



Federal Emergency Management Agency

Region X Federal Regional Center Bothell, Washington 98011

February 2, 1983

FEB 02 1983

Governor Atiyeh

VIA TELECOPIER

MEMORANDUM FOR STATE DIRECTORS, FEMA REGION X

FROM: Wm. H. Mayer
Regional Director

SUBJECT: COSMOS 1402 Reactor Core Reentry

We have been advised that the remaining portion (reactor core) of COSMOS 1402 is expected to reenter the earth's atmosphere between February 6 and 10, 1983. There is a general belief that the core will burn up on reentry. However, a remote possibility exists that parts may get through the atmosphere without total burnup. Please refer to the revised risk assessment (see attached).

The Federal Government has been directed to assume the same readiness of preparedness posture as before; i.e., be prepared to act and respond in a coordinated fashion within 2 hours of reentry. We in Region X will activate our response center approximately 6 hours prior to reentry.

Although there has been some revision to Messages #2 and #3 (revised proposed messages will be forwarded separately), Annex 2 of the National Contingency Plan will be followed as before; i.e., NAWAS messages 24 hours, 2 hours, and post-reentry (impact).

Please take the necessary action to inform appropriate State agencies and offices and your local governments. We will continue to keep you and your staff advised of the reentry window and other particulars. Please direct your questions to Dave Peyton, Richard Donovan, or Bill Brown, of my staff.

Attachment

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNCLASSIFIED STATEMENT OF RISK AND FEDERAL GOVERNMENT READINESS POSTURE
OPERATION BRIGHTLIGHT -- COSMOS 1402, PHASE II
(Coordinated with DOE)

Hazards

The reactor is believed to contain 235 U, radioactive products and beryllium parts. The inventory of radioactive products from COSMOS 1402 is believed to be less than in COSMOS 954. The only significant radiobiological danger is from long-term exposure (hours to days) to pieces of debris which are held or otherwise maintained in close contact with the body. Particle ingestion hazards are considered small. The chances of being hit by fragments are on the order of being hit by a meteorite.

The highest probability is that the core will nearly completely burn up as happened with COSMOS 954. In COSMOS 954, small radioactive particles were spread over large areas with pieces of hardware distributed over a track several hundred miles long and about 30 miles wide.

The next most likely scenario is that the reactor will be even more completely consumed than in COSMOS 954 with the uranium and fission products remaining suspended in the upper atmosphere where they will be undetectable and not present any health hazard. In this situation, only the radioactive hardware will reach earth.

The least likely possibility is that the reactor will reach earth virtually intact or in a few kilogram-sized pieces. In this highly unlikely event, the object would pose a threat to persons within a few hundred feet.

Readiness Posture

While the risk of COSMOS 1402, Phase II, impacting the United States is considered small, it is important that the Federal Government be prepared to quickly respond in a coordinated manner. The same level of Federal Government readiness is required for COSMOS 1402, Phase II as was required for COSMOS 1402, Phase I. The Federal policies and authorities articulated in the National Contingency Plan -- COSMOS 1402 are still valid and will remain in effect for any Federal response required in response to the potential impact of COSMOS 1402.

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Governor Atiyeh

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...SOVIET SATELITE REENTRY INFORMATION....(2 PAGES)
PLEASE PASS TO EMERGENCY SERVICE DIRECTOR/COORDINATORS

PAGE 1

THE FOLLOWING IS CONDENSED INFORMATION RECEIVED FROM THE FEDERAL EMERGENCY
MANAGEMENT AGENCY (FEMA), REGION X.

1. COSMOS 1402, A SOVIET RADAR IMAGING SATELLITE WITH A NUCLEAR REACTOR PROVIDING ELECTRICAL POWER, IS UNDERGOING UNCONTROLLED REENTRY INTO THE EARTH'S ATMOSPHERE. IT IS IN AN ORBIT THAT COVERS MOSTLY OCEANS BUT ALSO GOES OVER MOST OF NORTH AMERICA, THE SOVIET UNION, AFRICA, AND CHINA. WHILE MUCH OF THE SATELLITE IS EXPECTED TO BURN UP IN THE ATMOSPHERE, SOME DEBRIS AND RADIOACTIVE MATERIAL COULD SURVIVE REENTRY AND CRASH INTO POPULATED AREAS. ALTHOUGH IT IS NOT POSSIBLE TO ACCURATELY PREDICT THE TIME OR GEOGRAPHIC POINT OF IMPACT, THE ARRIVAL IS GENERALLY EXPECTED TO BE BETWEEN JANUARY 22-24, 1983. THE "WINDOW" OF REENTRY WILL BE NARROWED TO 24 AND THEN 2 HOURS AS DATA BECOMES AVAILABLE.

2. FEDERAL GOVERNMENT AGENCIES ARE CLOSELY MONITORING THE SITUATION. THE FEDERAL GOVERNMENT STANDS READY TO PROVIDE ADVICE AND ASSISTANCE TO STATE AND LOCAL GOVERNMENT, HOWEVER, PREPAREDNESS AND RESPONSE DEPENDS ON ACTIONS OF STATE AND LOCAL OFFICIALS. FEMA HAS BEEN DESIGNATED BY THE PRESIDENT TO COORDINATE ALL FEDERAL AGENCY POST IMPACT ASSISTANCE TO STATES AS NECESSARY. THIS INCLUDES A DEPARTMENT OF ENERGY CAPABILITY TO PROVIDE AERIAL AND GROUND RADIATION MONITORING AND ASSESSMENT AND FEMA EMERGENCY RESPONSE TEAM TO COORDINATE ACTIVITIES WITH STATE AND LOCAL AUTHORITIES.

