

Refinery affected by new FEO regulations

Responding to the Arab oil embargo that is just now being felt in the United States, the Federal Government through the Federal Energy Office (FEO) has formulated a crude allocation program intended to distribute the burden of shortage evenly among the 130 oil refining companies in the U. S. The program became effective February 1 and in its current format is scheduled to run through April.

The following questions and answers pertain to various as-

pects of the crude allocation program.

Q. At what percent of capacity is the FEO crude allocation program designed?

A. The FEO crude oil allocation program is designed to provide all refiners with crude oil and condensate equivalent to about 76% of distillation capacity. Those with crude supplies above this level were directed to sell to those below it. Shell was directed to sell.

Since the program was initiated, mandatory crude oil

sales/purchases have been transacted between refiners. At the same time many companies have been buying additional amounts of foreign crude, whenever possible.

The exact level at which individual companies can operate refineries is uncertain at this time. Shell hopes to acquire more crude in this fashion to be able to run at higher levels. Under the approximately 76% level, Wood River would expect to average throughputs of about 200,000

barrels/day.

Q. How much crude will Shell have to give up under FEO allocation plans?

A. The latest FEO regulations require us to sell just short of 77,000 barrels of crude a day during the February to April period.

Q. Will you explain the 3% set-aside allowed each state?

A. Each state may redirect up to 3% of the available product of each oil company that markets within that state. This does not affect total volume but it gives the state energy offices flexibility to meet emergency fuel conditions.

Q. How will the Alaskan pipeline affect Shell's operations?

A. Shell is not involved in the consortium which has been put together to build the Alaskan pipeline. We do hold some leases in the North Slope, but

have no proved reserves there. If these leases are ever to be developed, the pipeline must be in existence.

Q. Are there any particular consequences of the mandatory crude allocation program?

A. One possible consequence relates to the supply of aviation turbine fuel. Shell, one of the nation's major suppliers of commercial aircraft fuel, is being required to sell crude.

Many other refiners, who will be able to buy crude, do not have the capacity for producing aviation turbine fuel from that crude even if they wanted to. Others do not have the distribution system to get turbine fuel to the airlines if they could produce it. This could reduce the overall supply of turbine fuel to the airlines.



Review

Wood River, Illinois



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WOOD RIVER REFINERY

FEBRUARY, 1974

"Bread truck" system is efficient



WANT A LIFT? Pete Balotti maneuvers his lift truck load of X-100 Multigrade to the semi where it will be loaded.

Before, there was considerable double handling in the delivery of products destined from Wood River to commercial customers and dealers in the St. Louis and middle Illinois areas. The "containerization of PLW" (Wood River's Packaged Lubricants Warehouse), has made it possible to send product orders directly from Wood River to the customers.

Bob Wright, process manager of Compounding, explained, "We used to send ship-

ments of drums and cases to the St. Louis warehouse twice daily. St. Louis unloaded the trucks and warehoused the products. From this inventory, they filled specific orders and delivered them to the customers. Now, Wood River places ordered products directly on the delivery truck. It has eliminated duplicate handling, a need for separate warehouse space in St. Louis and about \$100,000 of extra inventory sitting around over there."

Bread truck

They call the deliveries a "bread truck" system, except in this case the bread truck is a semi. Order assemblers and fork lift drivers put together orders and load the truck by product.

For example, if the truck is scheduled to service ten customers that day and their total order for X-100 Multigrade is 64 cases, the assemblers place all 64 cases together on the truck. Other products are likewise grouped. An aisleway is left down the center, so as the truck driver makes each individual delivery he takes what he needs from each stack and moves on.

A few products or acces-



LOADING THE BREAD TRUCK. Mike Mitchell (left) and Kenny Garwood assemble a load of Shell X-100 Multigrade in its own corner of the semi. Drivers take whatever is needed from each product stack for individual customers.

sories that are not stocked at Wood River (i.e., tires, fan belts, filters, batteries, and the like) are picked up by the driver at the St. Louis Plant. Not all deliveries call for these items, however.

