8	8.8	7.8	—
5	9.5	11.0	8.8	10.2	—
6	4.8	9.6	11.8	9.4	—
7 Always	23.8	30.1	41.2	32.0	25.0

Table 4. Continued

	Male			Total	Female Total
	< 30 yrs	30–44 yrs	45+ yrs		
When driving vehicle, how often secure seat belt					
At Work	(n = 23)	(n = 79)	(n = 41)	(n = 143)	(n = 5)
1 Never	—	—	—	—	—
2	—	—	—	—	—
3	—	1.3	—	0.7	—
4	—	—	—	—	—
5	—	2.5	2.4	2.1	—
6	—	1.3	2.4	1.4	—
7 Always	100	94.9	95.1	95.8	100
At Home	(n = 22)	(n = 80)	(n = 41)	(n = 143)	(n = 6)
1 Never	4.5	1.3	2.4	2.1	—
2	—	1.3	—	0.7	—
3	—	—	—	—	—
4	4.5	—	4.9	2.1	—
5	—	5.0	—	2.8	—
6	4.5	12.5	2.4	8.4	—
7 Always	86.4	80.0	90.2	83.9	100
When driving vehicle, how often do you require passengers to secure their seatbelts					
At Work	(n = 22)	(n = 78)	(n = 40)	(n = 140)	(n = 5)
1 Never	9.1	7.7	10.0	8.6	—
2	—	1.3	—	0.7	—
3	—	2.6	—	1.4	—
4	—	2.6	—	1.4	—
5	—	—	—	—	—
6	4.5	2.6	—	2.1	—
7 Always	86.4	83.3	90.0	85.7	100
At Home	(n = 21)	(n = 80)	(n = 39)	(n = 140)	(n = 5)
1 Never	4.8	1.3	10.3	4.3	20.0
2	—	1.3	—	0.7	—
3	4.8	—	2.6	1.4	—
4	4.8	2.5	—	2.1	—
5	4.8	1.3	5.1	2.9	—
6	4.8	1.3	—	1.4	—
7 Always	76.2	92.5	82.1	87.1	80.0
When you are a passenger in a vehicle, how often do you secure seatbelts					
At Work	(n = 23)	(n = 80)	(n = 39)	(n = 142)	(n = 6)
1 Never	—	—	—	—	—
2	4.3	1.3	—	1.4	—
3	—	—	—	—	—
4	—	1.3	2.6	1.4	—
5	—	2.5	2.6	2.1	—
6	—	1.3	—	0.7	—
7 Always	95.7	93.8	94.9	94.4	100
At Home	(n = 22)	(n = 80)	(n = 41)	(n = 143)	(n = 6)
1 Never	4.5	1.3	2.4	2.1	—
2	—	1.3	—	0.7	—
3	—	1.3	—	0.7	—
4	4.5	3.8	2.4	3.5	—
5	—	3.8	—	2.1	—
6	9.1	5.0	2.4	4.9	—
7 Always	81.8	83.8	92.7	86.0	100

sands workers than for the community at large ($p < 0.05$ for all comparisons). Almost universally, both genders (95.8% men, 100% women) reported satisfaction with their lives 'all in all'. Residents did not register more than a small response rate for dissatisfaction with material and social aspects of their lives, although women tended to report dissatisfaction more often than men. The highest response indicating dissatisfaction among men referred to family life (33.3% neutral). Both sexes expressed great satisfaction with their standard of living (93.1% men, 83.3% women). Unlike responses from the community in general, male oil sands workers showed little difference by age in their perception of their quality of life, except that men

aged 30–44 were somewhat more likely to be dissatisfied with their work.

Social isolation of oil sands workers was much less than in the community as a whole ($p < 0.05$ for all comparisons). Only a few men (16.0%) and women (0%) reported that they had not gone out socially in the previous month, and even fewer men (10.1%) and no women (0%) reported that they had gone out only once. However, this may be explained in part by the season of the year, since the survey of oil sands workers was conducted in the spring and the community survey during the winter. However, as in the community in general, it was the men in age group 30–44 who were least likely to go out socially.

Table 5. Attitudes toward safety-related issues among oil sands workers, Fort McMurray, 1992. All values given as percentages unless otherwise indicated.

	Male			Total (n = 144)	Female Total (n = 6)
	< 30 yrs (n = 23)	30-44 yrs (n = 80)	45+ yrs (n = 41)		
There should be stiffer penalties for parents who do not properly secure their children in car safety seats					
1 Strongly disagrees	4.3	6.3	4.9	5.6	—
2	—	1.3	4.9	2.1	—
3	4.3	—	2.4	1.4	—
4	4.3	3.8	7.3	4.9	—
5	13.0	7.5	—	6.3	16.7
6	4.3	13.8	7.3	10.4	16.7
7 Strongly agree	69.6	65.0	70.7	67.4	66.7
Don't know	—	2.5	2.4	2.1	—
It's okay to drive soon after having 2 or 3 alcoholic drinks (within 1-2 hours)					
1 Strongly disagrees	60.9	70.0	70.7	68.8	83.3
2	8.7	6.3	2.4	5.6	16.7
3	17.4	3.8	4.9	6.3	—
4	8.7	3.8	—	3.5	—
5	4.3	2.5	4.9	3.5	—
6	—	2.5	2.4	2.1	—
7 Strongly agree	—	2.5	12.2	7.6	—
Alberta Occupational Health and Safety standards should always be observed EVEN IF it increases cost and/or time to complete a job					
1 Strongly disagrees	—	—	—	—	—
2	—	1.3	—	0.7	—
3	8.7	1.3	—	2.1	—
4	4.3	3.8	—	2.8	—
5	8.7	5.0	2.4	4.9	—
6	13.0	8.8	7.3	9.0	—
7 Strongly agree	65.2	80.0	90.2	80.6	100

Indications of good communication within relationships were generally satisfactory. Only a few men (22.5%) and no women reported having had no stimulating exchange of ideas with their partner in the previous week. Unlike findings for the community in general, older men were more likely to report this (30.4%). Relatively few men (22.5%) but many more women (50.0%) reported that they had not worked together with their partner on any project requiring teamwork in the last week; unlike the community survey, this was primarily reported by younger men.

