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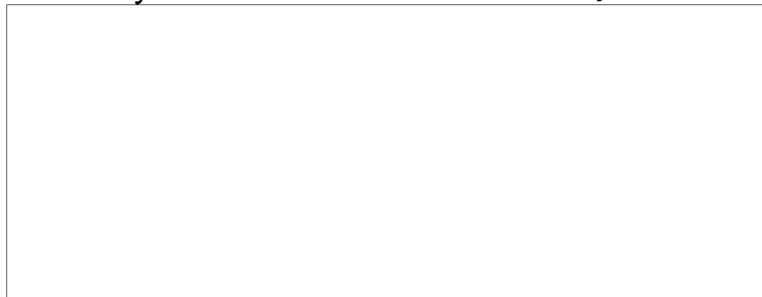


Central Intelligence Agency
Office of the Deputy Director for Intelligence

31 JUL 1986

NOTE TO: Director of Central Intelligence

This is an assessment I requested
shortly after the crisis at Chernobyl.



Richard J. Kerr
Deputy Director for Intelligence

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TOP SECRET [redacted]

5 JUN 1986

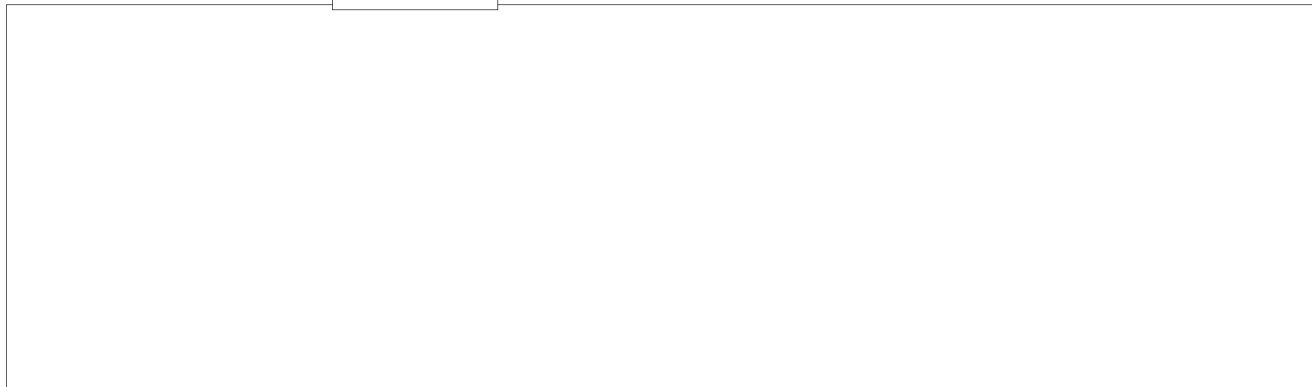
MEMORANDUM FOR: Director of Central Intelligence

FROM: Douglas J. MacEachin
Director of Soviet Analysis

SUBJECT: Possible Use of Forced Labor at
Chernobyl'

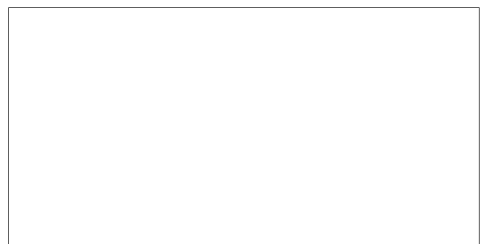
1. This is to apprise you of our continuing efforts to ascertain whether the Soviets are using forced labor in cleanup operations at Chernobyl'. Thus far, the evidence is inconclusive. [redacted]

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4. Three forced labor camps are located within 100 kilometers of the Chernobyl' Nuclear Power Plant. The forced labor camp at Mozyr' lies about 90 kilometers to the northwest with access by a hard-surfaced road; a camp to the south near Kiev is 130 kilometers by road from the power plant. Each of these camps confines 1,700 to 1,800 prisoners. The camp in the city of Chernigov, about 90 kilometers by rail from the power plant, houses 600 to 700 forced laborers. In addition, seven other forced labor camps are located within 161 kilometers of the plant. [redacted]

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TOP SECRET [redacted]

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[Redacted]

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6. [Redacted] have reported Soviet use of forced labor in the mining, processing and utilization of radioactive matter:

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-- In the 1950s, political prisoners were used in the extraction of uranium in Kolyma

[Redacted]

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-- [Redacted] in the northern Urals in the 1960s reported that prisoners were being used in the extraction of uranium there. [Redacted] that prisoners under capital sentence were sent to uranium mines, where most died within two years.

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-- [Redacted] in Central Asia in the mid-1970s reported that prisoners were used in the extraction of uranium. He estimated that the loss of life was high.

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-- [Redacted] Dnepropetrovsk claimed in 1984 that his factory had a secret workshop manned by prisoners which produced metal mesh for heavy artillery, and that rumors had circulated about an increase in radioactivity and cases of terminal cancer.

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-- A former political prisoner [Redacted] has written a book that locates 41 camps where prisoners were used for the extraction and processing of uranium ore, or for labor in institutions dealing with nuclear submarines.

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-- [Redacted] report of the Kyshtym disaster in the late 1950s--in which a large area in the Urals was badly contaminated by a nuclear weapons plant--

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[Redacted]

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[Redacted]

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concluded that prisoners serving long terms did most of the cleanup at Kyshtym in exchange for pardons and early releases (the sort of arrangement [redacted] mentioned for the work at Chernobyl'). [redacted] report notes that prisoners used at Kyshtym were referred to as "death squads" or "death brigades." (Soviet diplomats have reportedly referred recently to Chernobyl' as a "zone of death".) [redacted]

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Our best judgment is that the Soviets have used forced labor extensively in uranium mining. At least in recent years they probably have not used forced labor in nuclear weapons production because of security considerations and because skilled labor is needed. At Chernobyl', however, unskilled labor is needed for such tasks as purifying the soil and destroying forests. [redacted]

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7. While working in an open area forced laborers require constant guarding. Usually they are confined in a fenced and heavily secured work area having guard towers along the periphery--similar to that which surrounds the Chernobyl' reactor area. [redacted]

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8. There are indications that the Soviets are keeping contaminated vehicles within the 30 kilometer evacuation zone and that vehicles bringing equipment and supplies to the power plant are transloaded at the border of the 30 kilometer zone to prevent contamination. These transloading areas would be ideal places to use forced laborers; they would be located away from the main area of activity and they would provide a place for forced laborers to fulfill manual labor tasks of loading and unloading. [redacted]

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9. Considering the suitability of unskilled forced labor for many of the cleanup jobs at Chernobyl', and considering past Soviet willingness to use forced labor in hazardous work, the use of forced labor is plausible--but not confirmed. [redacted]

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10. We will continue to monitor [redacted] for any indications that forced labor is present in Chernobyl'. [redacted]

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John Douglas J. MacEachin



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TOP SECRET



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TOP SECRET [redacted]

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SUBJECT: Possible Use of Forced Labor at Chernobyl'

SOVA/DJMacEachin, [redacted] (5 June 1986)

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Distribution:

- Copy 1 - DCI
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- 3 - EXDIR
- 4 - EX Reg
- 5 - DDI (for chrono)
- 6 - DDI Reg
- 7-8 - D/SOVA
- 9-12 - DPD/SI

TOP SECRET [redacted]

[redacted] 25X1

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ROUTING AND TRANSMITTAL SLIP

Date **2 JUN 1966**

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Executive Registry	<i>[Handwritten initials]</i>	JUN 1966
2. Executive Secretary	<i>R</i>	6/6
3. DDCI	<i>RLG</i>	35
4. ES	<i>R</i>	6/3
5. <i>El (pls note file)</i>		

Action	File	Note and Return
Approval	For Clearance	For Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

2-3: Do you agree that Dick's note to Bill takes care of Bill's memo to you?
 ✓ 455
 - No (have DI draft more specific/comprehensive response)

→ **File w/ER 2424x-86**

DO NOT use this form as a RECORD of approvals, concurrences, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post) **O/DDI** Room No. **518**
 Phone No. **C-118-TR**

Executive Registry
86-2424x



Central Intelligence Agency
Office of the Deputy Director for Intelligence

2 June 1986

NOTE TO: Executive Secretary
FROM: Executive Assistant/DDI
SUBJECT: Odom's Request on Chernobyl

[Redacted]

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The attached memo and article sent to Lieutenant General Odom last week by Dick Kerr addresses the points raised in Odom's memo to the DDCI. I don't believe another response is necessary. Please let me know if this is sufficient.

