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GLOBAL CHANGE STRATEGY TASK FORCE

AGENDA

April 23, 1991

1. Welcome

2. I would like to begin by discussing the recently-released report by the NRC on "Policy Implications of Global Warming". This is an excellent report and, as I mentioned in my memo, I thought it would be useful to collect from the various agencies lists of specific actions which the Administration is taking to address each of the recommendations in the report.

This has taken on a special sense of urgency because - at the last minute last Friday - I was asked to appear at a hearing before the Committee on Commerce, Science and Transportation on this Thursday. Hollings is chair, but it is my understanding that Senator Gore will be playing a very active role in this hearing and that his staff has been very busy preparing for it.

I have been billed as the sole witness for "Administration Policy" with a Panel to follow consisting of Frank Press, Dan Evans, and Bill Nitze.

When the report first came out, my staff together with Howard Gruenspecht of CEA, put together a quick analysis of how Administration policy/actions matched the recommendations of the NRC report. As you all know now, the recommended actions are quite similar to many of the actions we have already put into place or proposed through the America's Climate Change Strategy, NES, and Clean Air Act. Therefore, we can be very positive about any comparison.

However, as I mentioned in my memo, I thought it might be useful to have all agencies provide concrete examples where possible - to augment our preliminary comparison. Then, we will all be better armed for future hearings on this issue.

I appreciate your help with this issue and would like to ask if anyone has any material they would like to contribute or any suggestions on how we might deal with possible problems associated with this issue.

April 16, 1991

MEMORANDUM FOR THE GLOBAL CHANGE STRATEGY TASK FORCE

FROM: D. ALLAN BROMLEY

SUBJECT: Meeting, April 23, 1991 *signed*

The next meeting of the Global Change Strategy Task Force will take place on April 23, 1991, at 3 p.m. in Room 22 of the Old Executive Office Building.

We will discuss the recently-released report by the National Research Council, "Policy Implications of Greenhouse Warming", the status of the science of stratospheric ozone, the UN Conference on Environment and Development, and the research effort in the Persian Gulf region.

As you know, the NRC report has made a series of recommendations to both reduce the speed and magnitude of greenhouse warming as well as to mitigate and adapt to possible future conditions resulting from greenhouse warming. These recommended actions are quite similar to many of the actions which have already been put into place or proposed by the Administration in "America's Climate Change Strategy", the National Energy Strategy, and the Clean Air Act. I believe it would be very useful to compile a list of the specific actions, keyed to the NRC recommendations, that the US and its different agencies are doing which address these recommendations. This would provide all agencies with a more complete set of US government activities which address various aspects of global warming for use in discussions, document preparation, and hearings.

To that end, I would like to request that you have your agency review the recommendations in the NRC report and provide a list of actions (an abbreviated description - several sentences) being taken by your agency which apply to specific recommendations in that report. As there is considerable activity in response to the release of the report, it will be important to get the information as soon as possible. I would request, therefore, that you bring your responses to the meeting on Tuesday with 30 copies. If you are able to provide your responses prior to the meeting, please send them to Dr. Nancy Maynard of my staff: (202) 456-6202 or fax (202) 395-3719.

THE WHITE HOUSE

WASHINGTON

GLOBAL CHANGE STRATEGY TASK FORCE

April 23, 1991

AGENDA

- o NRC Report: "Policy Implications of Greenhouse Warming"
- o UN Conference on Environment and Development (UNCED)
 - o Status of Preparations by U.S. for UNCED
 - o Status of National Report
- o Interagency Research Programs on Gulf Oil Fires: Update
- o Other Business

Possible issues to be discussed:

- o UNCED and EPRG. At your last meeting there was an interest in how best to deal with UNCED. White House attention and oversight is important, and the appropriate EPRG steering group should be determined. There is a void with the departure of Stephen Danzansky.

This is a follow-up to your last meeting and a list of EPRG members was obtained, per your instructions.

- o SSC hearings. You met with Adm. Watkins and Henson Moore (who will also testify). Henson has a good grasp of the issues, and this could prove to be a contentious hearing. You have previously mentioned the issue of nuclear reactor programs for discussion with the Governor and Adm. Watkins.

As a follow-up to your last meeting, the Governor may be interested in the outcome of your discussions with the Adm.

- o NAS report on climate change. Press interest has faded. You may wish to indicate the trouble Weiskopf gave you, and that his article could have been worse. Boskin complained about that article in the senior staff meeting last Thursday. Also, the State Department is putting together a paper comparing Administration policies with the NAS report. You have been asked to testify in Hollings full Senate Commerce Committee on April 25 with Evans and Press.

