MONSANTO INDUSTRIAL CHEMICALS CO.
St. Louis, Missouri

April 10, 1972

cc: C. L. Bradford
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J. F. Herber - T3Q
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CALL REPORT NO. 1972-16

TEXAS EASTERN TRANSMISSION CORP.
Shreveport, La.

Date of Call: April 3, 1972

Present for Texas Eastern: Walter Woods
Gene Riall
Buck Jarnigan

Present for Monsanto: John Frederiksen
Lou Stark
Roger Hatton

Summary:

Texas Eastern has still not determined the turbine test units nor the lubricants which will be field tested aiming toward replacement of Turbinol 153. Monsanto MCS 1223 and MCS 1122 and Fyrquel 220 ~~and 150 are~~ being considered. It is expected that they will test at least one fluid from each of the two potential suppliers, ourselves and Stauffer, and may even test more. It appears that our chance to be included in their test are excellent.

Details:

The purpose of this visit was to determine the status of the selection of a Turbinol 153 replacement lubricant in Texas Eastern gas turbines, to review the visit of Texas Eastern personnel to General Electric and to provide additional information on Monsanto's MCS 1223 and MCS 1122 demonstrating their superiority to the competitive fluids, Fyrquel 220 and Fyrquel 150. Two sessions were held, one with Walter Woods, and one with Gene Riall and Buck Jarnigan.

During previous visits we had presented the basic technical information on MCS 1223 and MCS 1122 as fire resistant all phosphate ester turbine lubricants free of the PCB problem. These sessions were followed by a recent visit of Texas Eastern personnel to the General Electric gas turbine group in Schenectady. General Electric has supplied the majority of the gas turbines which presently use Turbinol 153. Field intelligence indicates that a number of competitors have visited Texas Eastern but that the selection will be between our products and those provided by Stauffer. The primary reason for the interest in the Stauffer fluids was stated to be field experience obtained with these products. Prior to the visit a report was prepared which reviewed oxidation-

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corrosion data, the Alcor data, and viscosity data on our fluids and the competitive fluids together with some toxicity data on MCS 1223.

Both Walter Woods and Buck Jarnigan reviewed their visit to General Electric. They stated that General Electric did not recommend a specific viscosity grade of fire resistant lubricant for their turbines. Advantages to both the 150 Saybolt second and 220 Saybolt second fluids were discussed by General Electric and supported by our data. It is up to Texas Eastern to make a selection as to their preferred viscosity. Walter did indicate that they may want to use one viscosity grade in the Southern states and another in the Northern states.

Direct questions were asked concerning the performance of MCS 1223 and in the LFW-1 test. Walter reported that our material did not look good compared to Fyrquel 220 according to General Electric. Our entire LFW-1 test experience was reviewed and it was pointed out that on honed rings of the specified metallurgy MCS 1223 was as good as or better than the competitive Fyrquel 220. It was admitted, however, that on ground rings as supplied by General Electric, Fyrquel 220 did appear better. This area was discussed in considerable detail and it was pointed out that the LFW-1 was only one test out of a wide range of lubrication tests and did not correlate with our experience in pumps and other equipment. It was also emphasized that we did not make a "me too" product but one which offered significant advantages in stability, in availability and in toxicity, as well as being an excellent lubricant under the conditions expected in actual use.

Buck Jarnigan also raised questions concerning the LFW-1 test and reported that General Electric stated "Fyrquel 220 is less likely to wire wool than MCS 1223." He had obtained this from discussions with Boiko, McBride and Booser of G.E. Considerable effort was made to pin down the exact wording of their statement and Buck became less positive of what was said. However, he did report that General Electric had shown him the wire wooling test unit and had made some comments about Fyrquel 220 not wire wooling while OS-81 (Turbinol 153) did. (Based upon all this discussion, it appears that General Electric probably raised the point that they had not run wire wooling tests on MCS 1223 and that they were worried about this property until such a time as they could. This will be checked with General Electric.) During our discussion Buck stated that he felt that General Electric was quite remiss in not doing more on testing lubricants in view of their capabilities and equipment.

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Considerable emphasis was placed upon the stability of the various lubricants. The Alcor data was explained in terms of the test method and the results obtained in terms of deposits on tubes and filters and overall ratings. The data and a set of pictures of actual tubes after test were left with them. The importance of stability to fluid life was reviewed. We were asked our recommendations on the use of Fullers Earth filters in the lubricating system. We stated that Fullers Earth filtration would probably be required at some period and that it could be either used on a continuing, a by-pass or a batch treatment basis. We expressed a preference for continuous operation and Texas Eastern asked for our recommendation on size, etc. in writing.

During the viscosity discussions, Walter stated that the G.E. pumps are designed to operate at a maximum viscosity of 800 Saybolt seconds. Therefore some heating will be required no matter which of the fluids under consideration is selected. It is interesting to note that the General Electric group was quite insistent in recommending fire resistant fluids lubricants and felt that they should be more active in this area. Several new units in the shop are being tested on fire resistant fluids.

Buck stated that they are considering four turbines as test units. These include an 8,000 hp. unit at Yazoo, an 11,400 hp. unit at Huntsville, a 13,400 hp. unit at Armagh and a 19,800 hp. unit at Barton. He indicated that the impellers for the pumps had already been ordered and that they would be available in about six weeks. No definite commitment could be obtained as to the test program they are planning. However, it would be assumed from their remarks they will probably test two different supplier's fluids and that they might even test the two different viscosity grades from each of the suppliers.

During the discussion we pointed out that there is really very little experience within the United States on the use of fire resistant lubricants in the actual power generating section of the turbine. The only unit presently operating is one at Columbia Gulf (see previous call reports on this operation). Buck Jarnigan reported that he had been talking with Columbia Gulf personnel and that they had had to increase the clearances on the Ingersoll-Rand compressors in order to get them to operate satisfactorily on Fyrquel 150.

During the various discussions the following requests were made: Walter Woods asked us to provide a list of MCS 1122

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and MCS 1223 properties in comparison with Turbinol 153 (as we had previously supplied for MCS 1223 and Turbinol 153). Both he and Jarnigan requested a letter covering (1) our recommendations on Fullers Earth usage, (2) our experience with the LFW-1 test, (3) our feelings on wire wooling potential and (4) statements on toxicity.

R. E. Hatton

/pep

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