

DRAFT

TO THE HONORABLE COMMISSIONERS:

Notwithstanding the absence of any evidence that low "tar" and nicotine are related in any way to smoking and health, the undersigned have endeavored for more than two years to assist the Commission in the determination of a proper testing methodology and system of reporting results obtained in its own laboratory.

As a part of this continuing cooperation with the Commission, we filed on January 9, 1968, "An Analysis of the Federal Trade Commission's 'Report of the Tar and Nicotine Content of the Smoke of 59 Varieties of Cigarettes' of November 20, 1967." In that Analysis the Commission's initial report of test results of November 20, 1967, was evaluated, and recommendations were offered for modifications of the Commission's testing procedure based upon industry knowledge and experience. On April 19, 1968, we filed with the Commission "Additional Observations Following the 'Report of Tar and Nicotine Content of the Smoke of 59 Varieties of Cigarettes' of November 20, 1967" in which the results of the Tobacco Institute Test Laboratory (TITL) were reported to the Commission insofar as they related to the methodology employed by the Commission.

The Commission has now released its third testing report entitled "Report of Tar and Nicotine Content of the

Smoke of 122 Varieties of Cigarettes, October 10, 1968."

A careful examination of this Commission report of October 10, 1968, conclusively demonstrates that the Commission's failure to follow recommendations repeatedly made by the undersigned has led to deficiencies in this report which continue to make the results plainly misleading to smokers.

The Commission decided to utilize precisely the same method of testing and reporting which it employed in its initial report of the "tar" and nicotine content of 59 varieties of cigarettes of November 20, 1967, and its second report of the "tar" and nicotine content of 68 varieties of June 11, 1968. Accordingly, the scientific criticism offered in our analysis last January of the first Commission report applies with equal, indeed with demonstrably greater, force to this third report, and there is no need to repeat the basic points previously made.

It must, however, be emphasized that the Commission's continued utilization of an inadequate sample size of 100 cigarettes per variety and a butt length of 23 mm. (or to the length of the filter and overwrap plus 3 mm. if in excess of 23 mm.) continues to produce test results lacking the necessary precision to permit on any scientifically valid basis the reporting of "tar" values to the nearest whole milligram, much less to a tenth of a milligram.

It is elementary that for values to be reported to the nearest whole milligram, the error for none of the

varieties reported may exceed 0.5 mg. In the Commission's first report the error for the "tar" values of 35 of the 59 varieties -- or approximately 59 percent of the varieties tested -- exceeded 0.5 mg. In its second report of the "tar" and nicotine content of 68 varieties, 47 of the 68 varieties -- or approximately 69 percent -- had an error in excess of 0.5 mg.

In this third report of the "tar" and nicotine content of 122 varieties, 43 varieties had an error in excess of 0.5 mg. In TITL's testing of these 122 varieties, employing the Commission methodology, a comparable number of varieties had an error in excess of 0.5 mg. Based upon these results the conclusion is now inescapable that even if laboratory personnel have achieved considerable experience, as both the Commission now have, and the benefit of industry experience which TITL has, the FTC methodology simply does not produce the required precision.

The failure of the Commission laboratory to achieve the necessary precision by increasing the sample size per variety, and changing its choice of butt length, is difficult to understand in view of further data contained in the "Additional Observations Following the 'Report of Tar and Nicotine Content of the Smoke of 59 Varieties of Cigarettes' of November 20, 1968," which we filed with the Commission on April 19, 1968. In those Additional Observations, the

test results of the Tobacco Institute Testing Laboratory on the first cigarette pick-up, utilizing our recommended sample size of 200 cigarettes and butt length of 30 mm., were reported to the Commission. These results empirically and cogently demonstrated the substantial increase in precision which could be attained by these recommended changes in the Commission's sample size and methodology.

The use of an inadequate sample size affects not only the precision of the results but their accuracy or reproducibility as well. The mean "tar" values reported by the Commission for the 122 varieties included in the third report differed on the average by more than 0.6 mg. from the "tar" values obtained by TITL in testing these 122 varieties in accordance with the Commission methodology. For 24 varieties the Commission and TITL results differed by at least 1.0 mg. This demonstrates that the Commission methodology is incapable of yielding reproducible results. It therefore hopelessly fails as a scientific method.