This is just a follow-up, and to see if the Governor wishes us to take any more action.

- o Critical Technologies Report. We are working with OMB to address their concerns. This could be an Administration document, or just a panel document that is not endorsed by the Administration. OMB has expressed concerns that it could be used against the Administration, especially in political campaigns.

Although the Governor has surely been approached on this, further information should come from you.

- o High Performance Computing. It is likely that a bill will pass the Congress in the near future. We are working with interested Federal agencies and the Hill to determine how to obtain a positive outcome.

The Governor is interested in Congressional activity, and our actions would best get to him from you.

- o Indirect costs. Frank Hodsell has a group discussing A-21, and the Academy has expressed an interest. David Packard has been asked to testify in the House.

This has come up in previous discussions. Due to the connection with university infrastructure and the current discussions on SSC, you may wish to again raise the issues.

Here is some of the information we discussed yesterday, with possible follow up steps.

UNCED - The steering group has been set. The first meeting should have Bohlen, Ryan and Reinstein to brief.

Action - Set up the first meeting. It is unclear whether OSTP or OPD have this action. It is also unclear whether C. B. Gray (one of our biggest allies in this) should be on this group.

NAS report - You were encouraged to testify and to stress the parallel between the NAS report and the Administration positions.

Action - Prepare hearing testimony. State Dept. is already preparing materials to compare. OMB would also be helpful. Committee staff are trying to change the hearing to the morning, but you need to look carefully at your calendar to see if we need to make adjustments too.

Critical Technologies Report - There is some interest in having an Administration review of the report to make additions so that a White House report could be created. This could produce the publicity and leverage the work already done to date.

Action - This might be a good project for the S&T Working Group. We need to notify the EPC and add it to the list of possible issues for the S&T group that we send to Brady.

HPCC - We will get support for our efforts and there is a need to show Republican Congressmen that we are interested. Bringing them to the White House to discuss the issue and tell them where we are coming from will do much to draw out their assistance.

Action - A meeting in the Roosevelt Room was suggested. This is frequently done, and we could add this to the list of one of the meetings. This would do much to leverage our position, facilitate discussions, and focus attention of the other interested agencies.

Other Briefings - There is an interest in bringing some environmental policy people to the Roosevelt Room to discuss issues and get their reaction to the NAS study.

ATMOSPHERIC EFFECTS OF KUWAIT OIL FIRES

The Persian Gulf situation presents a unique opportunity to:

- o assess the impact of massive fossil fuel fires on cloud and precipitation processes, radiation, and atmospheric chemistry.
- o obtain data that could be used in cloud physics, climate, global change, and trans-boundary pollution research.

Two parallel efforts have been initiated that are directed at a multi-agency supported scientific plan for a coherent field measurement program:

- (1). There is an ongoing effort to examine the health effects of air pollution from the Kuwait oil fires led by EPA and NOAA.
- (2) The National Center for Atmospheric Research (NCAR) and the University of Washington have developed a plan involving an initial intensive observational program by one or two aircraft during a four-week period in May, with plans for follow-up measurements over the next 6-9 months.

NSF, through the FCCSET/CEES/Subcommittee on Atmospheric Research (SAR), has determined that NOAA, DOD, DOE, EPA, and NSF will participate in the Program.

The research aircraft program, being coordinated by NSF, is part of the air monitoring sub-component of the integrated air pollution assessment effort.

The aircraft measurements will support both the short term needs of the air pollution team and the longer term research of university, NCAR, and Federal laboratory scientists.

In addition to Federal support for this effort, the National Geographic Society will provide some support.

The necessary diplomatic and military clearances will be obtained through the international coordination activities of the Department of State and the Interagency Air Pollution Assessment Team.

On March 26, the Department of State hosted a Policy Coordinating Committee (PCC) meeting that approved the plan to field an expanded on-site air monitoring activity that will include the research aircraft program.

An integrated plan has been developed for consideration by the UN's World Meteorological Organization at a meeting April 27-30.

Implementation of the air monitoring element has begun.

CONSIDERATIONS INVOLVED IN THE KUWAIT OIL FIRES PROGRAM

Observations Related to Kuwait Oil Fire Products over U.S.

- o Observations of elevated concentrations of carbon by particle counters on Mauna Loa in the free troposphere that coincide with trajectories from the Kuwait region.**
- o Over Laramie, Wyoming from balloon soundings there have been observations of unusually high concentrations of condensation nuclei and aerosols in a thick layer between 8 and 11 km. Trajectory calculations again seem to confirm sources in the Kuwait region.**

Do these observations confirm that Kuwait oil fire smoke products are being transported over the U. S.? NO. The implications, however, lead one to believe careful observations should be made before conclusions are reached that the smoke effects will be very limited in extent.