[Redacted]

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Attachment:
As stated



C-118-11

SECRET
Central Intelligence Agency



Washington, D. C. 20505

29 May 1986

MEMORANDUM FOR: Lieutenant General William E. Odom, U.S. Army
Director, National Security Affairs

SUBJECT: Chernobyl Accident

[redacted] told me that you were interested in the long-term impact of Chernobyl, particularly in the economic area. I have attached an article that we prepared on this subject. In addition, there is a paper underway on the impact of the accident on the Soviet nuclear power program (that paper will take at least another month). We are also working on a short paper that will try to assess the long-term health effects of the accident. This paper depends heavily on working with a contractor to plot the area most affected by radioactivity. [redacted]

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[redacted]
Richard J. Kerr
Deputy Director for Intelligence

Attachment:
As stated

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CL BY SIGNER

Secret

USSR: Economic Impact of the Chernobyl' Accident [redacted]

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Preliminary analysis of the Chernobyl' nuclear accident indicates that direct damage to the Soviet economy will be relatively minor. Although the cost of the evacuation, decontamination, cleanup, imports of technical equipment and medical supplies, and some permanent resettlement will be large—perhaps as much as 25 billion rubles [redacted]

[redacted] direct damage to agriculture, industrial facilities, and the environment will be limited to a fairly small area. Nonetheless, the potential loss of electric power this year could put a crimp in General Secretary Gorbachev's hopes to get the new five-year plan off to a fast start in 1986. [redacted]

The Human Costs

Preliminary calculations suggest workers and firemen at the reactor site and local residents who were drawn to the area by the fire—perhaps as many as 200 to 300 persons—received potentially lethal doses of radiation. As of 21 May, the death toll was 15—13 from radiation and two from the explosion. Additional deaths among the heavily irradiated victims are expected in the next several weeks. Onlookers near the site would have inhaled considerable airborne radioactivity and may be among the hospitalized victims, who, according to Gorbachev, numbered 299 on 14 May. People within 5 kilometers (km) of the site who were exposed to the initial radioactive plume could have received substantial doses of radiation. An additional 25,000 to 30,000 persons who were exposed may have received enough radiation to show mild symptoms such as nausea, and these people will be at risk for future cancers. [redacted]

The accident also forced a large-scale relocation of many in the area. As of 13 May, Moscow acknowledged that 92,000 persons had been evacuated from

a 30-km zone around the plant. We estimate the population of this area to be 150,000 to 180,000, including the two towns of Pripjat' and Chernobyl' and the surrounding rural population. It is likely that many fled on foot—some with their livestock—before vehicles arrived. In addition to the official evacuees, thousands of persons, mostly women and children, have left Kiev and other cities outside the 30-km area. [redacted]

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It is difficult to estimate the cost of the evacuation, but assuming military units were involved, little incremental cost would accrue to the Soviets. Volunteers are housing many of the evacuees; and, if existing housing is properly decontaminated, residents could begin returning within months. The Soviets reportedly are applying a polymer to the immediate area that can later be removed, taking contamination with it. The roofs of buildings are also being coated to prevent rain from washing radioactive debris into drainage systems. It is likely that permanent relocation will be required for some of the population. Indeed, in some areas, the evacuees are already being put to work. [redacted]

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Impact on Agriculture

The initial plume of radioactivity appears to have passed over an area covered largely by forests and swamps. Not more than 15 to 25 percent of the crop and pasture land in the Chernobyl' region would have been seriously affected. Soviet data show that the region accounts for a minuscule share of total Ukrainian farm output. Damage to farming regions beyond the immediate area of the accident is likely to be minimal. Because harmful levels of contamination are localized, we do not anticipate substantial, long-term effects on international commodity supplies or trade. [redacted]

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DI IEEW' 86-021
23 Mar 1986

Secret

What Happened in Chernobyl?

Our best estimate of the cause of the accident is that the reactor power suddenly surged, producing superheated steam. A reaction between superheated steam and zirconium-alloy fuel cladding produced hydrogen gas. The gas built up until it exploded, damaging the reactor and leading to fuel melting and a fire in the graphite. The destruction of the reactor hall allowed large quantities of radioactivity to escape. The explosion reportedly knocked out the radiation alarm system, and officials at the site did not learn of the high levels of radioactivity until hours later. Two and possibly three persons were killed by the explosion, and at least 35 people at the site, including some of the firemen who responded, were exposed to lethal doses of radiation. Helicopters were used to drop sand, lead beads, clay, dolomite, and boron into the burning reactor. The fire was finally extinguished on 11-12 May. [redacted]

The livestock sector may be more seriously disrupted in the area. Indeed, we have already seen reports of livestock being slaughtered because of high radiation levels. Soviet press reports [redacted] however, indicate many livestock were evacuated along with the population. Livestock that ingested contaminated feed before being evacuated should survive if quickly switched to clean feed. Except for milking cows, radioactive isotopes not excreted by these animals would be localized in organs generally not consumed by humans, such as the thyroid, and in bones. Some pastureland beyond the evacuated area may have to be taken out of use until radiation drops to acceptable levels, putting pressure on local supplies of stored feed. [redacted]

The local dairy industry will be most seriously affected because cows consuming radioactive feed concentrate radioiodine—the main contaminant—in their milk. Cows fed contaminated feed will produce hazardous milk for several weeks after switching to clean feed. Soviet dairy authorities will have to not only monitor the milk but also assure that condemned milk does not reach black-market channels. [redacted]

Local Effects of Radiation on Agriculture

The effects on farming activities near the site are likely to be varied. Although the affected area contains very small quantities of grain and sugarbeets, winter grains planted last fall and sugarbeets that are just emerging have been exposed to radioactive particles settling on leaves. Some of this radiation will be incorporated into the plants. Lightly contaminated grain may be mixed with clean grain during milling to dilute any harmful effects, but any heavily contaminated grain will have to be collected and disposed of. Sugarbeets exposed to radiation would tend to concentrate radioactivity in their roots and will likely have to be destroyed. [redacted]

According to US experts, spring grains and vegetables can be planted in areas of light contamination because most of these crops—with the exception of sunflowers—do not absorb radiation through their roots. Danger to humans, however, could result from contaminated dust raised by machinery in fields during planting, subsequent field operations, and harvesting. Thorough monitoring and decontamination of workers, equipment, and crops in the areas adjacent to the evacuated zone will be necessary, slowing field work. Even in those areas where contamination is light, crops could suffer some losses if normal spring field operations are delayed. Workers may be kept from the fields as a safety precaution or diverted to cleanup operations. Growing seasons in the USSR are short, and harvests are frequently disrupted by the early onset of winter. [redacted]

The Chernobyl' power plant is located just north of the Kiev Reservoir, which supplies the bulk of the drinking water for the Ukraine's capital. Some radiation was undoubtedly carried to the reservoir

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by winds and by the two major rivers feeding it—the Pripyat' and the Dnepr. Fish, particularly freshwater shellfish, taken from these waters will also require monitoring for some time. The Soviets are building a 30-meter concrete wall into the ground around the complex to contain any contaminated runoff or groundwater seepage. Soviet environmental authorities, however, maintain that regular water samples are being taken from the Kiev Reservoir and that they show levels of radioactivity below established norms. [redacted]