Better system

Asked if the new system is a good one, Bob Wright said, "Right off the bat the savings mentioned have been significant. And it's certainly more efficient. For instance, we had been trucking product to St. Louis where it was unloaded, warehoused and then loaded again on trucks headed toward our Harristown, Illinois, Plant, near Decatur. They practically drove right by the refin-

ery on their way. Talk about double handling! Now we containerize directly for Harristown too."

The system isn't completely without its hitches, however. Russ Edwards, office supervisor in Compounding, said, "When we had inventories both in St. Louis and at Wood River they served as mutual backups. If St. Louis didn't have a particular item, chances were we had it here. Now the buck stops at Wood River. Occasionally a customer must be shorted on his order which means he has to turn around and order that item again. But you can't have everything. All-in-all this is a better set up than before."

Comment:

Safety is everyone's goal

Throughout our lives we set goals for ourselves. In some endeavors the goals are generally accepted as feats of excellence. For instance, in golf it's shooting par, in bowling it's a 300 game, and in trapshooting it's 100 percent hits. In a more serious vein the smoker wanting to quit may set a goal of one year, or one month or even one week without a cigarette.

So it is with personal safety in a refinery or other industrial setting. The ultimate goal, obviously, is that there never be any work connected injuries. Unfortunately, history has shown that such a goal has rarely, if ever, been achieved.

So for us goal oriented humans a more attainable alternative, one million man-hours without a disabling injury, has generally become the accomplishment to be worked for. After one million, then two million, then three million and so on.

First million ever

Early in its existence the Wood River Refinery began keeping injury-free man-hour records. The first achievement of one million man-hours without a disabling injury came on January 27, 1933—a period that had started the previous September 6. Before the record ended on April 11, 1933, refinery employees had logged 1,524,097 disabling injury-free man-hours.

Since that first milestone the refinery has achieved the million mark 37 times, the most recent being January 13, 1972.

Over this period two million man-hours have been exceeded twice (2,765,000 ending on October 13, 1950, and 2,484,000 ending on April 17, 1952). The most injury-free hours in the history of the refinery were 3,476,721. This achievement was halted by a disabling injury on December 5, 1947.

As of this writing, the Refinery Laboratory has gone more than 2,250,000 hours without a disabling injury since July 19, 1965, and the Research Laboratory is nearing ten million hours stemming from June 23, 1942.

Not end in itself

Achieving a million or more injury-free man-hours is not an end in and of itself. The real goal is to provide the highest measure of safety to all employees. As in other aspects of everyday life, the setting of personal goals helps give meaning to accomplishments, serves as a reminder that it can be done, and hopefully increases efforts toward continuing the achievement.

If striving toward a million or more man-hours helps the safety of refinery employees, then it is a worthwhile yardstick. I think it is. Let's all join together in achieving and exceeding that goal.

Harry Rollins, Manager Safety

Put polymers in your pipeline

Shell Development Company reports it has discovered an efficient method of expanding the capacity of a crude oil pipeline without increasing the size of the line or pumping facilities.

The new system uses a polymer injection technique that increases the flow of crude by reducing friction and turbulence inside the line. One of the features of this technique is a new pipeline expanding polymer/PEP-4 developed by Shell Chemical Company.

Elmer Milz, manager of Shell Pipeline Research and Development Laboratory, explains that turbulence and friction occur inside a pipeline as the pumps push the oil through the line. Small eddies are formed along the inside wall of the pipe, causing a

buildup of friction which seriously impedes the flow of oil.

When polymer is added to the oil, it helps prevent small high-velocity eddies from forming inside the pipe. The polymer actually helps promote the formation of large, slow eddies which produce less friction. As a result, internal friction is reduced significantly and pumping capacity increases without installing additional pumps or lines.

By using PEP-4, friction can be reduced up to 50 percent near the point of injection, says Milz. Further down the line, reductions between 15 percent and 25 percent are possible. This reduction in friction continues as long as injection is maintained and polymer is present in the crude.

Shell has conducted numerous field and laboratory tests using the polymer with many types of crude oil. The results have always been the same—a dramatic reduction in friction occurs. During the past several months, PEP-4 has been undergoing full scale field tests using Shell's heavy crude transported in a 24-inch pipeline.