Significant Scientific Questions to be Addressed by Research Aircraft Program in Persian Gulf Region

- o Does the smoke-filled air get sufficiently heated to loft the smoke to higher altitudes thereby increasing the residence time and the concomitant radiation effects? This question is a test of the "self-lofting" hypothesis important to the understanding of the atmospheric effects of substantial smoke concentrations.**
- o Will the effects of the smoke modify the southwest Indian monsoon or other regional weather phenomena? Possible impacts include:**
 - Large quantities of cloud condensation nuclei (CCN) as observed in laboratory burns of Kuwait oil samples could:**
 - (a) make the monsoon clouds more "continental" and reduce their precipitation (overseeding), or**
 - (b) increase precipitation by the effective seeding of clouds by soot and CCNs.**
 - Radiational screening by the extensive smoke could reduce the thermal land-sea contrasts, thereby weakening the monsoon.**

N.B. The dynamical, numerical forecast for the Indian monsoon, developed under the US-Indo Science and Technology Initiative (STI), calls for a below normal monsoon this year. Determination of the smoke impact on the monsoon may have some political importance.

Only through careful measurements by research aircraft can these questions be addressed.

ATMOSPHERIC EFFECTS OF KUWAIT OIL FIRES

SCIENTIFIC GOALS

The Phase I scientific goals for two research aircraft and their auxiliary support from satellite and surface observations, forecasting and plume trajectory analysis are:

- To characterize the regional emission rates of smoke particles and trace gases.
- To measure radiative properties of the smoke particles, and the net radiative effects of the plumes, with attention to how radiation affects the altitudes of the plumes and the stability of the atmosphere.
- To measure characteristics of the smoke particles and determine if the particles have a hygroscopic component (or acquire such a component through chemical transformations) that would accelerate their removal from the atmosphere.
- To search for direct evidence that the smoke particles are scavenged in clouds, and to determine the effects of the smoke on the composition and radiative properties of clouds.
- To measure the chemical composition of the plume and determine how that composition changes with time. Such measurements will aid in developing estimates of the smoke's atmospheric residence time.
- To study regional weather anomalies associated with these smoke emissions.

ATMOSPHERIC EFFECTS OF KUWAIT OIL FIRES

CRITICAL MEASUREMENTS

The following critical data will be gathered by the aircraft:

(a) Multi-wavelength radiation measurements to measure effects of the smoke.

(b) Remote sensing lidar (light detection and ranging) measurements of the distribution (horizontally and vertically) of the smoke for flux determinations and dynamic observations.

(c) Measurements of the size and mass distributions of the smoke particles.

(d) Measurements of the characteristics of the smoke particles, including extinction, scattering, and absorption properties of particles and their activity as cloud condensation nuclei (CCN).

(e) Measurements of trace gases (SO_2 , CO , CO_2 , CH_4 , O_3 , H_2S , NO_x , NH_3 , HNO_3 , NMHC's, COS , etc).

(f) Measurement of cloud properties (drop size distributions, liquid water content, cloud interstitial aerosol, cloud nucleus material).