Local Industry

An inventory of industrial facilities within the 30-km zone around the reactor reveals only a small number of civilian plants, including two concrete products plants, a machine-tool plant, perhaps 10 food-processing sites, three textile mills, and a railroad repair yard. [redacted] several of these facilities have been shut down—probably as a result of the evacuation order. How long they will be affected remains an open question, depending on the degree of contamination and how quickly the Soviets want to resume their operation. Moscow has already discussed bringing reactor units 1 and 2 at Chernobyl' back on line as quickly as possible, but local industry may not have such a high priority. [redacted]

In all likelihood, the accident disrupted—at least temporarily—electricity supplies beyond the 30-km area. All industries suffer problems in the event of brownouts or blackouts, but the largest users of energy—metals processing, cement, food processing, and chemicals—would be hardest hit from resulting damage to machinery and products in process. We have no information to date regarding specific disruptions in electric power supplies to local industry. In addition to electricity, industrial facilities depend on water for cooling and processing. If irradiated water is used in processing, some end products could be affected, particularly in the chemical and food sectors. [redacted]

Electricity Supplies

The shutdown of the four 1,000-megawatt (MW) reactors at Chernobyl' will probably have a wide range of effects. During the summer lull in electricity demand, the Soviets will be able to compensate for most of the power losses associated with Chernobyl' by using other generating capacity more intensively. Beginning in September, however, the upsurge in demand for electricity probably will eliminate most of the painless adjustment mechanisms. Moreover, we have good evidence that two reactors at Kursk identical to the damaged one at Chernobyl' may not now be operational. We cannot be certain whether these other reactors are completely shut down or are operating at reduced power levels for safety reasons. Moreover, if they are in fact shut down, it is unclear that the Chernobyl' accident was the reason. Moscow, however, probably would not disrupt the economy further by shutting down the remaining nine graphite-moderated, boiling-water reactors (RBMK) similar to those at Chernobyl' unless the cause of accident is judged to have stemmed from basic design faults. [redacted]

The confirmed shutdowns at Chernobyl' and the likely shutdowns at Kursk—assuming the latter reactors remain out of service for the remainder of the year and the power is not made up from other plants—would reduce Soviet electricity output in 1986 by about 25 billion kilowatt-hours (kWh), roughly 1.5 percent of the annual total. The impact, however, is concentrated on two power grids that would experience losses of about 10 percent. Power cuts of this magnitude, although unlikely, could seriously affect key economic activity in the Ukraine and Moscow regions. We believe the Soviets will attempt to ease the impact by drawing electricity from adjoining grids, and possibly from more distant grids in the Urals and Kazakhstan. Moscow may also request that Czechoslovakia, Bulgaria, Romania, and Poland reduce imports of electricity from the Ukraine—roughly 20 billion

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kWh was sent to these countries in 1985. Cutting exports to Eastern Europe, however, may not be a politically attractive way to ease the crunch.

[redacted]

the Soviets to at least put construction of new RBMK reactors on hold temporarily. The Soviet decision to allow placement of nuclear plants closer to populated areas to supply centralized district heating systems—including one in Kiev—could be reexamined.

[redacted]

[redacted]

The Soviets could compensate for the loss of electricity over the next several months if they forgo maintenance—normally scheduled for the summer—at power plants using fossil fuels and operate them at full winter capacities. Moscow has already reported that one generating unit at a thermal power plant in Kiev, normally held in reserve at this time of the year, is now operating at full capacity to partially compensate for the loss of Chernobyl'. Seven other power plants in the Ukraine—four hydroelectric and three thermal—are also reported to be working at full capacity.

[redacted]

Increasing output at conventional plants, however, is only a stopgap measure. Maintenance must still be performed, and if it is not finished by winter the Soviets will be hard pressed to meet the surge in electricity demand that will take place then. In any event, domestic supplies of fossil fuels will have to be supplemented with increases in domestic fuel production and possibly with imports, such as additional coal from Poland. The additional fuel required to offset the loss of the Chernobyl' reactors would amount to perhaps 150,000 barrels per day oil equivalent and half again as much if the other two reactors remain shut down. If domestic fuel oil supplies are used to generate replacement electricity for these six reactors, at the expense of exports of oil to the West, hard currency losses would amount to \$100 million per month at current prices.

[redacted]

The Chernobyl' disaster is likely to result in some setback to the USSR's nuclear power program. The Soviets currently have 28,300 MW of nuclear generating capacity, supplying some 11 percent of their electricity. Moscow's plans call for expansion of nuclear capacity to 70,000 MW by 1990, boosting the nuclear share of total electricity output to more than 20 percent. The accident may prompt

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17	D/OSWR		X		
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		SUSPENSE	5 June 1986		
			Date		

Remarks To 5: Please provide DDCI background info and a draft response.

[Signature Box]

Executive Secretary
29 May 86

Date

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DISSEMINATION CONTROL ABBREVIATIONS

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~~TOP SECRET~~



B&L

29 May 1986

MEMORANDUM FOR THE ~~DEPUTY~~ DIRECTOR OF CENTRAL INTELLIGENCE

SUBJECT: Implications of Chernobyl [redacted]

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During my recent trip to Europe [redacted]

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I

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discovered that they are already working on the implications of the Chernobyl incident for the Soviet economy. Perhaps we are doing the same, but I thought I might raise the issue in the event that we are not yet addressing it.

[redacted] it would be useful to have an idea of methodology for such an analysis. It is a unique analytical task and will require an innovative analytical scheme. The following points strike me as relevant to such a scheme:

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- consequences for electrical power output;
- implications for agricultural production;
- implications of labor displacement;
- implications for export of Soviet agricultural products;
- Soviet agricultural export reactions; and,
- Soviet requirements for western technology/assistance in repair of other nuclear power plants.

Two other related studies may also be appropriate. First, what are the political implications? Both

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elite factional politics and broader party cadre issues are apparently significantly affected. The foreign policy implications are an additional dimension. Second, there may be some military implications. Improvements in civil defense, military district administrative arrangements, and diversion of military manpower come to mind.

If you would like, we can discuss in further elaboration.



WILLIAM E. ODOM
Lieutenant General, USA



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Central Intelligence Agency
Washington, D.C. 20505

Executive Secretariat

S/W

DAI

Dick -

I thought you might
be interested in the attached.



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ER
pls make cc: ~~DDCI~~

—————>

+ 1 for me (I want
to send to DSI)

done
20 MAY 1986
gal

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WASHINGTON TIMES
1 May 1986

CATASTROPHE AT CHERNOBYL

U.S. spy satellites didn't detect Soviet reactor meltdown

By Bill Gertz
THE WASHINGTON TIMES

Multibillion-dollar technical spy satellite systems of U.S. intelligence agencies failed to detect a Soviet nuclear reactor meltdown that was only revealed after airborne radioactive particles triggered an alarm in Sweden, U.S. officials and intelligence experts said yesterday.

"Our intelligence allows us to look at things we already know are interesting," Stanford University intelligence expert Angelo Codevilla said. "But anyone who says we have the world under surveillance is talking through his hat."

He added that "we have the capability to focus a camera or an antenna on any given spot in the world at least once a day" but U.S. intelligence is unable to maintain blanket coverage of the world.

Electronic intelligence specialist James Bamford, author of an au-

thoritative book on the National Security Agency, said U.S. intelligence could only have been warned that something had happened in the Ukraine by monitoring the level of radio communications in the region following the accident, which began last Friday.

"Our monitoring and sensing equipment isn't designed to discover accidents in nuclear reactors," Mr. Bamford said. "Nuclear detection capabilities are primarily designed to determine when and where there is a nuclear explosion."

Reconnaissance satellites can detect nuclear flashes and seismic monitors can pick up earth vibrations from nuclear blasts, he said, but only aircraft sensors targeted on a particular area could have detected the radioactive fallout from Chernobyl.

"The only way they might have known is that there would have been a huge increase in high-level, and

possibly classified, communications going between various points," Mr. Bamford said. "That could have given the intelligence community some early warning."

