APPENDIX IV

OUTLINE OF DATA ANALYSIS
Outline of Plan for Data Analysis

For the purpose of data analysis we will be grouping the data in the following manner:

Risk Factors

Ambient Temperature
1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Skin Temperature
1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Ear Temperature
1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Oral Temperature
Difference between pre and mid; and pre and post shift temperature

Work Load
Time weighted averages measured in calories will be calculated from observations of work recorded every 15 minutes.

Protective Equipment
Wearing impermeable clothing - yes versus no
Wearing respirator - yes versus no

Outcomes
1. Differences in scoring on behavioral tests performed pre and mid shift, and pre and post shift on hot work days versus control days.
2. Differences in urine osmolarity and pH done pre and mid shift; and pre and post shift on hot work days versus control days.
3. Differences in average pulse and maximum pulse on hot work days versus control days.
4. Differences in average and maximum systolic blood pressure on hot work days versus control days.
5. Differences in average and maximum diastolic blood pressure on hot work days versus control days.
6. Outcomes from questionnaires

A. Differences between pre and mid; and pre and post shift on hot work days versus control days for the following questions:

How do you feel
Skin rash
problems remembering
problems concentrating
problems thinking

B. Differences on mid-shift between hot work days and control days

Number of symptoms indicated severe
Number of symptoms indicated quite a bit
Number of symptoms indicated moderate
Number of symptoms indicated somewhat
Number of symptoms indicated slight

C. Differences on post-shift between hot work days and control days

Number of symptoms indicated severe
Number of symptoms indicated quite a bit
Number of symptoms indicated moderate
Number of symptoms indicated somewhat
Number of symptoms indicated slight

Confounders

Obesity - Body Mass Index > 30 versus ≤ 30

Physical fitness - 3 categories: Above average-excellent versus average versus very poor-below average

Base Line Questionnaire:

1. Current Cigarette Smoker
   Question 4a yes versus no

2. History of Problems Working in Heat
   Question 5 yes, or 6a,b,c,d,e regularly or all the time versus
   Question 5 no or 6a,b,c,d,e never or sometimes

3. Tolerate Heat
   Question 7 - c or d versus a or b

4. Knowledgeable about Heat
   Question 8 - c or d versus a or b

5. Chronic Disease
   yes on Question 9a or b or c or d or e or f or g or h or i or j or Question 10 or Question 11 or Questions 13

6. Drink Alcohol
   Question 16 yes and 16 a 3 or more, versus
   Question 16 yes and 16 1-3 versus
   Question 16 no
7. Job Experience
   Question 18 - ≤ 1 year, versus 1-5 years versus > 5 years
8. Overall Health
   Question 21 yes versus no

Pre-Shift Questionnaire
9. Drink Alcohol Yesterday
   Question 1 yes versus no
10. Cold
    Question 3 yes versus no
11. Diarrhea
    Question 4 yes versus no
12. Overall Health
    Question 5 yes versus no
13. Sleep
    Question 8 less than usual versus usual or more than usual
18 July 1996

Dear Ken:

The attached is our protocol for this summer's pilot project. Please let me know if there are areas which need further clarification.

I sent you some e-mail re: the human subjects issue. The UW IRB will most likely only require a supplement to your MSU human subjects application. I will draft a separate consent form for the UBC as you requested. Please send a copy of your HS application and protocol so we can coordinate this effort. My Seattle address is attached.

The weather here in Richland is nice and cool the past two days. No doubt the summer has more hot days ahead. We are looking forward to working with you.

Regards,

Tim Takano

Tim

cc: Buck Cameron