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USNRC: JDLAFLEUR
E/30/79: 472-7131
OES/NET/EIC:

IMMEDIATE ATHENS, BERN IMMEDIATE, BOMBAY IMMEDIATE, BONN
IMMEDIATE, BRASLIA IMMEDIATE, BRUSSELS IMMEDIATE, COPENHAGEN IMMEDIA

*Class to AECIS Ctr
Langhorne Bldg
Cunningham Dr
Sunnyvale, CA*

USIAEA, USOECD, USEEC

E.O. 12852: N/A

TAGS: TECH

SUBJECT: NUCLEAR POWER PLANT EMERGENCY SITUATION

REF: STATE 072556, A-0221

1. PLEASE PASS FOLLOWING INFORMATION TO NRC CONTACTS AND TO ASSISTANT SECRETARY BERGOLD IN PARIS, ASEP, AND USE AT YOUR DISCRETION IN ANSWERING INQUIRIES. INFORMATION IS PRELIMINARY, NOT YET FULLY EVALUATED.

2. PLANT STATUS AS OF EARLY MARCH 29. THREE MILE ISLAND UNIT 2 CONTINUING TO REMOVE DECAY HEAT THROUGH A-LOOP STEAM GENERATOR USING ONE REACTOR COOLANT PUMP IN THAT LOOP FOR COOLANT CIRCULATION. THE REACTOR COOLANT PRESSURE AND TEMPERATURE WERE STABLE AND UNDER CONTROL THROUGHOUT THE NIGHT OF MARCH 29. THERE HAS BEEN SOME DIFFICULTY IN MAINTAINING COOLANT LETDOWN FLOW DUE TO RESISTANCE IN THE PURIFICATION FILTERS. THE LICENSEE NOTIFIED NRC AT ABOUT 11:00 P.M. ON MARCH 29 THAT THEY EXPECTED TO REMAIN IN THIS COOLING MODE FOR AT LEAST 24 HOURS.

3. THE LICENSEE'S ENGINEERING STAFF WAS REQUESTED BY NRC TO OBTAIN A BETTER ESTIMATE OF THE VOLUME OF THE

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NONCONDENSIBLE "BUBBLES" IN THE REACTOR COOLANT SYSTEM. THERE ARE APPARENTLY TWO SUCH BUBBLES ONE IN THE PRESSURIZER THAT HAS BEEN INTENTIONALLY ESTABLISHED FOR CONTROL OF PRESSURE AND LEVEL, AND ONE IN THE REACTOR VESSEL HEAD CAUSED BY THE ACCUMULATION OF NONCONDENSIBLE GASES FROM FAILED FUEL AND RADIOLYTIC DECOMPOSITION OF WATER. THE VOLUME OF THE BUBBLE IN THE REACTOR VESSEL IS OF INTEREST IN ASSURING THAT SUFFICIENT VOLUME REMAINS IN THE UPPER HEAD FOR COLLECTION OF MORE NONCONDENSIBLE GASES ARISING FROM CONTINUED OPERATION IN THE PRESENT COOLING MODE AS WELL AS TO ASSESS THE POTENTIAL FOR MOVEMENT OF THE BUBBLE DURING A SWITCHOVER TO DECAY HEAT REMOVAL OPERATION.

4. THE LICENSEE BELIEVES IT IS PRUDENT TO REMAIN IN THE PRESENT COOLING MODE DUE TO THE POTENTIAL FOR LEAKAGE OF HIGHLY RADIOACTIVE COOLANT FROM THE DECAY HEAT REMOVAL SYSTEM INTO THE AUXILIARY BUILDING, MOVEMENT OF NONCONDENSIBLE GASES INTO THE REACTOR COOLANT LOOP, AND BOILING IN THE CORE WHEN THE REACTOR COOLANT PUMP IS SHUT DOWN.

3. FUEL DAMAGE

PRELIMINARY ASSESSMENT OF THE EXTENT OF FUEL DAMAGE FROM A REACTOR COOLANT SAMPLE TAKEN AT APPROXIMATELY 8:00 P.M. ON MARCH 29 INDICATES SIGNIFICANT RELEASES OF IODINE AND NOBLE GASES FROM THE FUEL. A 300 MILLILITER SAMPLE TAKEN FROM THE PRIMARY COOLANT SYSTEM VIA A LETDOWN LINE WAS MEASURED AT ABOUT 1,000 R/HR ON CONTACT (70-80 R/HR AT ONE FOOT AND 20-30 R/HR AT THREE FEET). PRELIMINARY ANALYSIS OF A DILUTED SAMPLE IN THE NRC MOBILE LABORATORY INDICATED FISSION PRODUCT CONCENTRATIONS OF ABOUT 800,000 MICROCURIES PER MILLILITER. THE SAMPLE WILL BE FLOWN TO BERTS LABORATORY FOR FURTHER ANALYSIS.

