

Chicago, Illinois
October 3, 1940

Mr. J.R. Boudreau
Chicago Office

WEEKLY LETTER

Dear Jim:

The following is a resume¹ of my activities during the week ending October 3, 1940:

MONDAY

The early part of the morning was spent at the office discussing the proposed tank cleaning tools. Later in the morning I reported to Dr. Sanders at the Stevens Hotel for my annual physical examination.

Having been requested to call by the Johnson Oil Supply of Gary, I drove to their refinery for the purpose of making an inspection of their blending plant now under construction. Johnson has made no attempt in the past to rush construction work; however, the market is now bad for unleaded gasoline in their marketing area and they now have requested immediate shipment of fluid which was ordered some time ago. Plumbing and wash room fixture installation remains to be done. I have informed Johnson that the entire plant must be completed before the fluid can be released. I personally feel that they would complete necessary work should the fluid be released before all details of construction are completed but further feel that we should withhold release until all work has been done.

Standard Oil began cleaning operations on their tank No. 11; Buffalo Side, Whiting refinery. This is a small 30' x 30', 3,634 bbl., vertical tank with a floating roof and is used as a leaded aviation gasoline shipping tank.

TUESDAY

Called at the Standard Oil Company (Indiana) Whiting refinery to inspect tank No. 11 and observe cleaning operations on tank No. 31 which were initiated this morning. Tank No. 31 is to be cleaned and dismantled as discussed in my weekly letter last week.

When I looked in the manhole of tank No. 11, a strong odor of fluid was present. This tank had been thoroughly cleaned. I entered the tank and carefully inspected it. The tank was absolutely free of all sludge; even the surfaces at the wall and floor seams were cleaned down to dry scale. Some loose, dry ~~scale~~ scale was present on the roof at the manhole opening but this had the appearance of dry iron rust. This tank has three manholes; two in the walls and one in the roof. Hence, ventilation is excellent. This being a small cleaning job, excellent work had been done and the only method by which the tank could have been made more clean would have been to build scaffolding and scrape the entire surface. Yet, a strong odor of fluid persisted! Dr. Binder and Dr.

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present was on the roof manhole wall; a surface normally out of contact with gasoline in the tank. I cannot explain the presence of the odor. However, due to the facts outlined, it was decided that should further work be necessary in the tank or on the roof, full protective equipment would be used. An odor was also present on the roof which had been lowered. Further work was not necessary and the tank was returned to service. The gasoline in this tank is normally leaded to 5.8 cc's TEL/gallon. (Finished leaded aviation gasoline).

Called at the Johnson Oil Supply in Gary, and tested the manifold system. As several leaks were found, it will be necessary to again test after further work has been done.

WEDNESDAY

Spent the morning at the Standard Oil Company Whiting refinery observing cleaning operations on tank No. 51.

The afternoon was spent at the Worth Refining Company in Blue Island, Illinois discussing irregularities and observing blending procedure. A quarterly inspection of their equipment was also made. Worth has continued to make ETHYL blends -- substandard red gasoline although they have repeatedly agreed to not do so. It is my opinion that the Worth Chicago office is deliberately attempting to bluff us! They apparently propose to openly make their red blends until we stop them. Worth's cracking unit is now on stream and they may be able to reach 80 octane number CFR-M. Their last refinery sample, OIL 9 HAH, analysed 74.2 CFR-M; gum content satisfactory. Samples will be sent to Detroit of the new blending stock (cracking unit distillate) to determine if satisfactory ETHYL base can be produced. The samples and this situation are discussed in my letters dated October 2, 1940; C.L. Davidson, copy J.E. Boudreau and J.E. Boudreau copy C.L. Davidson.

During supervision of tank cleaning jobs, many interesting items are sometimes discussed with foremen and tank cleaning personnel. Some of these are outlined here merely as points of interest. They might well be called ---

CLEANINGS FROM THE CLEANINGS

1. The cleaning of large crude storage tanks which have accumulated several feet of waxy tank-bottom sludge presents quite a problem. The H_2S present constitutes a hazard for those men entering the tanks. One refiner in this area has solved the problem by building several steam eductors. These are inserted into the tank through the manholes and supplied with high pressure steam. The sludge is drawn through the eductors and heated above its melting point. In three or four days the sludge is melted and then readily pumped to slop tanks where it is charged to the coking stills. No entrance into the tank is necessary.
2. During the recent low level of activity in the heavy industries in this area, one refiner build up such high inventories of heavy fuel oils and road oil that it was necessary to store it in several large gasoline base stock tanks. After the inventory had been reduced and it was desired to replace the tanks in white gasoline service, a cleaning problem presented itself. Conventional cleaning would have consisted of building scaffolding in the tanks so that the entire surface could be washed and wiped to a clean surface. This would have cost

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approximately \$10,000 per tank. A novel system was devised consisting of eighteen large lawn spray type sprayers; so placed that the entire wall and roof surface was contacted by the liquid being sprayed. One foot of white tractor fuel was placed in the tanks and the spray system operated for a few hours. The tanks were thoroughly cleaned by one wash and gasoline placed in the tanks did not lose a single point in color ---- and the job cost less than \$1,000 per tank.