Mr. Bamford said the United States now has only one "Big Bird" close surveillance photosatellite capable of spotting an accident such as the Chernobyl plant, since a second satellite planned for orbit may have blown up with a Titan II rocket in California last week.

Senate Intelligence Committee member Chic Hecht, Nevada Republican, who was briefed several times yesterday by U.S. officials on the disaster, said the first details of the nuclear fire came from a Swedish nuclear engineer.

"We did not know about it, and we found out about it from Sweden," Mr. Hecht said in an interview.

A nuclear engineer first detected abnormally high levels of radiation at a nuclear facility in Sweden, evac-

uated plant employees and then ordered them back inside the plant when it was discovered the radiation had come from outside the country, he said.

"I did see a [intelligence] photograph of the site" showing that the roof of the reactor building had been blown off, Mr. Hecht said. He said it was "too early" in the ongoing disaster for U.S. officials to determine the long-range environmental effect of the radiation exposure on the region.

A State Department Soviet expert, speaking anonymously, said the Swedes provided the first clue to the disaster.

"This is not a case of a nuclear explosion where you would pick up other kinds of indicators," the officials said. The Soviets maintain dozens of nuclear reactors spread out in rural areas, the official said, "but these are not military targets" for intelligence collection.

Mr. Codevilla, who served as a

professional staff member of the Senate Intelligence Committee for eight years, said "it would have been a startling surprise if we knew about it" shortly after the accident occurred because U.S. intelligence agencies do not maintain "broad area surveillance programs."

"In fact, if the wind had been blowing in the direction that it customarily blows, we wouldn't have known about it," he said. "If the wind had been blowing eastward, we might have picked up two weeks from now a little bit of extra radiation in Alaska"

Only rumors about the disaster would have filtered out of Kiev, the Ukrainian capital, to other parts of the world because of the tight Soviet controls on information, he said.

U.S. photographic satellites, once focused on the disaster site, would be able to provide high-resolution photographs of the area, he said.

A commercial photograph taken Tuesday afternoon by an orbiting satellite owned by the Earth Observation Satellite Company reveals smoke coming from the Chernobyl facility believed to be the result of the ongoing radiation fire.

Senate Intelligence Committee spokesman Dave Holliday said yesterday that the committee has been briefed by U.S. intelligence agencies on Chernobyl but that, "I don't know that we know a lot more than is in the public domain right now."

Asked if U.S. intelligence was taken by surprise by the nuclear crisis, Mr. Holliday said, "We have not looked into the question of what did we know and when did we know it."

"We may ask that at some point, but we haven't done it yet," he said.

CIA spokesman Kathy Pherson declined to comment on U.S. collection efforts, saying, "That's something we can't comment about in any way, shape or form."

FIRE IN REACTOR MAY BE OUT, NEW U.S. PICTURES INDICATE, SOVIET SAYS FALLOUT IS CUT

STAT
Page 1 of 2
Attachment 2 to:

By **BERNARD GWERTZMAN**

Special to The New York Times

WASHINGTON, May 1 — The United States said today that the Soviet Union might have smothered the fire that raged for the last five days at a nuclear reactor in the Ukraine.

In addition, a French communications satellite took pictures today that suggested the fire might have been smothered, a report from Sweden said.

The accident at the Chernobyl reactor, 70 miles north of Kiev, spewed radioactive material into the atmosphere that has drifted into many European countries.

Only a day after it predicted that the severely damaged reactor might continue to burn for weeks, an American interagency panel said this afternoon that the latest Air Force reconnaissance photos made it "plausible" that the Soviet Union had put out the fire, as Moscow contended Wednesday afternoon that it had done. But the group said it lacked definitive evidence to make a firm conclusion.

Helicopters Sighted at Plant

American officials said special Soviet civil-defense forces, in helicopters, had been observed dropping material, believed to be wet sand, over the fire into the graphite that encased the nuclear fuel rods in the reactor.

The task force members also said they could not confirm speculation that there was damage to a second reactor at the Chernobyl plant. They said a possible "hot spot" close to the burned reactor was not another reactor but some other industrial building. There are four reactors at Chernobyl.

The American interagency panel and European nations said the air mass carrying radioactive particles was now widely dispersed throughout northern Europe and Polar regions and should begin to move east over the next week.

There were these developments:

¶The Soviet Government said decontamination teams were cleaning up the area around Chernobyl, where it said 2 people were killed and 197 were hospitalized, of whom 18 were listed today as in serious condition. It said the amount of radiation near the power station had declined.

NO FIRM ANSWERS

American Officials Think Copters Are Dropping Wet Sand on Plant

¶Moscow turned down an offer by President Reagan to supply assistance, but it invited Dr. Robert Gale, chairman of the International Bone Marrow Transplant Registry, to fly to the Soviet Union to provide medical assistance to the victims of the disaster. Bone-marrow transplant is used to help victims of severe radiation sickness. The Russians have also solicited similar non-governmental assistance in Europe, while declining direct government offers.

¶In a highly unusual move, a Soviet diplomat appeared before a House committee looking into the affair. The diplomat said that the consequences of the accident were not over and that people both inside and outside the Soviet Union still faced danger.

The Soviet Government, facing worldwide criticism for the paucity and delay in the information it has made available, made undertook a major effort to persuade other govern-

Reactor Fire May Be Out, U.S. Photos Show

Continued From Page 1

ments that the situation was under control and that steps were being taken to clear up the area near the reactor. A violent explosion apparently occurred at the reactor last Saturday, but became known to the outside world only last Monday.

There continued to be uncertainty about the number of casualties involved in the blast and the subsequent fire and radioactive dispersion. Secretary of State George P. Shultz, without citing exact figures, said in Indonesia that the United States believed the casualty total exceeded the official Soviet figures "by a good measure." But the American interagency panel maintained that it still had no firm numbers to cite in contradiction to those announced by Moscow.

'A Huge Problem'

When asked if the Soviet Union now had the situation under control, a member of the American interagency panel indicated that the problem was far from over.

"Radiation is no doubt deposited on the ground, people have been exposed," the member, Harold Denton, said. "They have a huge problem in regard to cleanup."

Lee M. Thomas, administrator of the Environmental Protection Agency, who heads the panel, said, "To us, it is a major accident, probably and possibly the most major accident at a nuclear facility that has occurred."

"It is a significant cause for concern," he said.

On Wednesday, Mr. Denton, director of the office of reactor regulation in the Nuclear Regulatory Commission and a member of the panel, said the fire in the damaged reactor, known as unit four, was likely to burn for weeks unless it was put out. He said then that it would be difficult to extinguish.

This morning, Mr. Thomas said on television that the fire was continuing to burn, although the amount of radioactive material emitted would grow progressively smaller as the fire continued.

But according to several Administration officials, when the interagency panel met with intelligence officials later this morning to examine the latest reconnaissance photos, a debate



The New York Times

ASKED TO HELP: Dr. Robert Gale of the University of California, chairman of the International Bone Marrow Transplant Registry, has been invited to the Soviet Union to provide medical assistance to radiation victims.

ensued as to whether there still was a fire burning.

Photos taken Wednesday, officials said, clearly showed white smoke coming from the damaged reactor. The photos taken today lacked such smoke, they said, but instead had a kind of haze over the area, which some analysts believed might be smoke and others said was not.

This new intelligence led to a re-evaluation of what the United States had been saying, one official said. "It could be that the Soviet Union has actually put it out," an official said.

Charles E. Redman, a State Department spokesman, said that "concerning the fire, the best we have is that we have seen reports that the fire is out."

"We, of course, hope that that's true," he said, "but we can't confirm that independently as yet. I can't confirm that the fire is out, so conversely,

neither could I confirm that it's still burning."

If, in fact, it turns out that the fire has been smothered, it will somewhat enhance Soviet credibility. Daily, brief reports from Moscow have been greeted throughout the week with deep skepticism.