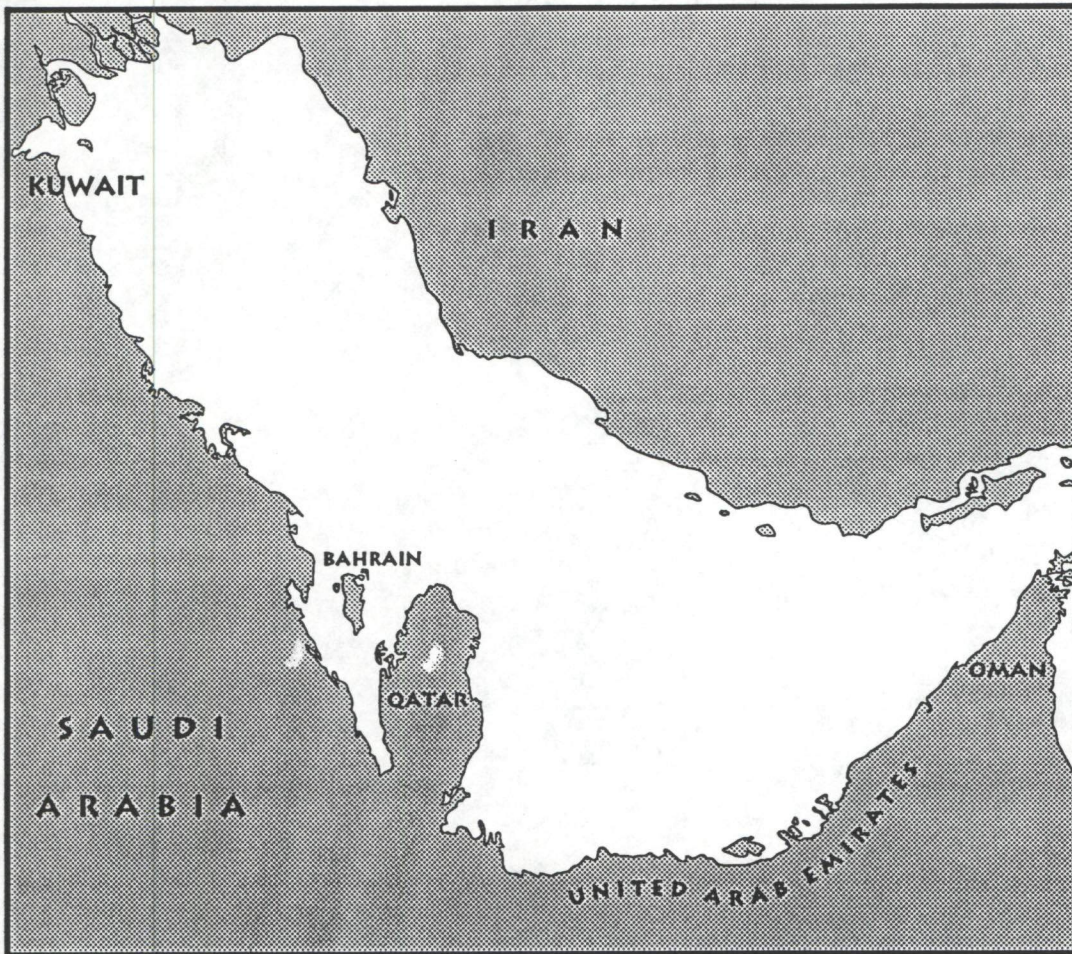
2. I thought it would be useful to have a brief update on UNCED and therefore would like to

- a. Call on Dick Smith to speak to US preparations on UNCED
- b. Call on MIke Deland (or Patricia Bliss-Guest) to speak to the US National Report for UNCED

3. As all of you know, there is a large interagency effort to carry out several science programs in the Gulf on the oil fires. These are clearly important science issues and I thought it might be interesting for this group to hear the progress of the planning for these programs as well as any new results that may have developed since the beginning of the problems.

- a. Call on Dr. Tony ~~Joyer~~ ^{Hover} (EPA) to discuss the air monitoring and human health aspects of the programs
- b. Call on Dr. Dick Greenfield (NSF) to discuss the aircraft experiment examining the meteorological and climatological aspects of the fires

4. Other Business



Kuwait Oil Fires:

Interagency Interim Report

April 3, 1991

KUWAIT OIL FIRES - INTERAGENCY INTERIM REPORT

SUMMARY

More than 500 oil well, storage tank and refinery, and facility fires are currently raging in Kuwait and each day produce an enormous amount of smoke and other pollutants. The quantity and character of the smoke plumes are not yet certain, and the fires are expected to continue for some period. The fires originate in seven oil fields, located both north and south of Kuwait City, with the majority centered in the Al Burgan oil field south of the Kuwait City airport. The fires may represent one of the most extraordinary manmade environmental disasters in recorded history.

In response to this situation, an Interagency Air Assessment Team consisting of representatives from the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the Department of Health and Human Services was formed and deployed to the Persian Gulf area. In country, this team was supplemented by representatives of the United States Coast Guard, the Department of Defense, and the Department of Energy.

The specific mission of the team was to assess the conditions through air sampling and monitoring in oil fields and other areas to determine the effect on public health; to review the health infrastructure; to determine the capability of the region to deal with the health threat through air monitoring and appropriate corrective action; to provide technical assistance; and to consider appropriate follow-up action.

Meteorological conditions over the past two months have tended to transport the smoke plume toward the southeast, with periodic excursions toward the northeast. March through July are relatively windy months; there are normally 30 days of very strong winds from the northwest in this period, which produce sandstorms and rapidly ventilate the smoke. From August to October, the incidence of strong winds should drop sharply. The plume is generally below about 12,000 feet. As the summer progresses, it is possible that the height of the plume will increase and that it will then be evident to greater distances.