3. One large refinery in the Chicago area covers considerable territory and due to spills, line leaks, etc. much oil is lost into the ground. This not only causes serious sewer contamination (sewer oil being recovered in separators) but also other difficulties. For example, a large pipe still furnace upon being shut down continued to burn --- this sounds like a tall story, but I happen to know that it is not --- due to oil seepage into the fire box up through the ground. A drainage system has been placed in operation at various points in the refinery so that the oil flows to recovery boxes from which it is pumped to the pressure still charging stock tanks. During some months some of these boxes have recovered as much as 7,000 barrels of oil. They are veritable producing oil wells!

THURSDAY

Called at Whiting Standard Oil to observe cleaning operations on tank No. 51. This tank is a 90' x 30', 34,000 bbl., fixed roof vessel in Stanolind (leaded 2) gasoline service. Cleaning operations were completed today and dismantling operations will be started next week.

Called at East Chicago Shell in order to maintain tank cleaning notification in order. As Shell is shutting down, many personnel changes have taken place and some of the former authority men have left East Chicago. A meeting was held in Mr. V.S. Parker's (Plant Manager) office with Mr. Parker, Mr. H.P. Ingersoll, and Mr. Morgan present. These three men can authorize tank cleaning at East Chicago which is now functioning as a terminal only. Our tank cleaning program was discussed and it was agreed that any of these three authorizing a tank cleaning job would notify us through the Chicago office. (STNYL Chicago office). This system will be used until permanent personnel placement makes possible designation of definite authority men.

Shell had a rather serious fire during the night of October 2nd. A clipping from the Hammond (Indiana) Times, October 2, 1940 is attached. Mr. Parker informed me that the fire took place in a storage area and that the gas in the area was found to be from a leaking butane line. The fire was ignited from either a flashlight or the running motor of the gager's truck which was parked close by. Exact cause is not known. Earlier in the morning Shell had a forced shutdown due to the burning of a power line pole leading into the plant. The heavy fog encountered in this area during the past few mornings had so wetted the insulators and cross-arms that with the dust, and especially acid fog from the concentrators and contact plants near by, they became virtual conductors and arced across the surfaces until a fire was started at the top of the pole. During the night of October 1st, fourteen power line poles of the Northern Indiana Public Service Company in the Calumet Industrial Area were set ablaze by this condition.

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Called at the Johnson Oil Supply in Cary to complete testing of the piping in their plant now under construction. The piping has been completed and tested satisfactorily. Locker room plumbing and painting remains to be done.

FRIDAY

Drove to the Globe Oil Refining Company refinery at Lemont, Illinois. Made a quarterly inspection of the plant with Mr. F.E. Smith who is in charge of blending operations. Globe modernized their plant approximately one year ago and certain details of the work have not been completed to date. I have asked for completion several times and recently wrote to Mr. H.B. Overton requesting that he expedite this work. As this has not been done, I called on Mr. Overton and again requested completion. He has promised that the work will be taken up in the very near future.

While at Globe, I also called on Dr. Krause, Chief Chemist, regarding certain overloaded samples and sub-octane samples. We should not encounter overloaded samples from this point in the future as maximum lead in their ethyl blends has been dropped to 2.3 - 2.6 cc's TEL/Gallon. Dr. Krause has only one CFR engine in his laboratory and it is often changed from Motor to 1939 Research test conditions. He is ordering another engine and will be able to keep it on CFR-M service. This probably accounts for the fact that his results deviate considerably from our Detroit Laboratory results. For example, Dr. Krause blends for 80.3 CFR-M Ethyl at the refinery. Our lab finds samples consistently below 80. I requested that Dr. Krause write directly to our Mr. C.L. Davidson in Detroit and attempt to work out satisfactory analytical methods. No doubt much of the difficulty encountered with sub-standard samples from this refinery has been caused by the fact that Dr. Krause's analytical procedures have been in error in Globe's favor; i.e., gum determinations low and octane numbers high.

Called at the Great Lakes Pipe Line Company Terminal in Franklin Park, Illinois and made a quarterly inspection on their blending plant.

Spent the afternoon at the Office completing reports, taking care of necessary correspondence, and working on the proposed bulk plant tank cleaning tools.

Yours very truly,

H.B. Hudiburg

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