Shultz Faults Soviet

This morning, speaking with reporters in Indonesia, where he is accompanying President Reagan, Mr. Shultz castigated the Soviet Union for failing to meet its obligations by providing "full and prompt information" to other nations that might be contaminated from the Chernobyl accident.

"I think by this time we have a much fuller picture than the Soviets are presenting to us," Mr. Shultz said, "or, for that matter, to their own people."

He declined to estimate the number of casualties, except to say that the number exceeded the total announced by the Russians "by a good measure."

Much of the concern on Wednesday was whether another "hot spot" seen on satellite photos of the Chernobyl plant was that of the adjacent reactor, unit three. If it had exploded in a way similar to unit four, it would have led to more radioactive material being spewed into the atmosphere.

Mr. Denton said today that "the data we have today continue to support the view that unit three is not involved in this event."

State Dept. Cautions on Travel

The interagency panel noted that the State Department had recommended against traveling to the Kiev area, but had decided not to advise against travel to the Soviet Union, Scandinavia and Eastern Europe, the areas hit hardest by the release of radiation materials.

But the department urged caution. "Americans planning travel to the Soviet Union and adjacent countries," the department said, "should carefully monitor press reports on this rapidly changing situation to make as fully informed a decision as possible with respect to their travel plans. They should bear in mind that many of these countries have reported increased levels of radiation in the environment."

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FOR PUBLIC AFFAIRS STAFF

PROGRAM This Week with David Brinkley STATION WJLA TV
ABC Network

DATE May 4, 1986 11:30 AM CITY Washington, DC

SUBJECT Secretary of State Shultz/Reps. Markey and Young

DAVID BRINKLEY: Coming next, the Secretary of State, George Shultz, from Tokyo in an interview done last night. And shortly, two Members of Congress, holding differing views on the virtues and dangers of nuclear power plants. In a moment.

* * *

BRINKLEY: Mr. Secretary, in Tokyo, thank you very much for coming in today, pleased to have you with us.

SECRETARY OF STATE GEORGE SHULTZ: Thank you.

BRINKLEY: Here with us in Washington is George Will, of ABC News, and there in Tokyo, as you see, Sam Donaldson, ABC News White House correspondent.

Mr. Secretary, the President is saying that the explosion in the Soviet Union was hardly an internal matter, since the fallout has floated over several countries -- has demanded more information about it. Has there been any response?

SECRETARY SHULTZ: No.

BRINKLEY: Do you expect any?

SECRETARY SHULTZ: Of course.

BRINKLEY: All right.

George.

GEORGE WILL: Mr. Secretary, you said you would bet the press corps \$10 that there were more than two people killed by that. Brinkley and I have authorized Sam Donaldson to give you all the money in his wallet if you can tell us more, and tell us how you know more about this.

SECRETARY SHULTZ: It may be that at some point in time there were only two people killed. But we have photographs, we have other kinds of information coming in from the area. And we know that the radiation levels and the heat in the vicinity of the plant, and still are, for that matter, intense.

From the pictures you can see that as they realized what was happening they must have had on the one hand evacuation of people, and on the other hand, people who stayed and tried to cope with what was going on and get control of it.

SECRETARY SHULTZ: And among the reasons why you can see emergency equipment, like fire engines, and so forth and you can see that they're still where they were parked.

Now, if you went some place to do an emergency operation and you decided you had to get away in a hurry, I suppose you would grab the truck you came in and drive it as fast as you could go -- but it's still there. So I think there's a certain amount of inference that comes from that.

WILL: Mr. Secretary, after the Korean airliner was shot down, the Soviet Union spent five days denying that it happened and then started lying about it. They seem to have gone into that same pattern here. What conclusions should the American people draw, specifically with regard to arms control negotiations, about dealing with a regime that has this character as it's shown again this week?

SECRETARY SHULTZ: Well, first they haven't denied that it took place; they could hardly do so because the pictures are there and the radioactive substance is being measured elsewhere.

They haven't been forthcoming with information.

I think the implications are no different than what we have known all along. We know they're a closed society, and we know that it's important in any arms control agreement, for example, to have as good a means of verification as you can get, and try to build in the consideration of compliance as distinct from verification.

SAM DONALDSON: Mr. Secretary, aside from the casualty figure and whether or not it was two or 20, or what number, have we not tried to hype the situation from the standpoint of beating

the Soviets over the head? And you've even suggested just now, once again, that while they may not have lied about it, it was simply because they had no choice.

SECRETARY SHULTZ: We haven't been trying to beat them over the head. We have, first of all, expressed sympathy, and continue to. Second of all, offered to be helpful if we could. And third, said that since the citizens of other countries, including our own people, who are in the vicinity or in neighboring countries, have their health endangered, we want to know what's going on, so that we can take steps to protect our people. And I don't see that that's -- I think that's what we should be doing.

DONALDSON: Well, now, the radiation levels reported from western Europe and from Poland just a few hours ago suggest that there has really been no threat to humanity, no threat to health, at least so far. Do you have any information that contradicts that?

SECRETARY SHULTZ: The radiation levels measured have been announced, and all sorts of precautions are being taken.

I think when something like this happens, you should observe and then you should err on the side of safety; and that's what is being done, and I think it's proper to do.

DONALDSON: You're suggesting that here in Tokyo the summit leaders may agree on some way to strengthen the reporting of cross-boundary incidents. What do you have in mind?

SECRETARY SHULTZ: Well, the International Atomic Energy Agency has considered the question of cross-border flows of radioactive material. And I think that -- and theirs are just voluntary and there's a loose procedure surrounding it; and perhaps it would be well to tighten that up and to do more.

DONALDSON: Are you suggesting through that agency, or international treaties among governments?

SECRETARY SHULTZ: Well, that agency is an international treaty among governments, and it's one of the most extensive in existence. And I might say it's been broadly very successful.

DONALDSON: Yes, but how do you want it strengthened, though? I'm not quite clear.

SECRETARY SHULTZ: You might write in and have everyone agree to certain standards and procedures in the event that there is an accident.

DONALDSON: What are the chances the Soviets would agree?

SECRETARY SHULTZ: I don't know exactly what, but that's the general idea.

DONALDSON: What are the chances the Soviets would agree?

SECRETARY SHULTZ: We shouldn't always judge whether we should do something by whether or not they'll agree. Maybe they will agree. They agreed to inspection of power plants.

WILL: Mr. Secretary, you said a moment ago that this again dramatizes the closed nature of the Soviet society, and hence, the importance of having verifiable agreements with them, and national technical means of verification of arms control agreements with them. Given the fact that NASA has now suffered yet another setback in its attempt to launch a space vehicle, are we reaching a point where the decline in the execution of its mission by NASA is jeopardizing our national security, specifically with regard to the verification of arms control compliance?

SECRETARY SHULTZ: It's a problem, but it hasn't reached that point. And I think that the -- it emphasizes on the one hand the importance of the space program, and the need to build redundancy into the system.

BRINKLEY: If I may interrupt here briefly. We'll be back with more questions for Secretary Shultz in a moment.

* * *

BRINKLEY: Mr. Secretary, we're back.

We got a report here in our newsroom a short time ago from Poland, some official, whose name I do not know, saying that their views was that children and women of childbearing age should not come to Poland because of the danger from radioactive fallout. Now, my question is, do you foresee this will cause problems for the Soviet Union with its client states -- satellite states?

SECRETARY SHULTZ: It's interesting that Poland has treated this in a sharply different way than the Soviet Union has. Poland has kept people informed of all the information they've had, they have issued warnings about drinking milk; they've issued the kind of statement or caution that you just referred to. So I think it's an interesting fact that they've reacted in a different way.

DONALDSON: Here at the summit, terrorism, I guess is supposed to be the big issue. Will it still be, or will this nuclear accident overshadow it?

SECRETARY SHULTZ: Oh, of course, this is an economic summit, and there are very important economic matters to be discussed, some great opportunities around the world, and a generally good economic environment, so that's going to be the centerpiece in this summit. Terrorism, however, is a very important topic. And we and others certainly intend to talk about it thoroughly, and I expect that out of it will come some positive results.

