

BROUGHT FORWARD

GENERAL

SC2

Previously filed

1/15/71

Date

NAME Arthur F Frankel

ORGANIZATION _____

GENERAL

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New File Symbol

2/2/71

Date

FINAL ACTION Carl T Hayes ltr to
Mr Frankel



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON, D.C. 20240

February 2, 1971

Mr. Arthur F. Frankel
266 West End Avenue
New York, New York 10023

Dear Mr. Frankel:

President Nixon is very appreciative for the ideas on resource replenishment and waste treatment and disposal outlined in your letter of January 11, 1971. As the Bureau of Mines is the Federal Agency most directly concerned with the extraction and processing of minerals and recycling of waste by-products, he has asked us to review your suggestions and to reply directly to you.

Your ideas on replenishing what civilization has taken from the earth and utilizing the temporary surplus of scientific personnel from aerospace industries and agencies are both timely and well-thought-out.

The Bureau of Mines, in cooperation with other Federal Agencies and private organizations, is currently engaged in on-going research in the areas you mentioned. Scientists at the Bureau's Pittsburgh Energy Research Center recently demonstrated that urban refuse, cellulosic wastes, and sewage sludge could be converted to heavy oil by heating them under pressure in combination with carbon monoxide and steam. Conversion rates of the organic matter to high oxygen, low sulfur content oil, water, and gas have averaged near 90 percent at temperatures of 250° to 400°C and pressures of 1,500 to 5,000 psi. Yields of nearly 40 percent oil per unit of dry organic matter have been achieved. This is equivalent to more than two barrels of oil per ton of dry, ash-free waste material. The low sulfur content (near 0.1 percent) of the oil generated from refuse makes it an ideal source of fuel oil.

It must be stressed, however, that the process is still in the laboratory stage of development. Optimum process conditions to reduce oxygen content, to increase fluidity, and to upgrade the crude oil to a useful fuel are still under study. Detailed analyses of the characteristics and composition of the oil are also necessary.

Unlike the rapid generation of synthetic oil from waste materials, the formation of natural crude oil has taken hundreds of millions of years. Chemical and biological processes aided by heat and pressure brought about the slow transformation of plant and animal debris entrapped in deeply buried marine sedimentary deposits. Later when the earth's crust was uplifted and warped the petroleum was probably squeezed out of the rock in which it was formed and migrated along bedding planes or through more permeable strata until it was trapped in geologic structures called reservoirs. There the crude oil and associated gas remained, dispersed between the grains of rock, until bled off through natural faults or man-made wells.

Geologic conditions within the structural traps are probably quite different from those within the marine sediments where the oil was originally formed. It is highly doubtful, therefore, that injecting liquified organic wastes back into these reservoirs would ever result in the formation of crude oil. Even injection of high pressure steam to stimulate the process would probably have little effect except upon those liquid wastes at the immediate interface of the injection well.

Disposal of liquid wastes in deep geologic formation is not a new process. In 1963, a Bureau of Mines survey indicated that more than 30 wells in eight States, ranging in depth from 300 to 12,000 feet were used for disposal of industrial wastes into subsurface formations of unconsolidated sand, sandstone, limestone, and fractured gneiss. Deep well injection, however, is not the solution to every waste problem. Some areas are devoid of suitable formations; the initial investment may be too great; or necessary pre-injection treatment of the wastes may be too expensive.

In many instances, oils, slimes, particulate matter, and biological materials must be separated from the liquid wastes and the pH adjusted before injection. Otherwise, the receiving formation would rapidly plug rendering the wells useless. There is also the problem of containment of highly toxic wastes within the receiving formation. This requires careful subsurface mapping and the drilling of monitor wells about the injection site to detect potentially dangerous leaks. These additional wells and the monitoring instruments for them greatly increase the cost of this type of disposal.

It may, therefore, be in the best interests of economic and environmental preservation to develop alternate ways of disposing of industrial wastes and to convert refuse to oil on the surface to meet our national energy demands. The ultimate goal might be to create a closed consumer-producer-energy loop wherein all wastes are either reprocessed for contained values from which new products could be produced or reclaimed for contained hydrocarbons which can be converted into fuels.

At many mines it is now common practice to return both mine and mill wastes to mined-out areas to stabilize the workings and to prevent surface subsidence. In abandoned coal mines back filling also reduces the possibility of mine fires and acid mine drainage - both serious causes of pollution in coal mining areas.

Industrial wastes, if they can be suitably dewatered and stabilized, can also be disposed of in abandoned mine voids; however, cautionary judgment must be exercised. In many instances industrial and mine wastes contain additional valuable commodities that can be extracted through reprocessing. In addition, wastes that are highly toxic could pollute the ground water table or surface streams unless all receiving voids are carefully sealed.

Oxygenation of industrial and municipal sewage to produce chemical or biological flocculation and to reduce the BOD (biochemical oxygen demand) is becoming an increasingly common practice at tertiary sewage treatment plants. Oxygenation when followed by an adequate retention period can aid not only in precipitating many organic and inorganic compounds, but also tends to reduce the acidity of the sewage. Oxygenation also protects the ecology of receiving drainages by reducing the turbidity of outfall discharge and the likelihood of suffocation of stream biota.

Your expression of concerned ideas for elimination of one of this Nation's biggest problems, that of waste disposal, is gratefully appreciated by the President and the Bureau of Mines.