2. THERMOCOUPLE READINGS OF COOLANT TEMPERATURE AT THE OUTLET OF THE INSTRUMENTED FUEL ASSEMBLIES INDICATE POTENTIAL LOCAL CORE DAMAGE, POSSIBLY IN ONE QUARTER OF THE TOTAL OF 177 FUEL ASSEMBLIES AND GENERALLY IN THE CENTER OF THE CORE. OF THE 28 READINGS AT 8:00 A.M. ON MARCH 29, ONE WAS ABOVE THE COOLANT SATURATION TEMPERATURE OF ABOUT 325 DEGREE F, 7 WERE ABOVE 320 DEGREE F, AND 2 WERE OFF-SCALE, INDICATING TEMPERATURES HIGHER THAN 700 DEGREE F. UPON REQUEST OF NRC, BABCOCK AND WILCOX IS DEVELOPING A PROCEDURE FOR USE BY THE LICENSEE IN TAKING DIRECT POTENTIOMETER READINGS FROM THE OFF-SCALE THERMOCOUPLES SINCE THE TEMPERATURE SCALE LIMITATION OF 700 DEGREE F IS CONTROLLED BY THE PROCESS COMPUTER, NOT THE THERMOCOUPLE ITSELF.

7. REACTOR COOLANT SYSTEM (RCS) PARAMETERS
 THE RCS PARAMETERS HAVE REMAINED RELATIVELY STABLE DURING THE PERIOD. GRADUAL RCS COOLDOWN CONTINUED TO ABOUT 1:30 A.M., MARCH 30, WHEN TEMPERATURE WAS SLIGHTLY INCREASED TO ALLOW ADDITIONAL MARGIN BETWEEN RCS OPERATING PARAMETERS AND TECHNICAL SPECIFICATION MINIMUM PRESSURIZATION LIMITS. FOLLOWING ARE THE SYSTEM PARAMETERS AT 3 A.M. MARCH 30:

PRESSURIZER LEVEL (INCHES)	354
PRESSURIZER PRESSURE (PSI)	3053
PRESSURIZER TEMPERATURE (F)	357
LOOP A CORE	
-- INLET TEMPERATURE (F)	274
LOOP B CORE	
-- INLET TEMPERATURE (F)	274

8. ENVIRONMENTAL STATUS

TWO AERIAL SURVEYS WERE CONDUCTED DURING THE EVENING OF MARCH 29. THE FIRST FLIGHT WAS MADE ABOUT 8:35 P.M. DURING WHICH MEASUREMENTS WERE TAKEN IN A CIRCLE AROUND THE SITE WITH A RADIUS OF ABOUT EIGHT MILES. NO DEFINED PLUME OF RADIOACTIVITY WAS DETECTED, BUT RESIDUAL POCKETS OF RADIOACTIVITY WERE IDENTIFIED AT VARIOUS POINTS WHERE THE MEASURED LEVELS RANGED FROM .025 TO .055 MILLISECOUNTERS PER HOUR. (NATURAL BACKGROUND LEVELS ARE ABOUT .025 TO .035 MILLISECOUNTERS PER HOUR.) DURING THE SECOND FLIGHT, AT ABOUT 10:30 P.M., A PLUME WAS DETECTED NORTHWEST OF THE PLANT WITH A WIDTH EQUAL TO AND CONFINED WITHIN THE BOUNDARIES OF THE RIVER. MEASUREMENTS AT THE EAST SHORELINE OF THE RIVER, OPPOSITE HILL ISLAND INDICATED ABOUT FOUR MILLISECOUNTERS PER HOUR AND AT THE SHORELINE ON MILE NORTH OF HILL ISLAND NEAR HOLMSTEAD AIR FORCE BASE ABOUT ONE MILLISECOUNTER PER HOUR. ADDITIONAL MEASUREMENTS AT FIVE MILES FROM THE PLANT WERE ON THE ORDER OF .030 MILLISECOUNTERS PER HOUR AND ARE IN AGREEMENT WITH THE EARLIER FLIGHT.

9. DURING THE EARLY MORNING HOURS OF MARCH 30, AN NRC MONITORING TEAM TOOK RADIATION MEASUREMENTS FROM A VEHICLE TRAVELING BOTH SIDES OF THE SUSQUEHANNA RIVER FROM 13 MILES SOUTH OF THREE MILE ISLAND TO 4 MILES NORTH. RADIATION LEVELS WERE HIGHEST NEAR CLY, A COMMUNITY JUST SOUTH OF THE FACILITY ON THE WEST SIDE OF THE RIVER. THE LEVEL AT CLY WAS 0.13 MILLISECOUNTER PER HOUR. ALL OTHER LOCATIONS HAD LEVELS LESS THAN 0.05 MILLISECOUNTERS PER HOUR.