PEP-4 is a solid hydrocarbon compound, for which Shell has developed techniques for introduction into pipelines.

Milz says the full scale tests have confirmed all of the laboratory findings and field studies. It has been clearly demonstrated that the polymer can effectively reduce friction in crude oil pipelines.

Ben Visser ...

It's all been a real 'gas'

Ben Visser has incredible timing. For over thirty years the Research Lab personnel have been staging their MILEAGE MARATHON® with only minor ripples of interest by the press and public. Last autumn, on the heels of the first gasoline shortage since World War II Ben, a research engineer, guided his highly modified 1959 Opel to a world record 376.59 miles-per-gallon in the event, and the response was overwhelming. Here are some of the things that have happened to Ben since then.

National coverage

Actually it all started the day before the run when the *Wall Street Journal* ran a front page feature on Ben, Doug Carlson and Rich Trokey and their highly modified cars. Actually on hand to see the marathonists in action were representatives of *Fortune Magazine*, *Popular Mechanics*, *Quest* (the Shell magazine for research personnel) and *St. Louis Today*, the "free-lance" newspaper which was published during the St. Louis newspaper strike. A story on Ben's record run was featured in the last issue of *St. Louis Today*, now somewhat of a collector's item.

But that was only the beginning! United Press International and Associated Press interviewed Ben and wired the story across the country. Ben said, "It must have been

picked up by everybody. At least I have clippings from Massachusetts to California and Florida to Washington."

Recorded interviews

Then came the avalanche of radio and TV interviews, people wanting to know what secrets this engineer had to get such fabulous mileage. Ben said, "Stations from coast to coast called. Mostly they were telephone interviews of from two to five minutes, but WOKZ, a local station, had me on a talk show for about an hour.

"It isn't easy, fielding some of those questions off the top of your head, but after awhile you get to hearing the same ones over and over. For instance, some guy will always say, 'you get 376 miles to the gallon, and I get 6... what's the deal?'" Ben laughed, "People don't realize that isn't a normal car I drove out there. I'd just like to get over 16 in my family car."

ABC-TV sent a crew out to Ben's house. "That was a lot of fun," said Ben, "a real circus. We were pushing the 'Opel' up and down the street to get some action shots. All the neighbors came out with their Brownies and were taking pictures of the TV people taking pictures of me. It was a wild scene.

"They said it was going to be on the network news show that night, but we got canceled because that was the day Agnew

chose to resign. I didn't begrudge him resigning," Ben deadpanned, "but I wondered about his timing." Still, the interview was shown on the local Channel 2 news, and not a single neighbor blundered onto the screen.

Since then virtually every Shell publication, local and nationwide, has covered the supreme accomplishments of Ben and his fellow research mileage makers, not to mention other media such as *Time Magazine* and the Paul Harvey newscast.

The mail bag

"Letters, I got letters," Ben said. "And I'm still getting them. Most people want to know how they can improve their own mileage. Or they ask me if I somehow got hold of one of those carburetors everyone has heard about over the years. That super carburetor is one of the biggest wives' tales ever put out.

"And then there are the guys who claim to have invented some new gasoline ingredient or fixture for your car to get mileage like my 'Opel' did. I wouldn't have believed it until it happened to me. Can't you just see it?"

You and me, Ben old buddy. We've never met, but with my new invention, and your good name ... and \$5,000, we'll make a mint!

Believe it, I've gotten more



MAKING THE HEADLINES. Even before the Marathon was run the story was making news. Ben and Carolyn Visser pause after a practice run to read a copy of the *Wall Street Journal* article telling of the Researchers' assault on gas mileage records.

than one such offer.

"I did get a nice letter from a little old lady from New Jersey who didn't want my money or any tips on gas mileage, though. She said her maiden name was Visser, and from my picture I seemed to have some familiar Visser traits, and she wondered whether I might be part of the clan.

"She told me about the original Vissers from Germany and how one was a 'sea captain on the Rhine' and another had a coffee plantation in the Belgium Congo, and all sorts of information. Who knows, maybe we are long lost relations ... but I doubt it."