Emissions from oil fires may have the potential of causing health effects of both an acute and chronic nature, although there is considerable uncertainty as to the extent of the threat. Chemicals such as sulfur dioxide and hydrogen sulfide as well as carbon monoxide and polycyclic aromatic hydrocarbons are often found along with particulate matter in oil fires. While only a limited assessment is possible at this time, the Team did not detect such chemicals in any significant quantity; also, preliminary analysis of the substantial amount of particulate matter did not reveal any chemicals at levels of concern. Additional testing is needed to better define if other toxic materials may be associated with the high levels of particulates found.

The host nation governments also provided the Team with an abundance of preexisting air monitoring information covering the past several years in Saudi Arabia, Kuwait, and Bahrain. These data provide a useful baseline on limited parameters for comparing the conditions that exist and may evolve during the next several months. The Team concurred with the Saudi Government's view that the considerable Saudi public and private sector competence in air monitoring would need to be supplemented with support and technical assistance. This situation is even more acute in Kuwait City due to the lack of power and to the disruption of the governmental and scientific infrastructure. The Team considered it of critical importance that additional technical assistance be made available to the countries, if requested.

TEAM'S ACTIVITIES AND FINDINGS

With the assistance of the Saudi and Kuwaiti Governments, the U.S. Interagency Air Assessment Team has been conducting a reconnaissance survey of the fire plumes and their effects in Kuwait and Saudi Arabia since March 10, 1991. The primary objective of the Team was to obtain preliminary, short-term data on the emissions from the smoke emanating from the oil well fires at a variety of locations, in order to:

1. Determine if there is an acute health threat associated with the Hydrogen Sulfide (H_2S) and Sulfur Dioxide (SO_2) and particulates, three pollutants that might be emitted from burning oil wells;
2. Identify and quantify the gaseous and particulate byproducts being produced from the burning oil wells; and
3. Determine if the materials associated with these fires are affecting areas where American citizens are located.
4. Assess the potential extent of the health effects related to the emissions from the fires and the status of the Kuwaiti and Saudi health infrastructure.

Based on these objectives, limited, real-time data was obtained directly from the Kuwait oil fields, as well as from Kuwait and Saudi Arabia locations where embassy officials, troops, and citizens work and reside. Additionally, the Team conducted a number of interviews with health officials to evaluate the extent of acute respiratory problems related to smoke exposure. While only a cursory assessment is possible at this point, some data obtained by the team were encouraging. The preliminary findings are as follows:

1. Limited sampling did not reveal the existence of high concentrations of sulfur dioxide or hydrogen sulfide near the burning wells or in population areas in the path of the oil well emissions;
2. High levels of particulate were found in the air;
3. The results of the current monitoring findings and health interviews with medical personnel in the affected areas suggest that at the present time susceptible subpopulations, such as individuals with asthma and chronic obstructive lung disease, may experience exacerbation of their symptoms. Special health concerns, warnings, advisories, and precautions are clearly warranted for these individuals. This situation does not appear to be life threatening under current exposure conditions but, if meteorological conditions change, i.e., poor air mixing or plume touchdown, there could be adverse health effects for these susceptible individuals; and,
4. The long-term effects on health are not readily ascertainable at this time due to insufficient data on the populations exposed, the composition of the smoke plume, the impact of oil pools, and long-term meteorological patterns. Both the Kuwaiti and Saudi health communities have expressed great interest in obtaining training and support from the US medical community that can be continued by themselves in future years. Aggravating the problem is the severe damage done to the scientific infrastructure of Kuwait thus limiting the current in-country analytic capabilities. Any response by the US would have to include both training and equipment.

NEXT STEPS

The Team has stressed, however, that their observations represent only a preliminary assessment and that considerable follow-up will be necessary to evaluate definitively the nature and magnitude of the human health, ecological, and atmospheric effects of the oil fires. Such follow-up activities will need to be carefully coordinated with the governments in the region as well as with other governments and international organizations, such as WMO, WHO, and UNEP, which are seeking to assist in evaluating the situation.

The local populations are being exposed to an increased health risk, the magnitude of which cannot be estimated with any degree of certainty without further measurements and surveys. The extent to which conditions may worsen needs to be understood and a forecast capability developed. Without such measurements and assessment, and development of a predictive capability, the regional population remains exposed to an uncertain risk, and reconstruction of the area may be impeded. Moreover, without such input, an accurate and defensible quantification of environmental effects will not be possible.

In addition to providing direct answers to questions regarding the effects of the smoke plumes on the atmospheric environment, intensive studies of the plumes will accelerate progress in understanding manmade effects on regional and global air quality, meteorology, and climate. Because the expected changes in air chemistry, solar radiation, and cloud microstructure are so large, observations of these processes could circumvent the need for many years of study directed at much lesser phenomena.

Closely coordinated programs with the area governments need to be developed in air monitoring, human health surveillance, and forecasting capabilities.