DONALDSON: All right.

Do you expect that there will be a statement, a political statement, in which terrorism is not only mentioned, but I assume condemned, and do you expect Libya to be condemned by name?

SECRETARY SHULTZ: I feel confident there will be a statement of some kind about terrorism. And at the same time, my own view --I know the President's view is that it's important to say these things. But more important is what we do, what do countries do when they go home and confront possible actions that can be taken.

DONALDSON: What about Libya and others? Do you expect Libya to be specifically named in the statement? Do you want it to be named?

SECRETARY SHULTZ: I don't know whether it will be named in the statement or not. But I think by this time, whether it's named or not, there's no argument anywhere about Libyan culpability and terrorism.

WILL: Mr. Secretary, the Italians, who have a large economic stake in Libya, have now indicated a willingness to go along with very substantial economic sanctions against Libya. A/ is that enough and B/ are they doing that in an attempt to head off the Americans from doing something that they disagree with, that is the use of force again?

SECRETARY SHULTZ: The Italians have a good record of fighting terrorism. They've done a good job of it. And in so far as their relations with Libya are concerned, of course, it's been very extensive.

But I gather that whereas, let's say a little over a year ago there were some 18,000 Italians in Libya, now there are only about 3,000, so they have been decreasing.

I think steps of this kind that Italy and other governments are in the process of taking, isolate Libya diplomatically and economically, and that's good. And it's going to cause concerns inside Libya, and we have indications that is continuing to be the case.

WILL: Mr. Secretary, when some people in the American government began to leak to the press shortly after the raids that we had hoped to kill Qadaffi in those raids, you said that was not our aim, but if he had been killed it would have been -- I believe I've got your words right -- all to the good.

SECRETARY SHULTZ: I didn't say that. You've got my words wrong.

WILL: Okay, well, I'd like to clarify. Go ahead.

SECRETARY SHULTZ: First of all, there was no plan or effort to go after Qaddafi personally, and at least one potential target, namely, his tent, was explicitly not targeted.

That statement that you quoted was wrong. As far as I'm concerned, what I said was that if we had a change of government, a coup of some kind, so that we could expect that Libyan behavior would be different, I'd be all for that. And I repeat that right now.

WILL: Well, that's really what I want to clarify, and I guess you've answered it, and it is this: the United States not only was out to get him, but took pains not to -- took some care not to, to minimize the chance that he himself would be killed.

DONALDSON: But if Qadaffi's government fails, in the sense that he no longer has the power, is that necessarily a terrific thing for us, particularly if those who succeed him go closer to the Soviet Union?

SECRETARY SHULTZ: Of course it makes a difference what follows on, and you never know for sure.

On the other hand, I think we have some indications that a successor government, if one emerges, would be different. For one thing, a successful government has to face the fact that Qadaffi now has the Libyan economy and society in a shambles, and they're going to have to do something about that.

DONALDSON: Mr. Secretary, the other day when the President suggested that he might order a strike against Syria or Iran, or any other state that can be shown to have sponsored a direct terrorist attack, you tried to soften those remarks. At least that's the interpretation. Are we in fact pulling back from the idea that we would strike Damascus?

SECRETARY SHULTZ: The President had some words put in his mouth by a question, and did not mean to say that we had a plan for attacking Syria or Iran. And I pointed that out.

However, insofar as the fight against terrorism is concerned, we have to be ready to use all the available means we have to fight it. And we have to have present in our toolbag the possibility of military action. And the fact that we did take action againsts Libya shows that the tool is in the bag, and it's important that everybody know it.

DONALDSON: Yes, but you were asked repeatedly why, if we do this against Libya why we don't do it against Syria.

SECRETARY SHULTZ: When we get ready to do something we'll do it.

WILL: Mr.Secretary...

DONALDSON: In other words, we might do it against Syria, against Damascus?

SECRETARY SHULTZ: I'm not going to get involved in speculation about the use of military force, except to say that it's a good thing that everybody now sees that there are some circumstances when the U.S. will act.

I think this fight against terrorism is very important, and we do have to focus on what it takes to win, and we have to recognize we can win. And the main things it takes is unity and purposefulness and a recognition that the answer to the fear that terrorists try to spread is courage to confront that and take the actions necessary to stamp it out.

WILL: Mr.Secretary, you've pleased the allies with whom you're meeting by saying that although we think the SALT II treaty is fatally flawed, and is being comprehensively violated by the Soviet Union we will continue to agree to comply with it almost unilaterally. Why is it not fair for the Soviet government to conclude that we are so in the thrall of our allies on arms control that we simply cannot get out of a treaty, even though they are violating it?

SECRETARY SHULTZ: Well, first of all, the President hasn't made any decision that I know of, and what he has done is put forward some ideas that our allies have heard and have reflected on, and we've also had some discussion with Members of Congress and the President is now considering what position he should take.

BRINKLEY: Mr. Secretary, thank you.

Thanks very much for being with us today. It's been a pleasure to have you with us and hear your views.

SECRETARY SHULTZ: Thank you.

BRINKLEY: Coming next, Representative Edward J. Markey, Democrat Massachusetts, Chairman of the House Energy Subcommittee, and Representative Don Young, Republican, Alaska, of the House Interior Committee, in a moment.

* * *

BRINKLEY: Mr. Markey, Mr. Young, thanks for coming in today. A pleasure to have you here with us.

Now, after the explosion in the Soviet Union, a number of environmental and anti-nuclear groups, the Audobon Society, the Sierra Club, the Concerned Scientists, and so on, said that we in this country are exposed to the same possibility of the same danger, and they recommended that our nuclear program be tapered off and ultimately to disappear. What are your thoughts on that? Mr. Markey?

REPRESENTATIVE MARKEY: Well, there hasn't been a new nuclear power plant ordered in the United States since 1978. That's before Three Mile Island. So to a large extent Wall Street and Main Street has already rendered its verdict on economic and safety grounds on this technology.

I think that in the light of Chernobyl those concerns have been reinforced and I think now there is a tremendously high burden on the nuclear industry that they're going to have to overcome in guaranteeing to the public that they can make these plants safe and economical. And I think in the present climate that's going to be a very high burden, in fact, for them to meet.

BRINKLEY: Mr. Young?

REPRESENTATIVE YOUNG: Nonsense. That's nonsense.

The need for nuclear power is still here as it was in the past, more so in the future. And it's a funny thing when you mention those that call for the demise of nuclear power are the same ones that are against gas and oil development, hydropower, all other sources of energy, and energy is the secret to America's prosperity and its future growth.

WILL: Mr., Markey, policy has to deal with not just possibilities but probabilities.

Now, when we were developing new technologies for bridges, dams, airplanes, cars, trains -- lots and lots of casualties. Yet in the United States I can't think of any new technology with a safety record as remarkably good as that of the domestic nuclear power industry. Wouldn't you admit that?

REP. MARKEY: Well, the problem is that in the minds of the public it's an inherently dangerous technology. They look at Three Mile Island and at Chernobyl and they get concerned, because this is an accident that will be ongoing for 30 years. There will be thyroid cancers, leukemias, bone marrow cancers, and so the public is afraid. They're fearful of nuclear power and nuclear weapons. And the only way in which you can make them in fact believe that this technology is safe is if you, rather than undermining the public participation in safety devices, which is what this Administration has been advancing, is to, in fact, reverse that and to strengthen public participation and the concern for safety in these plants.

REP. YOUNG: I can suggest one thing, George, your comment [?] is the safest energy we have. There's been more people hurt by dams, more people hurt by mines, every other source of power that we have, people have been in the long run hurt over a period of time. But there has been no one, to my knowledge has died from nuclear power.

We have 115 plants in the United States; they have a tremendous safety record, they provide us with 15 percent of our power need today. And we are continuing each time to improve the plants that we have in place.