Requests continue

What does the future hold for Ben Visser and his crazy little car? General Motors' Opel Division has expressed

some interest in showing the car in Germany. (Maybe they'd let Ben go along and look up some of the Vissers.) Likewise, a car show group would like to take it around the country as a special feature of the show.

There has also been a suggestion that Shell include Ben and the "Opel" in its nationwide energy conservation ad campaign. Even the *Guinness Book of World Records* has asked for a picture and background information on this new world record holder.

What with all this interest and publicity has there been anybody unable to get an audience with Ben? "I doubt it," said Ben. "But my office mate, Buzz Bazzarone, says he's tired of being my 'social secretary'."

Sports and shorts

Disneyland-Disneyworld

Wood River employees and retirees are eligible to receive free family memberships in Walt Disney's Magic Kingdom Club just for the asking. The program is being made available through the SRA, but is not limited to current members. Membership in the Magic Kingdom Club means special values and package trip rates at both Disneyland in California and Walt Disney World in Florida. There is also a club magazine. Pick up your membership card at Employee Relations.

SRA Bowling Tournament

There were 132 different entries in the annual bowling tournament. Although prize money is being awarded for several more places, the top finishers in each category are shown below. All totals include handicap.

Singles

| | | |
|------------------|--------------|-----|
| Paul Vogelbacher | (Eng. Field) | 668 |
| "Sadie" Hawkins | (Lube) | 665 |
| Ed Weichbrodt | (Lube) | 648 |
| Mac Mc Neilly | (Ref. Lab) | 648 |

Low Average Singles

| | | |
|--------------|-------------|-----|
| Larry Nieman | (Tech) | 664 |
| Judy Sasek | (Emp. Rel.) | 593 |
| Tony Cafazza | (Lube) | 572 |

Doubles

| | |
|--|------|
| Ed Weichbrodt (Lube) and Francis Herzog (Eng Svcs) | 1265 |
| Ray Robinson (Eng Proj) and Charlie Gibson (Eng Field) | 1243 |
| Mac Mc Neilly (Ref Lab) and George Townzen (Ret) | 1237 |

3-man Team

| | |
|--|------|
| Joe Scroggins (Cat Cr) "Sadie" Hawkins (Lube) Mel Henson (Lube) | 1931 |
| Jim Paterson (Comp) Don Reynolds (Comp) Dick Layman (Comp) | 1892 |
| Mac Mc Neilly (Ref Lab) George Townzen (Ret) Mickey Harris (Ret) | 1883 |

All Events

| | |
|-----------------|------|
| Paul Sauerwein | 1899 |
| "Sadie" Hawkins | 1876 |
| Ed Weichbrodt | 1855 |

ANNIVERSARIES



Will Bruce
Refinery Lab
40 years



Dale Hayes
E.F.
40 years



Ferd Kuethe
Refinery Lab
40 years



Elmer Borchers
Hydroprocessing
35 years



Al Rezabek
E.F.
35 years



Hiram Harris
E.F.
30 years



Jim Healy
Dispatching
30 years



Ed Suever
Refinery Lab
30 years



Everett Weiss
Hydroprocessing
30 years



Phil Belanger
Utilities
25 years



Earl Fabik
Treasury
25 years



Morrie Henderson
Research Lab
25 years



Manuel Lopez
Aromatics
25 years



Doc Yerkes
E.F.
25 years

Participation pays off for pensioner

Les Crull, former operations supervisor in Aromatics, is one pensioner who, rather than shying away from retired life, has been a participant in it full force. "It's not as if I couldn't wait to retire," said Les, "although technically I did retire 'early' ... at 64. I enjoyed my years at Shell, but looked upon retirement as a new and challenging segment of my life."

Les and his wife, Hilda, have been leading what would be described as a pretty normal retirement life ("fixing up the house, travelling a bit and babysitting with the grandchildren") since he left the work-a-day world in March, 1972, after over 43 years at the refinery.

