REPORT NO. P 42

DATE January 5, 1998

SUBJECT

SECOND QUARTER DELIVERY SAMPLE FROM THE AVON REFINERY

OF THE TIDEWATER ASSOCIATED OIL COMPANY OF CALIFORNIA

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BY

U. S. NAVAL BOILER AND TURBINE LABORATORY
NAVAL SHIPYARD
PHILADELPHIA
BUREAU OF SHIPS' COPY
(WITH RECOMMENDATIONS)
To: Inspector of Naval Material, San Francisco, California.


Ref: (a) BuEng. letr. JJ7-3(8-24-LS) of August 31, 1937.
(b) BuEng. letr. JJ7-3(12-7-PB) of January 4, 1937.
(c) INM letr. JJ7-3/337 over MTB:SW of October 20, 1947.
(d) Certificate of Approval No. EN28/15/4933.
(e) Navy Department Specification 7-6-1g of April 2, 1945.

1. The subject sample, in accordance with references (a), (b) and (c), has been analyzed to determine its compliance with the Grade Special Specification, reference (e). It has been assigned NBTL designation "C-1311".

2. Results of routine, general classification and special solvent tests, in comparison with similar data furnished by the Inspector in reference (c), are tabulated in Plate 1. These data indicate compliance of the sample with specification requirements with the exception of pour point. Failure of the pour point obtained at this Laboratory (25°F) to check with the value reported by the Inspector (100°F) may be attributed to the pour instability of the sample. Solvent tests indicated a moderate cracked asphalt content. Its qualities compared favorably with those of the Brand Approved sample, reference (d).

3. Results of compatibility tests are tabulated in Plate 2, which data indicate the subject sample to have the required compatibility qualities.

4. It is concluded that the subject sample, with the possible exception of pour point, complied with specification requirements. However, it is considered satisfactory for Naval use.

5. It is recommended that the production of the Tidewater Associated Oil Company, as represented by the subject sample, be considered Acceptable for Naval use.

By direction of the Comdr:

E. KRANZFEILER
Director, Naval Boiler and Turbine Laboratory

DTMC QUALITY INSPECTED S
NBTI TEST NO. T 42

ROUTINE AND GENERAL CLASSIFICATION TEST RESULTS

Quarter | Second | First
---------|--------|--------
NBTI Designation | S-4312 | S-4251

Specific gravity | 0.9646 | 0.9593
Weight per gallon - lbs. | 8.03 | 7.989
AFI gravity | 15.2 (15.5) | 16.0
Flash point - FLLCC - °F. | 196 (186) | 190
Fire point - COC - °F. | 245 | 245
Water by distillation - % | Trace (Nil) | Trace
Conradson carbon - % | 8.98 (8.67) | 9.55
Ash - % | .04 (.09) | .04
Pour point - Upper - °F. | -25 (10) | -20
Aniline point - °F. | 126 | 122
Sediment by centrifuge - % | 0.1 (0.1) | 0.1
Sediment by extraction - % | .03 (.06) | .05
Sediment by hot filtration - % | .0 | .033
Microscope - Sediment
Water | Low | Low
Wax | High | High
Viscosity at 122°F - SSF | 21 (23) | 25
Viscosity at 122°F - SSU | 1.78 (199) | 222.5
Sulphur - % | 1.15 | ---
Explosiveness - % of lower limit | 35 (40) | 30

HEATER TESTS:

NBTI Heater test | 1 (1) | 1
NBTI Heater test after the addition of 1-1/2, sea water | 2 | 2

SPECIAL TESTS

NBTI Stability test - % | 0.2 | 0.1
Cyclohexane insoluble - % | 2.07 | 1.85
Benzol insoluble - % | 0.12 | 0.08
Difference - % | 1.95 | 1.77
Isopentane insoluble - % | 9.87 | 8.98

Bracketed figures represent Resident Inspector's Data.

FLATT 1.
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<tr>
<th>NBTL Designation</th>
<th>Compatibility Reference Fuel Type</th>
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Bracketed figures represent results of NBTI Heater test.
Unbracketed figures represent results of NBTI Oxidation test.