10. OTHER INFORMATION

AT APPROXIMATELY 4:00 P.M. ON MARCH 29, TWO EMPLOYEES OF

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METROPOLITAN EDISON CO. RECEIVED RADIATION EXPOSURES IN EXCESS OF THE QUARTERLY LIMIT OF 3 REMS. THE EMPLOYEES, AN OPERATOR AND A CHEMIST, ENTERED THE AUXILIARY BUILDING TO COLLECT A SAMPLE OF PRIMARY COOLANT. PRESENT ESTIMATES ARE THAT THE OPERATOR RECEIVED 3.1 REMS AND THE CHEMIST 3.4 REMS.

THE LICENSEE RELEASED LESS THAN 50,000 GALLONS OF SLIGHTLY CONTAMINATED INDUSTRIAL WASTES ON MARCH 25, 1975. THIS RELEASE WAS TERMINATED AT NRC REQUEST AT APPROXIMATELY 5:00 P.M., MARCH 25, 1975, BECAUSE OF CONCERNS EXPRESSED BY STATE REPRESENTATIVES. AT ABOUT 12:15 A.M. ON MARCH 25, NRC GAVE THE LICENSEE PERMISSION TO RESUME RELEASES OF THE SLIGHTLY CONTAMINATED INDUSTRIAL WASTES TO THE SUSQUEHANNA RIVER. THIS ACTION WAS COORDINATED WITH THE OFFICE OF THE GOVERNOR OF PENNSYLVANIA AND A PRESS RELEASE WAS ISSUED BY THE STATE.

AT 8:00 A.M., ON MARCH 25 THE LICENSEE BEGAN VENTING FROM THE GASEOUS WASTE TANKS.

STATUS OF 3 P.M., MARCH 25:
THE WASTE TANKS WERE SEEN TO BE UNCONTROLLED RELEASES OF RADIOACTIVITY INTO THE ATMOSPHERE FROM THE PRIMARY COOLANT SYSTEM OF UNIT 2 OF THE THREE HILLS REACTOR POWER PLANT NEAR HARRISBURG, PENNSYLVANIA. THE LICENSEE IS ATTEMPTING TO STOP THE INTERMITTENT GASEOUS RELEASES BY PREVENTING THE RADIOACTIVE WATER INTO THE PRIMARY COOLANT SYSTEM BUILDING. THE LEVELS OF RADIOACTIVITY BEING RELEASED HAVE BEEN AS HIGH AS 20 MILLICURIE PER HOUR IN THE IMMEDIATE VICINITY OF THE SITE AT GROUND LEVEL. THE OFF-SITE LEVELS OF A FEW MR/HR WERE STILL BEING MEASURED.

AT ABOUT 11:00 A.M. EST, THE CHAIRMAN OF THE NRC REQUESTED TO GOVERNOR THORNBERG OF PENNSYLVANIA THAT ASSISTANT WOMEN AND PRE-SCHOOL CHILDREN IN AN AREA WITHIN THE HILLS OF THE PLANT SITE BE EVACUATED. MEMBERS OF THE NRC TECHNICAL STAFF ARE AT THE SITE AND EFFORTS TO DETERMINE THE TEMPERATURES OF THE REACTOR FUEL ARE CONTINUING. TEMPERATURES HAVE BEEN CORING DOWN SLOWLY AND THE EVACUATION OF THE REACTOR VESSEL HAS BEEN INITIATED. THERE IS EVIDENCE OF SEVERE DAMAGE TO THE REACTOR COOLANT CONTAINING RISER-RODS AND INSTRUMENTS IN THE CORE INDICATE THAT TEMPERATURES IN SOME OF THE BUNDLE S, AND THE PRESENCE OF A LARGE QUANTITY OF MOISTURE IN THE REACTOR VESSEL. THE POSSIBILITY OF THESE NON-CONTAINMENT OF THE REACTOR VESSEL, EXCEPT

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INTERRUPTING COOLANT FLOW WITHIN THE REACTOR WHEN ITS PRESSURE IS FURTHER DECREASED AND THE CONTAINED GASES EXPAND. SEVERAL OPTIONS TO REACH A FINAL SAFE STATE FOR THE FUEL ARE UNDER CONSIDERATION. IN THE MEANTIME, THE REACTOR IS BEING MAINTAINED IN A STABLE CONDITION. UU

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ACTION PRECEDENCE CONTINUED:

IMMEDIATE HELSINKI -
IMMEDIATE LONDON
IMMEDIATE MADRID
IMMEDIATE MANILA
IMMEDIATE MEXICO CITY
IMMEDIATE NEW DELHI
IMMEDIATE PARIS
IMMEDIATE RIO DE JANEIRO
IMMEDIATE ROME
IMMEDIATE SEOUL
IMMEDIATE STOCKHOLM
IMMEDIATE TEHRAN
IMMEDIATE TEL-AVIV
IMMEDIATE THE HAGUE
IMMEDIATE TOKYO
IMMEDIATE VIENNA