Participating in activities for pensioners has been one of Les' most enjoyable "hobbies" since retirement. For one thing he is a past secretary-treasurer of the Pensioners' Club. He said, "The main theme of the club is geared around our annual banquet held the first Saturday in December."

"We had it this year at the Lewis and Clark Restaurant and about 225 retirees attended. It's good to see the old gang once in awhile. I kinda wish we'd have get-togethers more often."

This year Bob Rich, formerly of Distilling, is the secretary-treasurer and Les will be telling him the contact work begins long before the

banquet. Les said, "I believe there are about 1500 Wood River pensioners scattered all over the country, but something like 1100 of them still live in this area. That's a lot of announcement cards to get out."

Les is also the pensioner representative for the SRA. He said, "Pensioners like to participate in the activities. That includes not only the Ten and Over Barbecue, but also sporting events like golf and bowling. I understand there were a number of retirees and their grandchildren at the family picnic, too. The biggest problem is letting these people know when something is coming up."

Does Les Crull enjoy retired



THE CRULL'S. Hilda and Les Crull agree that retired life is *the* life. Les, formerly an operations supervisor in Aromatics, and his wife live in Wood River.

life? "I sure do," he said, "The secret to an enjoyable retired life is to look forward to it as a chance for new activities. Yes, that's it, keep active -- not necessarily exercise active -- but active mentally."

Are you, or do you know, a Wood River pensioner who

keeps active in retirement? The Review would like to have regular features on retirees with interesting hobbies, travels or accomplishments. If you know of such a person please drop a line to the editor, describing the person and activities, and how he or she may be contacted.

Masterful craftsman

There they are...one quietly whirring and pumping liquids, another wheezing a little blast of air on command, an open valve here, a closed one there, pushing, pulling...

The man who created these pieces of equipment from spare instruments and knobs, assorted other mechanical pieces, and his own knowledge about refinery equipment and other mechanical things is Ed Hilt, valve repairer 1st.

In addition to his normal duties as a valve repairer 1st, Ed has over the last couple years constructed working models of various types of mechanical apparatus relating to his craft trade.

Some models are full-sized and others are built to scale. All are for training and testing purposes. Machinist foreman Bob Moon said, "Ed's been a real wizard when given an innovative opportunity."

"All I've ever done is tell him the kind of model we want, and what we want to show. He does his own design work and figures what he needs in the way of materials, and then just goes to it as the workload permits. Before too long we have a working model, and always exactly what we had in mind."

Ed himself admits, "I really don't go digging out any blueprints when I start on one of these things. I've worked on so many different pieces of equipment in my 34 years out here, I pretty much remember how they're put together. I build 'em from memory."

Ed is and he isn't

In talking with those who

work around Ed Hilt it becomes obvious that he IS some things and he ISN'T others.

What Ed **is**, is a very knowledgeable and expert machinist, and one who thoroughly enjoys his work. Bob Moon said, "Ed is one of the most widely versed persons I know when it comes to mechanical things. I know a lot of people, including me, who have gone to him for technical advice. Bill Pease, engineering training foreman, added, "I understand he does a lot of reading on his own. He enjoys natural mechanical subjects. These training models show his natural abilities."

What Ed **isn't**; he isn't selfish or conceited about his time or abilities, and shares both freely. Steve Saltich, machinist craft supervisor said, "I guess Ed gets interrupted for advice about as much as anybody, and he's always happy to take the time to help. You can always trust him to give good info, too. That goes for any job he's on. It's always done safe and right."

Ed turned 65 on February 1, and retires at the end of February. He said, "My wife, Evelyn, and myself don't have any particular plans for retirement other than to enjoy it. As much as I like mechanical things I guess I'll be doing a lot of tinkering, though."

Emmitt Nelson, Engineering Field manager, said, "We'll miss Ed as he has been one among our many exceptional craftsmen in the Field. Ed has certainly made many significant contributions in our valve repair group over the years."

RETIREMENTS



John Brown
Lubricants



Walter Campbell
E.F.



Ed Fontana
Purchasing



Ken Hatfield
Lubricants



Jake Jacoby
L.O.P.



Irvin Nuernberger
Dispatching



Jim Rhodes
L.O.P.