And as the gentleman from Massachusetts said, we haven't ordered any plants in ten years, primarily because of Congressional action, and primarily because of people like Mr. Markey that do not want an energy source available to the general public.

Now, I cannot understand, Ed, when you sit in that committee with me and talk about no more drilling off shore, you have never supported any other alternate sources of energy, and yet you stand there and sit here and say we have to eliminate nuclear power. Where are we going to get our power? Russia has the most advanced nuclear program today as far as acquiring the necessary megawatts that are necessary. We have 170 billion -- or they have 170 billion megawatts produced today through nuclear power.

REP. MARKEY: This issue is a straw man issue, the pro-nuclear/anti-nuclear issue.

BRINKLEY: What's the issue?

REP. MARKEY: Well, the issue really is whether or not this industry is willing to restore public confidence to the extent that they're willing to invest in the technology. That's all it is. And right now...

REP. YOUNG: How can -- excuse me...

REP. MARKEY: Just let me make my point and then I'll be more than willing to listen to you. The point is this...

REP. YOUNG: It would be the first time.

REP. MARKEY: ...is that the issue comes down to an industry which has a mindset that accidents can't happen. Boiling water, which is potentially so dangerous that the public wants extra security built into it -- and so here's the point: the nuclear industry right now is pressing for legislation which reduces public participation, which puts caps on the amount of liability of the industry in the event of an accident, which restricts in the Sunshine Act the right of the public...

REP. YOUNG: That's not true. That's not true...

REP. MARKEY: Excuse me, let me finish.

REP. YOUNG: That's the straw dog right there. That's not true. You know that Price/Anderson does not do that.

REP. MARKEY: I have a right to finish, please...

REP. YOUNG: Well, finish.

REP. MARKEY: ...to restrict the right of the public and the press into the secret gatherings of the Nuclear Regulatory Commission. And I can guarantee you that that is going to, in fact, result in just the opposite result of what the nuclear industry is seeking to achieve.

REP. YOUNG: The fact of the matter, the Price/Anderson renewal, which we're working on right now, increases the liability of the industry. And again, they have never had the opportunity to have it kicked in as far as the liability to the general public, and we have lost, we have no harm and in fact, Three Mile Island has not done what you said it did.

BRINKLEY: Let me ask a question that is of somewhat long range, but it's curious. Some of us around in the Eisenhower years when Secretary of Commerce Louis Strauss was discussing the possibility of nuclear power, saying that it was going to be so cheap we would not even need meters. What happened?

REP. MARKEY: Well, what happened was that...

REP. YOUNG: My turn Ed. My turn, Ed. You had your time. Let me -- this is a fair -- equal...

BRINKLEY: Well, I want an answer from both of you. Let Mr. Young go first.

REP. YOUNG: Two things happened. Number one, we had cheaper sources of power. We had the Mideast oil, we had a lot of power developed within our own United States. We have not done that. We have come to a power standstill. We're not producing the necessary megawatts we must have. And along the road the nuclear program -- as I mentioned, we had 15 plants -- 15 percent of our power today comes from nuclear plants. We have come to the point where the public has been misled, and I believe actually through hysteria, that this is the most dangerous of all power sources. It's very difficult to get the permits necessary now to build a nuclear plant. We're trying to unify -- we're trying to unify the system today, which was opposed by the gentleman on my right. And I would suggest, respectfully, that is where the problem lies. It is a very expensive proposition now to produce the power.

BRINKLEY: Mr. Markey, I'll give you the last word before the time runs out.

REP. MARKEY: The public was told in the 1950s that it would be too cheap to meter, that it would be safe and that it would be economical.

What we've learned over the course of the last 25 years, from Three Mile Island to Chernobyl, is that accidents can happen and do happen.

The point is that the public doesn't trust the experts anymore. And as a result they want more and more guarantees of public safety devices built into these plants. And with it we've seen a corresponding rise in price. And nuclear power has, as a result, become much more competitive with alternative energy sources which Wall Street decided to invest in.

BRINKLEY: Mr. Markey and Mr. Young, thanks very much. Glad you came in today. Enjoyed hearing your thoughts.

SECRET [redacted]

25X1

The Director of Central Intelligence
Washington, D.C. 20505

National Intelligence Council

NIC #02386-86
14 May 1986

MEMORANDUM FOR: Director of Central Intelligence
Deputy Director of Central Intelligence

FROM: [redacted]
Acting NIO for Economics

25X1

SUBJECT: Economic Costs of the Chernobyl Incident

1. I believe many analysts are overestimating the economic costs of the Chernobyl accident to the USSR. [redacted] Attachments A [redacted] imply the costs will be high indeed. I think Moscow can contain the economic costs to well under \$10 billion, keeping them within the limits of a very significant, but hardly catastrophic, natural disaster.

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25X1

2. According to the analysts in SOVA, loss of grain, livestock, and farmland will be minimal. As for other costs, it is only possible, of course, to make order of magnitude estimates at this point.

- Assuming the permanent relocation of 10,000 families in the area at \$20,000 each, the cost would be \$2 billion plus, say, \$500 million for temporary relocation of others in a wider, 30 kilometer, area. (We have reports that those relocated are already being put to work.)
- The loss of the four reactors amounts to perhaps \$4 billion in capital costs. It is possible, however, that in time reactors 1 and 2 could be returned to service, depending on the levels of radiation in the immediate area and estimates of cleanup costs relative to new construction.
- Cleanup costs, including covering radioactive earth, plus loss of farmland, livestock, etc., could total another \$1 billion or so assuming the Soviets do not apply strict Western standards to contamination of meat and dairy products.

SECRET [redacted]

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SECRET [REDACTED]

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In addition to these capital costs, loss of the four reactors represents an annual loss of power equal to 100,000 b/d oil worth about \$550 million per year. It is impossible at this point to gauge longer term costs such as delays in the power program, increased costs to improve reactor design., etc.

3. In the attached article (Attachment C) Goldman argues that the accident is a major blow to Gorbachev's effort at economic reform. I think it is more appropriately viewed as an indication of the lack of maneuvering room Gorbachev has to meet any single major economic emergency including major crop failures--let alone back-to-back problems such as the Chernobyl accident followed by a crop failure. He cannot, I believe, afford to shut down all reactors of similar design for an extended period owing to the cost of fossil fueled replacement power. Similarly, the grid cannot accommodate such losses; the system experienced periodic brownouts even before the accident.

4. As an aside, I would like to know what the power production targets were for these four reactors, whether these targets were raised under Gorbachev, and whether our people think the rate of capacity utilization allowed time for proper maintenance.

5. SOVA has drafted an article on the economic impact of Chernobyl on the USSR; EURA is doing an article on the costs to Eastern Europe. This memorandum was reviewed by SOVA.

[REDACTED] 25X1

Attachments:

- A. Chernobyl's Impact on Foreign Trade

[REDACTED]

25X1

- C. "A Threat to Soviet Economic Reform," The New York Times
4 May 86

- D. "The Worst Effects Will Emerge Slowly," The New York Times,
4 May 86

SECRET [REDACTED]

25X1

ConfidentialAttachment AChernobyl's Impact on Foreign Trade

There have been a lot of rumors but few hard facts of any direct impact on foreign trade:

- Should oil be needed as feedstock for power plants to replace the power lost from Chernobyl then foregone oil earnings are approximately \$550 million for every 100,000 b/d at \$15 per barrel.
- There have been many rumors of increased grain purchases but, again, few hard facts. Indeed, given current hc constraints and some statements about cutting back imports sharply, especially for consumer goods, the Soviets may forgo any food imports to to replace losses, particularly if there not significant.
- There may some minor hc outlays to fight the disaster such as the purchase of West German robots, or the payment to medical specialists.
- There has been some speculation in the West German press about farmers bringing a suit against the Soviet Union to recover damages--the amount mentioned was \$500 million. This may lead nowhere.
- Western bankers may use this accident as one more reason to up the price of borrowing by the Soviets. So far they had kept rates low despite the poor oil market, but this may change their minds.