Moreover, the Commission's report of the "tar" and nicotine content of 122 varieties of cigarettes confirms and underscores once again the view of Chairman Dixon and Commissioner MacIntyre that the Commission should initially have adopted a 30 mm. butt length rather than the 23 mm. butt length actually employed, with appropriate variations for filter cigarettes. Any comparative use of the Commission's newly reported test results for the 122 varieties is rendered virtually impossible because only 33 of the 122 varieties tested could be smoked to 23 mm. or to an average

range of between 23 and 24 mm. The remaining 89 varieties were smoked to butt lengths of between 23 mm. and 36 mm. With the majority of the 122 varieties smoked to such a wide range of butt lengths, it simply is impossible to make meaningful comparisons of the results reported for these 122 varieties.

In addition, within many individual varieties the small sample of 100 cigarettes were actually smoked to widely differing butt lengths, thereby rendering values reported for those individual varieties wholly meaningless to consumers. This deficiency could also have been avoided by the selection of a 30 mm. butt length.

The attendant confusion to the smoking public in the use of the 23 mm. butt length is compounded by the tables of rounded off "tar" and nicotine values arranged in ascending order for press publication, which failed to include the range of butt lengths to which each variety of cigarette was smoked. Smokers can certainly not evaluate or even understand the Commission's "tar" and nicotine results without the presence of figures showing the varying butt lengths to which cigarettes were smoked. This problem would have been materially alleviated by the selection of a 30 mm. butt length.

These tables of rounded off "tar" and nicotine values -- arrayed in ascending order -- are misleading in other respects. Unless the error in "tar" values obtained

by testing is 0.5 mg. or less, it is scientifically impossible and patently erroneous to round off to a whole milligram. Similarly, unless the testing error in nicotine is 0.05 mg. or less, it is scientifically impossible to round off to the nearest tenth of a milligram.

A simple example suffices to demonstrate the potential consumer deception. In the case of one variety in the third report, the average was 19.0 mg. and the error was 1.1. This variety is shown in the rounded off tables as 19 mg. of "tar". It is elementary statistics that the true average value for this variety lies between 17.9 and 20.1 mg., or if rounded off between 18 and 20 mg. It is not possible give rounded off "tar" values to the nearest milligram unless the error is 0.5 mg. or less. The only correct way to deal with this situation is to state the "tar" value as a range. (This point has previously been offered to the Commission.)

Moreover, the extent to which consumers may be misled by this defect is substantial. Erroneously reporting a variety as 19 mg., which would more precisely be determined as 18 mg., means that the variety appears much lower on the chart than it should appear. A smoker may be misled into changing to a variety higher on the chart which has in fact not proven to be any lower in "tar".

If the Commission wants to report scientifically acceptable values to the nearest whole milligram, it must

modify its testing procedure, as we recommended, to attain the increased necessary precision.

It inescapably follows that the Commission's failure to list the measures of precision or error in the rounded off tables of "tar" and nicotine values for the 122 varieties, is both scientifically indefensible and inescapably misleading to consumers. Merely because the Commission has rounded off values is no justification for omitting measures of precision. Scientific principles require that measures of precision be included with these experimentally determined values because the Commission's tests have only determined the range within which the true mean or average value is likely to fall. The middle of the range is of little value without the upper and lower limits, particularly where, as here, the lengths of the ranges vary and numerous ranges overlap.

Further, these tables of rounded off values were for public release and consumer utilization of the rounded off numbers for comparative purposes. As to the consumer, it can hardly be challenged that what will be publicly available to him will be only the rounded off tables, which submerge all of the disclosed errors included in the detailed Commission tables. That this is so is dramatically illustrated by the publication of only the list of rounded off values of all 122 varieties by the Washington Post on October 16, 1968, page 3. What is presented to the consumer

as a table for comparative purposes is a series of rounded off numbers with no disclosure whatever of any errors. Beyond challenge, this is plainly deceptive for the reasons already set forth.

In its third report the Commission further encouraged this deception by departing from the procedure employed in the June 11, 1968, report of only listing rounded off values alphabetically and not in ascending order. It is unfortunate that the Commission did not follow this procedure in its third report, thereby at least reducing the misleading nature of the rounded off values.

We respectfully urge the Commission to consider these scientific objections both to the method of testing and reporting of results, and to modify its sample size that is tested, its butt length, and its reporting in the manner originally recommended and now abundantly demonstrated to afford the required precision and to be free of demonstrated deception in the manner in which the test results reported are publicly presented.

Respectfully submitted,

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