Norman Schulze
L.O.P.



Otto Viehweg
L.O.P.

'Twas 'sno' fun at the time

Snow storms can be fun in some ways and aggravating in others. Even out of adversity comes humor. Ray Lopez, superintendent operations, Light Oil Processing, and Harry Leamy, process manager of Gas, agree what happened to each of them during the recent storms wasn't particularly funny at the time, but they can now look back on it and laugh. They don't mind sharing their stories with you.

Never-late Lopez

Ray lives in St. Louis county, and when he found himself working late during the December 19 storm he decided rather than risk getting stuck at home and getting to work late the next day (or not at all) he'd spend the night in a local motel. Ray made it to the Lewis and Clark motel in East Alton where he secured a room. But he found the restaurant was closed, so he trudged across the road to a grocery store for cheese and crackers.

The next morning Ray awoke to find his car nearly buried in a giant drift. He dug it out, but the car wouldn't start!

Ray walked to a nearby Shell station and got a mechanic. After awhile they got the car

started and Ray was on his way.

Yes, he made it to work all right, but not without: motel expenses, a cheese and cracker dinner, and a mechanic's bill. What time did he arrive at work? Nine-thirty ... and he forgot his brief case at the service station. Ah, the best laid plans....

Harry holds on

As near as Harry Leamy can figure out, when he closed his car door at home during the freezing rain portion of one of the recent storms, it didn't catch all the way. When he

came out the next morning he found the door frozen ajar.

Harry got the door open with a little muscle power, but no matter how hard he tried, it just wouldn't catch. But that didn't stop him. Harry strapped his seat belt extra tight and was seen driving *very slowly* into the refinery in zero degree weather with the window wide open, and his arm hanging out to make sure the door didn't swing open. That's determination. All Harry would say was, "I'm glad I live in Rosewood Heights rather than St. Louis."

Shell bids on "Geysers"

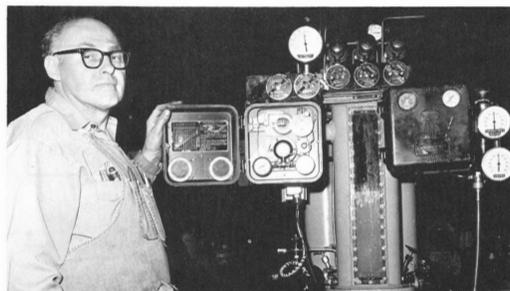
on two lease units.

In Yellowstone National Park it's "Old Faithful"; in northern California it's the "Geysers". The natural geysers in Yellowstone like "Old Faithful" are there for the beauty and wonderment of tourists. The geysers in the Geysers Geothermal Area 80 miles north of San Francisco are being used to produce energy.

The "Geysers" is the only commercial geothermal field in the United States. In late January the government held the first ever geothermal lease sale, and Shell was high bidder

The two units cover 3,874 acres. Shell's total bids for these two units came to 4½ million dollars.

The geothermal steam produced is used to generate electricity. The field is under active development and Shell will commence drilling on the newly acquired tracts as soon as plans can be completed and permits obtained. The present capacity of the Geysers Field is about 400 megawatts, sufficient to supply a city of about 400,000 people.



INNOVATOR. Ed Hilt, valve repairer 1st, explains one of the working model training aids he has built from scratch.



TRADITIONAL LUNCHEON. Last month you saw pictures of the 1973 Girls' Ten-and-over Luncheon. Pictured here are the attendees of an earlier affair. Do you see any familiar faces? Some of those shown last month can also be seen here. One thing is for sure, no one has changed a bit.

Tar sands -- where ...what...how?

IN REMEMBRANCE

Canada's vast tar sands contain as much oil as all the reserves in the entire Middle East. Shell plans to develop a portion of the deposits with a two-pronged effort designed to produce synthetic crude both with known technology and with technology that is still being developed.

Shell's experience with the tar sands dates back to 1945, when geological field studies were conducted along the Athabasca River. In 1956 Shell acquired its first leases in Athabasca and followed this in the late '50s and early '60s with laboratory and experimental work directed mainly toward recovering oil through an *in situ* ("in place" ie; subsurface) process.