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THE GRIM TOLL OF CHERNOBYL

Attachment C

A Threat to Soviet Economic Reform

By MARSHALL I. GOLDMAN

WHILE there obviously is never a good time for a nuclear meltdown, the Chernobyl disaster comes at a particularly awkward moment for the Soviet economy. It may well abort Mikhail S. Gorbachev's ambitious effort to turn the Soviet economy around.

Before Chernobyl, Mr. Gorbachev's efforts to discipline and motivate the Soviet work force were beginning to bear fruit. According to official Soviet data, in the first three months of 1986, industrial production rose 6.7 percent and labor productivity 6.3 percent over the comparable period in 1985.

Even oil production was increasing again. Since Mr. Gorbachev made a personal tour of the west Siberian oil fields last year, fired several officials and criticized many more, production — which at one point was down by 4 percent on a monthly basis — has rebounded to a 2 percent growth rate, compared with the same month a year before. Equally impressive, steel production increased by 10 percent in the first quarter of 1986, compared with a year earlier, something not seen for a decade or more.

Building on this momentum, Mr. Gorbachev seemed to be preparing to bring high technology and better services to the Soviet Union so that it would be competitive with the United States not only in military strength but in economic sophistication. Given the resistance to previous attempts at reform, this may have been an unattainable dream. But to make any inroads, Mr. Gorbachev realized he would have to establish his credibility as a manager and leader, and he seemed to be doing just that — until Chernobyl.

The accident jeopardizes not only his credibility, but also the economic momentum he has generated. There is no way that Mr. Gorbachev could have escaped at least some criticism for Chernobyl, but the inept, if not unconscionable, way the Soviet people have been kept in the dark about the potential dangers has turned a bad situation into one with unusually serious and enduring consequences.

The first economic casualty, then, is the sense that the Soviet Union had finally found itself a leader who would provide his people with the openness and respect they have so long been denied. As the editors of *Sovietskaya Rossiya*, a Moscow newspaper, said in January, "In the interests of truth and of speaking openly with people on all vital questions, our information must be up-to-date, accurate and complete." For Mr. Gorbachev, Chernobyl fails on all three accounts.

The second casualty is the Soviet energy industry. At a minimum, Chernobyl's four generating units, with a total capacity of 4,000 megawatts, will be out of commission for the foreseeable future. Even though the units account for almost one-half of the Ukraine's electrical capacity, nuclear-generation provides only 11 percent of the Soviet Union's total electric energy. So the loss of Chernobyl is not irreplaceable, particularly now that the weather is warmer and the days sunnier. Yet, in a country long accustomed to brownouts, any loss of capacity hurts.

Moreover, the accident will slow the Soviet's nuclear drive, requiring the diversion for electricity generation of more natural gas, coal and possibly some petroleum that otherwise could be set aside for hard-currency exports. Fortunately for Mr. Gorbachev, oil production is increasing again, but that increase will not compensate for the fall in world oil prices, all the more so if more energy must be kept for home consumption.

The last thing the Soviets need is a further crimp in their hard-currency earning abilities — Soviet foreign debt will increase by over \$5 billion this year because of falling oil prices. The recent shift in the winds to the south and the east from Chernobyl is putting many important Soviet crops in the country's rich black-soil zone at risk. Assuming Soviet leaders do the right thing (which at this point is not all that certain), they will destroy some of these crops, which will necessitate increased imports. For a nation that imported \$7 billion of grain in 1984, any further loss is unwelcome, though by no means devastating.

None of these setbacks is insurmountable. The more important consequence of Chernobyl may be the dashing of Mr. Gorbachev's hopes for reforms, innovation and inspired leadership. ■

The Worst Effects Will Emerge Slowly

By HERBERT L. ABRAMS

THE history of the 20th century is a confirmation of the wisdom that the impossible is always possible. Whether in the destruction of Challenger or in the meltdown at Chernobyl, the seeds of disaster were planted long before the event, and the repercussions will be felt long after.

What are the likely environmental and health effects of Chernobyl? For a few in the immediate vicinity who were heavily exposed to radiation, it could mean death within days, weeks or months, depending on the extent of exposure. For many others, who were

A major concern of the Chernobyl accident is not only the reservoir that supplies Kiev — which must have increased radioactivity — but the Dnieper River that flows out of the reservoir and south to the Black Sea. Both immediately, and for weeks and months thereafter, the use of impure water must be sharply restricted, and contaminated agricultural products impounded.

The expense of Three Mile Island — huge though it was — may pale beside the Chernobyl disaster. Any estimate must include the cost of evacuating and relocating thousands of people; of medical care for hundreds with radiation sickness and possibly burns; of workdays lost; of a sustained interruption of one-seventh of all Soviet nuclear power for the Ukraine and Eastern Europe; the decontamination of a large area that may remain "hot" — excessively radioactive — for months or years; agricultural products that must be junked, and property that cannot be used. The pressure will be great to close or redesign those reactors without appropriate containment, and the cost attached to all new Soviet reactors will rise sharply.

The human tragedy of the dead, injured and evacuated is clearly the central concern of the world community. But the secondary effects of Chernobyl are inestimable, and none are more aware of this than those in the nuclear power industry in this country and in other lands. ■

Herbert L. Abrams is professor of radiology and a member-in-residence of the Center for International Security and Arms Control, at Stanford University.

exposed to less severe — but still critical — amounts of radiation, it could mean a bone-marrow death that could occur in weeks to months. Fluid replacement, antibiotics and stringent sterile precautions may save many in this group.

At least 14 different isotopes drifted into Scandinavia, including the hazardous radioactive iodine and cesium. As the wind's direction changed, countries adjacent to the Ukraine — Poland, Rumania, Bulgaria, Yugoslavia and Austria — experienced increased levels of radioactivity.

Radioactive iodine is deposited on the soil and in plants, ingested by cows and it appears quickly in milk. Once ingested, it accumulates in the thyroid gland and may destroy thyroid tissue and ultimately produce thyroid nodules and even cancer. Cesium is threatening because it continues to produce radiation for decades after it has been taken up by human tissues.

What of the area around Chernobyl? Land within 5 to 15 miles of the reactor may be contaminated for many years and could be uninhabitable. Over days, weeks and months, as fallout settles to the ground, water, lakes, rivers and crops may be contaminated at distances beyond the immediate area.

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SUBJECT: Economic Costs of the Chernobyl Incident

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The Director of Central Intelligence
Washington, D.C. 20505

National Intelligence Council

NIC #02194-86
1 May 1986

MEMORANDUM FOR: Director of Central Intelligence
Deputy Director of Central Intelligence

FROM:
Acting NIO for Economics

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SUBJECT: Hard Currency Limitations on the Response
to the Chernobyl Disaster

1. We can expect Gorbachev soon to come under pressure by neighboring countries to shut down all nuclear reactors similar in design to the units at Chernobyl. While Gorbachev may have been able to consider such an option only two years ago when foreign exchange earnings were much higher, the squeeze of lower oil and gas prices effectively precludes this option.

- Each 1,000 MW reactor replaces the equivalent of 25,000 b/d of fuel oil worth about \$130 million per year at current market prices.
- The loss of the four units at Chernobyl, hence, already costs the USSR \$500 million per year. (Even if power is rationed rather than replaced by oil-fired capacity, indirect economic losses would presumably be equally high.)
- It would cost the USSR nearly 500 thousand b/d in fuel oil at a cost of \$2.5 billion annually to shut down all reactors of similar design, causing a drop in oil exports of roughly 40 percent.

2. Looking further ahead, hard currency considerations will also play a role in decisions relating to food. Should the damage to farmland prove widespread, the decision on determining levels of contamination acceptable for distributing food absent an ability to pay for substantial imports will be a difficult one. EC countries may well offer substantial "emergency" credits for such supplies given their surpluses in production. The Soviet bureaucracy, however, might opt to distributing tainted food before taking up such an offer.

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SUBJECT: Hard Currency Limitations on the Response to the
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