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Pam Jahnke Date:

07-02-2014

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E.O. 11652 XGDS-1,3
TAGS: TECH, PARM, IN, CA
SUBJECT: TECHNICAL ASPECTS OF INDIAN NUCLEAR TEXT

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1. SUMMARY: VIEWS OF CANADIAN TECHNICAL PERSONNEL FAMILIAR WITH INDIAN NUCLEAR PROGRAM, NOT PREVIOUSLY REPORTED, ARE REVIEWED. THEY INDICATE THAT INDIA'S WEAPONS-GRADE PLUTONIUM INVENTORY COULD EXCEED AN UPPER LIMIT ESTIMATE OF 100 KILOGRAMS, AND THAT LEADS MAY HAVE BEEN AVAILABLE AS EARLY AS 1968, IF NOT SOONER, CONCERNING INDIAN INTENTIONS. DEPARTMENT GUIDANCE REQUESTED CONCERNING DESIRABILITY OF SEEKING ADDITIONAL DETAILS. END SUMMARY.

2. CANADIAN "BEST ESTIMATE" OF POSSIBLE INDIAN INVENTORY OF WEAPONS-GRADE REPEAT WEAPONS-GRADE PLUTONIUM CHARACTERIZED AS MUCH CLOSER TO A "GESTIMATE" THAN ESTIMATE. ON BASIS OF ASSUMPTION THAT FORMER PLUTONIUM PURCHASE SPECIFICATIONS FOR NRX/NRU PLUTONIUM STILL REPRESENTS "TOP-GRADE" WEAPONS MATERIAL, CANADIANS ESTIMATE INDIANS SHOULD HAVE BETWEEN 50 AND 100 KILOGRAMS AVAILABLE. ESTIMATING OFFICIAL PRIVATELY OF THE OPINION THAT FIGURE IS "ALMOST CERTAINLY CLOSER TO THE UPPER LIMIT AND COULD EVEN BE CONSIDERABLE MORE." THIS

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ESTIMATE BASED ON PRODUCTION IN TROMBAY REACTOR ALONE AND MAKES NO ALLOWANCE FOR POSSIBILITY THAT SOME PRODUCTION COULD WELL HAVE TAKEN PLACE IN RAJASTHAN NUCLEAR POWER STATION.

3. AECB OFFICIALS (PROTECT FULLY) HAVE IN PRIVATE DISCUSSION WITH EMBASSY SCIATT TAKEN ISSUE WITH AECL PRESIDENT GRAY'S PUBLIC COMMENT (SEE OTTAWA 1533) THAT NUCLEAR MATERIAL COULD NOT HAVE COME FROM RAJASTHAN. THESE OFFICIALS WHO REPEATEDLY VISITED ALL CANADIAN-ASSISTED NUCLEAR SITES IN INDIA AS INSPECTORS OBSERVED THAT GRAY'S STATEMENT MAY BE TECHNICALLY CORRECT IN THE SENSE THAT SPECIFIC MATERIAL USED IN INDIAN DEVICE TESTED MAY NOT HAVE COME FROM RAJASTHAN. THEY PRIVATELY BELIEVE RAJASTHAN HAS CONTRIBUTED AT LEAST SOME PRODUCTION TO WEAPONS-GRADE MATERIAL INVENTORY. BASIS FOR THIS OBSERVATION IS THAT THEY ARE AWARE OF AT LEAST "SEVERAL" FUEL BUNDLES WHICH WERE DISCHARGED FROM RAJASTHAN REACTORS AT BURN-UP LEVELS OF CONSIDERABLY LESS THAN 600 NWD/TONNE.

4. COMMENT: ALTHOUGH OPERATION OF ON-LINE NUCLEAR POWER STATION AT LOW FUEL BURN-UP LEVELS CLEARLY UNECONOMICAL IF POWER PRODUCTION IS PRIMARY PURPOSE OF OPERATION, DESIGN OF CANDU REACTORS CLEARLY PERMITS UNECONOMICAL LOW BURN-UP OPERATION IF DESIRED. FURTHERMORE VERSATILITY PROVIDED BY ON-LINE REFUELING HAS LONG BEEN RECOGNIZED AS HOLDING THE POTENTIAL TO CIRCUMVENT INSPECTION CONFIRMATION OF ACTUAL BURN-UP. CONSEQUENTLY, IF PRIVATE VIEW OF THESE CANADIAN INSPECTORS IS TAKEN SERIOUSLY, THE INCREASED POWER LEVELS AVAILABLE IN RAJASTHAN COULD MAKE EVEN THE 100 KILOGRAMS UPPER LIMIT MODEST. END COMMENT.

5. A CHECK WITH KNOWLEDGEABLE OFFICIALS OF THE THREE CANADIAN AGENCIES RESPONSIBLE FOR FOLLOWING TECHNOLOGICAL ASPECTS OF THE

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INDIAN NUCLEAR PROGRAM INDICATES THAT SINCE THE INDIAN TEST THEY HAVE BEEN OCCUPIED ANSWERING SPECIFIC QUESTIONS. NO REPEAT NO ORGANIZED COMPREHENSIVE FULL-SCALE POST MORTEM APPEARS TO HAVE BEEN CONDUCTED OR EVEN CONTEMPLATED. IT NOT CONDUCTED WITH KNOWLEDGEABLE PEOPLE, SIGNIFICANT INFORMATION MAY BE PERMANENTLY LOST. FOR EXAMPLE, ONE SENIOR AECL OFFICIAL RECALLS IN RETROSPECT HAVING OVERHEARD A CONVERSATION IN TROMBAY ELECTRONICS LAB BETWEEN A RESEARCHER AND "SOMEONE IN THE INDIAN DEFENSE MINISTRY" CONCERNING THE ELECTRICAL CONDUCTIVITY OF FINE GOLD WIRE AS FAR BACK AS 1958.

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6. CANADIAN TECHNICAL PEOPLE WHO HAVE BEEN CLOSELY ASSOCIATED WITH THE INDIAN PROGRAM ARE GENERALLY FRUSTRATED AND CHAGRINED AT THE INDIAN TEST. FURTHER, MANY OF THESE SAME OFFICIALS ARE CURRENTLY CONCERNED ABOUT THE POSSIBILITY THAT THE CANDU REACTOR SYSTEM WILL BECOME KNOWN AS A "DO-IT-YOURSELF BOMB KIT." HENCE, THERE IS LITTLE TECHNICAL RETICENCE AT PRESENT TIME VIS-A-VIS THE CANADIAN-INDIAN COOPERATIVE PROGRAM AND THE TIMING IS RIPE FOR COLLECTING TECHNICAL DETAILS. EMBASSY WILL, OF COURSE, PROMPTLY REPORT ANY SIGNIFICANT NEW DETAILS WHICH

MAY BE VOLUNTEERED. WE WOULD APPRECIATE, HOWEVER, DEPT GUIDANCE CONCERNING THE EXTENT AND DEPTH TO WHICH THE DEPT AND OTHER AGENCIES MAY CONSIDER IT DESIRABLE TO SEEK OUT ADDITIONAL DETAILS ON A COOPERATIVE BASIS WITH APPROPRIATE CANADIAN OFFICIALS.
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