Sincerely yours,

Being
Earl T. Hayes
Director

cc: Mr. Kreigsman ✓

THE WHITE HOUSE OFFICE

REFERRAL

To: Department of the Interior
(Dr. Pecora)

Date:

January 15, 1971

W. A. Harris
1/14 J. Scott
Referred to BAI
Coryman

ACTION REQUESTED

GENERAL

SC 2.
HE 9

- _____ Draft reply for:
- _____ President's signature.
- _____ Undersigned's signature.
- _____ Memorandum for use as enclosure to reply.
- ☒ Direct reply.
- ☒ Furnish information copy.
- _____ Suitable acknowledgment or other appropriate handling.
- _____ Furnish copy of reply, if any.
- _____ For your information.
- _____ For comment.

NOTE

Prompt action is essential.

If more than 48 hours' delay is encountered, please telephone the undersigned immediately, Code 1450.

Basic correspondence should be returned when draft reply, memorandum, or comment is requested.

REMARKS:

PLEASE RETURN WHITE HOUSE REFERRAL FORM WITH COPY OF YOUR REPLY TO MR. KRIEGSMAN, RM 187, EOB.

INTERIOR DEPARTMENT
RECEIVED

JAN 21 1971

OFFICE OF THE
ASSISTANT SECRETARY
FOR MINERAL RESOURCES

Description:

☒ Letter: _____ Telegram: _____ Other: _____

To: The President

From: Arthur F. Frankel, 266 West End Avenue, New York, N. Y.

Date: January 11, 1971 (am Jan 13, 71)

Subject: Suggested Developments to Replace What Civilization Has Taken From the Earth

By direction of the President:

J. C. W.
John C. Whitaker

Deputy Assistant to the President

ARTHUR F. FRANKEL

266 WEST END AVENUE

NEW YORK 23, N. Y.

TRAFALGAR 4-0453

January 11, 1971.

fw-1
President Richard M. Nixon
The White House
Washington, D. C.

Dear Mr. President:

Recently two scientists created crude oil from waste material.

I believe our scientists and engineers could come up with favorable developments from the following ideas:

- 1 - We know that crude oil fields developed in earth faults from the decomposition of animal, fish, vegetation, etc. decomposition over the centuries and forming high gas pressures. I believe by liquefying waste and pumping it into abandoned oil fields (sealing off the wells at the oil sand depths) we could build up our future oil reserves and at the same time solve the waste pollution problem. The cost of reopening these wells in the future is negligible to new drilling operations.
- 2 - We could use abandoned coal and other mines for industrial waste and not only stop stream and river pollution but avoid surface collapse over these mines.
- 3 - Sewerage may be treated in many ways to produce pure water and organic compost. Recently Union Carbide received a patent for sewerage treatment by oxygen or air injection.

With the above developments we would replace what civilization has taken from our earth. The many scientists and engineers dropped by NASA could come up with beneficial results if put on a crash program.

Mr. President what do you think of these ideas?

With best wishes for your success with the 92nd Congress,
I remain

Sincerely yours,

Arthur F. Frankel
Arthur F. Frankel

R. N. member

AF:bs

Sub
direct
(also records)

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INTERIOR DEPARTMENT
RECEIVED

JAN 21 1971

OFFICE OF THE
ASSISTANT SECRETARY
FOR MINERAL RESOURCES

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GENERAL

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April 19, 1971

Dear Mr. [unclear]:

Thank you for bringing to my attention the proposal you received from Dr. Henry Freiser, of the Department of Chemistry of the University of Arizona in Tucson, offering a concentrated training program in the field of analytical chemistry to assist the relocation of unemployed scientists and other technological personnel.

Dr. Freiser's presentation is most timely and you may be assured it will be given careful consideration.

With warm regards,

Sincerely,

William E. Timmons
Assistant to the President

Honorable Morris K. Udall
House of Representatives
Washington, D.C. 20515

bcc: w/incoming to Dr. Edward David (OS&T) for DIRECT
REPLY to Dr. Freiser with cc's to Mr. Udall
and Bill Timmons.

WET:EF:VO:vo

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CENTRAL FILES

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NATIONAL SECURITY COUNCIL
WASHINGTON, D.C. 20506

September 13, 1972

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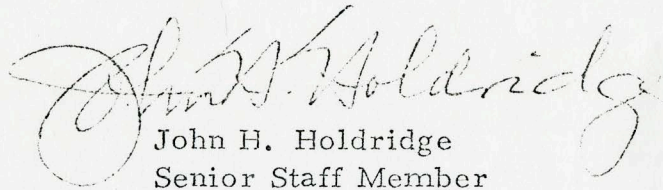
C034-2

Dear Mr. Janus:

In his absence from Washington, Dr. Kissinger has requested that I reply to your letter of September 2 concerning the matter of the Peking Man fossils.

As perhaps you are aware, the specifics of cultural exchange programs with the People's Republic of China are being handled by the Bureau of Cultural and Educational Affairs at the Department of State. I have taken the liberty of seeing that your memorandum is sent to the appropriate people there for consideration.

Sincerely,


John H. Holdridge
Senior Staff Member

Mr. Christopher G. Janus
Bache & Company, Inc.
140 S. Dearborn Street
Chicago, Illinois 60603

pp1

GENERAL

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SC 2

filed 10/10/72

Oct Issue

EH: EDGAR C. ^xGROVE-MERRITT logged f/you
to regret his req f/msg to 3rd anniv. of THE
^xARTIFACT SOCIETY ; f/publication OCT Issue.

sr

10/10

*Regretted
10/24*

Oct Issue

EH: Req f/msg to The Artifact Society on its
3rd anniv. celebration sometime this Month;;
f/publication in October Issue.

FYI: Nothing in CF on society; only misc. on
writer which CF didn't send us.

(1) Since only its 3rd anniv., want to log
to regret? ✓

sr 10/10

3852

Enclosures filed in

^x Oversize Attachments #-----