Operating under a 50/50 joint agreement, Shell Explorer (a subsidiary of Shell Oil Company), and Shell Canada Limited are currently pursuing plans calling for surface and subsurface recovery operations in two of the three major tar sands deposits, all located north of Edmonton in Alberta.

Of the three, Athabasca is by far the largest and most publicized, containing about two-thirds of potential reserves. It is the site of current mining operations being carried out by Great Canadian Oil Sands Ltd., now the area's only tar sands producer.

A distinguishing feature of Athabasca is that about 10 per cent of the tar-bearing sands

are covered with less than 150 feet of overburden and thus can be surface mined from open pits with proven technology. The remaining 90 per cent, and all of the tar sands deposits at Peace River and Cold Lake, are too deep for surface mining and the oil must be recovered underground by *in situ* methods using new technology.

Shell has applied for a permit to produce 100,000 barrels of hydrocarbons per day from the Athabasca tar sands by 1980, a venture that will cost an estimated \$1 billion. Drilling to date has defined some three billion barrels of reserves that can be surface-mined from Shell's mining lease, which would support three 100,000 barrels per day projects for about 25 years.

Most of Shell's *in situ* development work--which may be the most important in the long run--has been concentrated on acreage at Peace River, where a steam injection test is being conducted. If results are encouraging, a pilot project over a 4 to 5 year period and involving about 40 production, injection and observation wells will be launched.

Current plans are to use the experience gained from operation of the pilot project to provide the basis for design and economic evaluation of a full-scale project which could be put into operation, at the earliest, in 1983.

Recovering hydrocarbons from the tar sands will not be without problems and difficulties, of course. In addition to

the need to develop the technology, there is the weather--among other things--to contend with. Heavy equipment tends to bog down in the soft surface (called muskeg) during the summertime and during the winter sub-zero temperatures are often encountered, taxing the endurance of both men and machines.

Consequently, there is a big difference in cost, effort and economics between simply drilling and turning the valves on perhaps a dozen or so wells in the Middle East--and trying to wrest 100,000 barrels per day from the tar sands of Athabasca.

Synthetic crude

Canada's tar sands are thick, tarry deposits made up of bitumen and a mixture of sand and various minerals. Although the bitumen is a liquid, it is so thick and resistant to flowing that the most efficient way to currently get it out is by surface mining, which provides the highest recovery percentages of all known production methods. The bitumen is later separated from the sand and minerals before being upgraded by a process that ultimately involves adding hydrogen to it. A high-grade crude oil results, which is called synthetic crude in the industry to distinguish it from crude obtained from conventional oil reservoirs.

DANA C. SLOAN, December 30. Dana was a pipefitter foreman before retiring in 1958.

JACK S. YOUNG, January 25. Jack was an operations foreman in Lubricating Oils before retiring in 1959.

MARTIN HENKE, January 28. Martin was a compounder 2nd before retiring in 1963.

CLARENCE AILSWORTH, January 30. Clarence was a lead burner before retiring in 1963.

VITALE F. FASOL, February 1. Vitale was a yardman before retiring in 1968.

KENNETH D. BAKER, February 3. Kenneth was a truck driver and had worked at the refinery since 1944.

HERBERT C. SIMMONS, February 10. Herbert was a pipefitter 1st before retiring in 1963.

CLASSIFIED ADS

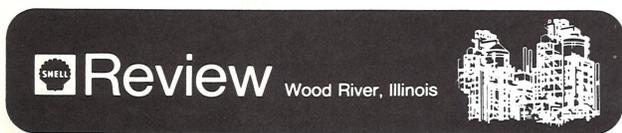
FREE. Five 1/2-screen windows with wood frames. 34" x 29". Good condition. Earl Fabik. 314-993-0732.

1971 Ford Pinto 2-door automatic. Low mileage. Dick Hopfl. 618-656-6691.

1969 VW Beetle. Automatic stick shift. Low mileage. 618-465-5286.



TAR SANDS DEPOSITS. Dark areas indicate Shell leases.



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Bill Gibson, editor

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