3. COSMOS 1402 IS SIMILAR IN DESIGN TO THE SOVIET SATELLITE THAT ENTERED THE EARTH'S ATMOSPHERE OVER NORTHERN CANADA IN 1978. UNLIKE THIS PREVIOUS EVENT, IT IS BELIEVED THAT COSMOS 1402 WILL REENTER WITH ITS NUCLEAR REACTOR HAVING BEEN SHUT DOWN FOR AT LEAST 30 DAYS PRIOR TO REENTRY THUS REDUCING THE RADIATION HAZARD SOMEWHAT. IT IS NOT LIKELY THAT THE REACTOR WILL REENTER INTACT BUT DISASSEMBLE DURING REENTRY, CREATING DEBRIS. THE DEBRIS FOOTPRINT WOULD BE AN AREA 30 MILES WIDE AND 500 MILES LONG.

4. THE U.S. DEP. OF ENERGY ESTIMATES THAT THE PROBABILITY OF IMPACT ON LAND IS 30%. THE PROBABILITY OF EXPOSING AT LEAST ONE PERSON TO A CRITICAL SITUATION IS APPROXIMATELY ONE IN 10,000. ESTIMATED IMPACT PROBABILITIES IN AREAS WITH LARGE POPULATION DENSITIES, CAUSING A RISK TO AS MANY AS 500 PEOPLE IS ONE IN A MILLION. PLEASE SEE SUGGESTED PROTECTIVE ACTION RECOMMENDATIONS.

(CONTINUED ON PAGE 2)

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.....SATELLITE INFORMATIONPAGE 2

PROTECTIVE ACTION RECOMMENDATIONS

1. GENERIC STATEMENT PRIOR TO REENTRY

AS A RULE, THE POTENTIAL HAZARD FROM REENTRY OF THE SOVIET SATELLITE WITH A NUCLEAR REACTOR ONBOARD WILL BE NONEXISTENT TO THE POPULATION AS A WHOLE. IF THE REENTRY AND BREAKUP OF THE REACTOR OCCURS AS IT DID IN THE JAN 78 REENTRY OF THE COSMOS 954 SATELLITE IN CANADA, SOME RISK MIGHT EXIST TO INDIVIDUAL FROM THE PARTICLES AND FRAGMENTS THAT REACH THE GROUND. THIS WOULD BE SIMILAR TO THAT FROM A NUMBER OF SMALL METERORITES. SINCE THE POTENTIAL IMPACT AREA ON THE GROUND MAY BE 500 MILES IN LENGTH AND 30 OR MORE MILES WIDE, EVACUATION FROM THE AREA IS IMPRACTICAL. IF YOU ARE ADVISED THAT YOU ARE IN THE IMPACT AREA, THEN THE BEST HOME PROTECTIVE ACTION WOULD BE TO REMAIN INDOORS UNTIL THE LOCAL AUTHORITIES GIVE SPECIFIC DIRECTIONS THAT THE PUBLIC SHOULD BE SAFE. FRAGMENTS MAY VARY IN SIZE FROM DUST PARTICLES TO A FEW FRAGMENTS WHICH MAY BE ONE TO TWO FEET IN LENGTH.

2. POST-REENTRY (ANNOUNCEMENT TO THE PUBLIC IN THE VICINITY OF IMPACT)

A SOVIET SATELLITE WITH A NUCLEAR REACTOR ONBOARD HAS BROKEN UP AND REENTERED THE ATMOSPHERE OVER AN AREA APPROXIMATELY BOUNDED BY.....ON THE NORTH,ON THE EAST,.....ON THE SOUTH, AND.....ON THE WEST. CITIZENS LIVING WITHIN THIS AREA ARE CAUTIONED TO REMAIN INDOORS, IF POSSIBLE. IF THIS IS NOT FEASIBLE, THEY SHOULD MINIMIZE THEIR OUTDOOR ACTIVITIES. DO NOT PICK UP SMALL METALLIC PARTICLES OR FRAGMENTS FOUND LYING IN YARDS OR STREETS, SINCE THEY COULD BE HIGHLY RADIOACTIVE AND CAUSE RADIATION INJURY TO THOSE THAT HOLD THEM. IN THE EVENT THAT A CHILD OR AN ADULT SHOULD ACCIDENTALLY PICK UP OR COME IN CONTACT WITH SUCH AN ITEM, THE SAFEST STEPS TO TAKE WOULD BE TO REMOVE THE OBJECT TO A REMOTE, SECURE LOCATION OUT OF-DOORS. HANDLING SHOULD BE DONE QUICKLY, KEEPING THE OBJECT AWAY FROM THE BODY BY USING SHOVELS OR KITCHEN TONGS. LEAVE ALL ITEMS THAT HAVE COME IN CONTACT WITH THE OBJECT AT THE SAME LOCATION, THEN THOROUGHLY WASH THE HAND OR EXTREMITIES WHICH MAY HAVE COME IN CONTACT WITH THE OBJECT. THE PUBLIC HEALTH AUTHORITIES SHOULD BE CONTACTED FOR EXAMINATION, MONITORING, AND DISPOSAL OF THE OBJECT.

PLEASE STAY TUNED TO YOUR LOCAL RADIO STATION OR TELEVISION CHANNEL FOR FURTHER INFORMATION.

LYN HARDY/ADMINISTRATOR
OREGON EMERGENCY MANAGEMENT: JH
EOT