In spite of these indicators of social isolation, all respondents, of both gender, indicated that they had a good laugh together in the preceding week and almost all did so several times a week. A similar proportion of men (52.8%) and women (50.0%) 'strongly' agreed that their partner would be there when they need help. Conversely, only a minority of men (23.6%) and no women agreed at all with the statement 'sometimes there is nobody whom I can lean on and talk to about very personal problems'. This is similar to the proportion of men so reporting in the community as a whole (20%) but very much less than among the women in the community survey (23%).

Indicators of depression were not reported at all, at the 'quite a bit' and the 'extremely' levels of response.

Even 'moderate' responses were much less than for the community in general. Indicators of serious clinical depression were essentially absent among women, however a relatively large number of men (10.5%) reported some non-trivial thoughts of death and dying, although only a tiny fraction (10.4%) reported giving thought to ending their life more than 'a little bit'. Although there was not as clear a pattern as in the community survey, men over the age of 30 seemed most at risk.

Compared to the community in general, there was much less awareness of telephone help line services and men and women appeared to be comparably uninformed.

DISCUSSION

Oil sands workers, in general, appear to view themselves as a privileged group, well-paid and challenged by their occupation. This is reflected in their responses, which suggest a well-educated and well-adjusted group of overwhelmingly male workers generally satisfied with their standard of living and the quality of life in their community.

There are some exceptions to this apparently benign profile. Oil sands workers do report greater reserva-

Table 6. Satisfaction and quality of life among oil sands workers, Fort McMurray, 1992. All values given as percentages unless otherwise indicated.

	Male			Total (n = 144)	Female Total (n = 6)
	< 30 yrs (n = 23)	30–44 yrs (n = 80)	45+ yrs (n = 41)		
Family Life					
1 Very dissatisfied	—	—	—	—	—
2	4.5	—	—	0.7	16.7
3	—	1.3	—	0.7	16.7
4	4.5	2.6	—	2.1	—
5	18.2	23.1	20.0	21.4	—
6	27.3	24.4	20.0	23.6	33.3
7 Very satisfied	45.5	48.7	57.5	50.7	33.3
Don't know / Not applicable	—	—	2.5	0.7	—
Standard of living					
1 Very dissatisfied	—	—	2.4	0.7	—
2	—	—	—	—	—
3	—	—	2.4	0.7	—
4	13.0	6.3	—	5.6	16.7
5	17.4	27.5	24.4	25.0	50.0
6	21.7	30.0	26.8	27.8	16.7
7 Very satisfied	47.8	36.3	43.9	40.3	16.7
Work					
1 Very dissatisfied	—	1.3	—	0.7	—
2	—	3.8	2.4	2.8	16.7
3	—	5.0	2.4	3.5	—
4	21.7	10.0	12.2	12.5	33.3
5	26.1	31.3	31.7	30.6	—
6	17.4	22.5	19.5	20.8	—
7 Very satisfied	34.8	25.0	31.7	28.5	50.0
Don't know / Not applicable	—	1.3	—	0.7	—
All in all					
1 Very dissatisfied	—	—	2.4	0.7	—
2	—	—	2.4	0.7	—
3	4.3	1.3	2.4	2.1	—
4	—	—	2.4	0.7	—
5	34.8	20.0	29.3	25.0	33.3
6	26.1	45.0	26.8	36.8	33.3
7 Very satisfied	34.8	33.8	34.1	34.0	33.3

tions about the safety of their community than residents in Fort McMurray as a whole, although the city is not exceptional or elevated in its crime rate. This may reflect the extreme environmental conditions under which work in the oil sands is often undertaken, imparting a sense of heightened risk.

Oil sands workers report much stronger attitudes toward safety and risk-taking behaviour than community residents in general. However, they showed a similar variability in behaviour at home compared to work, generally reporting more consistent use of personal protection on the job than in their own homes, particularly hearing protection. Given the heavy emphasis of both major employers on worker education and on workplace health and safety, the oil sands workers clearly demonstrate a response to the message as it

pertains to work. They apparently have not generalized that message to the same hazards at home. Paradoxically, they are much less likely to perform stretching and warm-up exercises prior to exertion than community residents in general, despite the well-known effectiveness of the manoeuvre in preventing injuries.

We conclude that this group of workers responds differently to many critical survey items than residents of the community in general. They are clearly well-informed about personal protection and health risks but are not necessarily consistent in their practices away from work. The strategy of generalizing behaviour at home and at work appears to hold promise for this group of workers who have already been intensively trained in occupational health and safety. The potential may exist to transfer the technology and attitudes from

workplace health and safety to community safety. One possible strategy to accomplish this is to involve workers in this industry directly in community initiatives. This strategy may be generalizable wherever there is a community in which there are major employers who place a heavy emphasis on risk control and occupational health and safety.

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