

## SHELL OIL COMPANY

DATE JANUARY 20, 1977

TO DEER PARK MFG. COMPLEX -  
SAFETY AND INDUSTRIAL HYGIENE - MANAGER

FROM MANAGER - SAFETY AND HEALTH -  
MANUFACTURING

SUBJECT DEER PARK VCM MONITORING

I have reviewed Jerry Ransdell's memo of January 17 in which he proposed certain revisions to the VCM monitoring program. Heretofore, monitoring has been done monthly. Based on the vast numbers of results less than 1.0 ppm, the proposal is to move to quarterly sampling in selected areas. I agree that quarterly sampling is appropriate in the QC Laboratory. There are some questions to be answered with regard to the other areas.

It is proper industrial hygiene practice to consider daily variability of exposure concentrations in sampling. Ransdell's proposal reflects the professional opinion that the estimated probability of employee overexposure (i.e., daily exposures exceeding the permissible exposure limit) should be no greater than 5%. Ransdell is correct in this judgement which is also exemplified in the Standards Completion Program proposed rules and in NIOSH documents on the statistics of sampling. Unfortunately, however, the vinyl chloride regulations are explicit, arbitrary, and do not permit the exercise of professional judgement.

The regulations [29 CFR 1910.1017 (d)] set the rules under which monitoring must be carried out. Measurements must be done at least monthly if the permissible limit is exceeded. There is no reference in the regulations to 95% probability or sample or exposure variability.\* Quarterly sampling is permitted when the levels are below 1 ppm and it is mandated as a minimum when levels are between 0.5 and 1 ppm. Should the measured level rise to 1 ppm, then monthly sampling must be reinstituted. There is no explicit statement as to what conditions are necessary before reversion to quarterly sampling is permitted. By analogy with the requirements for discontinuing monitoring it would appear to be appropriate to return to quarterly monitoring when two successive samples, made not less than five working days apart show exposures at or below the permissible level.

From the table submitted with Ransdell's memo it is apparent that the QC Lab meets this guideline. Operations at both Site III and at the V unit and maintenance at the V unit may meet the guidelines. The data would have to be examined to assure that at least the two most recent successive sampling periods showed no exposure above 1 ppm. If during a quarterly sampling session a result exceeds 1 ppm exposure, then it would be necessary to return to monthly sampling until the liberalizing criteria are once again met. Given the random nature of exposure, and the history of low measured levels, the probability of being able to remain in a quarterly sampling mode is quite high.

\* The reference to a 95% confidence level in paragraph (d)(4) refers to the method of measurement, not to the exposure estimation.

I agree with Ransdell that the loaders should be kept on the monthly schedule.



H. L. Kusnetz

HLK:pjw

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