RELEASE IN PART B6

B6

From:

Sullivan, Jacob J <SullivanJJ@state.gov>

Sent:

Wednesday, March 16, 2011 9:21 AM

To:

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Subject:

Fw: Synopsis of what is new to cause increased concern

Fyi

Original Message				
From: Holdren, John P. [mailto	>			
Sent: Wednesday, March 16, 2	2011 09:16 AM			
To: Steinberg, James B; Shapir	o, Nicholas S.		; Brennan, John	O .
	>; Daniel.Ponemar	<daniel.pone< th=""><th>emar</th><th>→; Roos, John;</th></daniel.pone<>	emar	→; Roos, John;
McDonough, Denis R. <		; Avery, Heidi E.		; Reed,
Richard A.	>; Kern, Dab <		; Hamme	er, Michael A; Sullivan,
Jacob J				

Subject: Synopsis of what is new to cause increased concern

Colleagues --

As clarification for what is behind the greatly increased concern evident in the four points distributed to us by NRC this morning, I offer here for internal use only my reading of what has changed overnight, based on the 630 am EDT "Status Update" from the NRC's Emergency Operations Center.

Water levels in the spent-fuel storage pools at Fukushima Dai-ichi Units 1,2, and 3 are now reported to be falling. At Unit 4, total loss of water from the spent-fuel pool has been reported. It is being reported that the zirconium cladding of the fuel is already burning (to an extent unknown) in the spent-fuel pools at both Units 3 and 4. (Note that the jargon "zirc interaction" in the NRC update means the stuff is burning.) High radiation levels are making it extremely difficult for safety workers to deal with the situation.

My interpretation: Burning of the zirconium cladding on fuel exposed to the air (as in these spent-fuel pools in buildings that lost their integrity due to hydrogen explosions) will lead to large releases of fission products to the atmosphere. Complete destruction of the fuel and the release of a large fraction of its contained radioactivity would be expected to occur over a period of several hours -- say, between 3 and 12 -- once large-scale burning has commenced. These releases would not be attenuated to the extent expected for releases from a reactor core after containment failure; they could approach or even exceed the quantity of radioactivity released at Chernobyl. This is because each spent-fuel pool contains the equivalent of one or more complete reactor cores. While the short half-life component of the radioactivity that was present when the fuel was in the reactor has decayed away after the fuel has been in the spent-fuel pool for some weeks, the longer-half-life radioactivity (such as cesium-137, 30-year half-life, and strontium-90, 28-year half life) is virtually all still there.

I have checked my interpretation in the past few minutes with my friend Dr Robert Budnitz, the former head of Nuclear Regulatory Research of the US NRC who was in charge of the internal investigation at TMI. He is currently at a national meeting on reactor-safety issues with GE engineers and others in Wilmington, Delaware, where the course of the accident in Japan is under intensive discussion. Although the responsibility for any errors in the above is mine, I am confident that what I have said above comports with Budnitz's professional judgment as well as my own.

John

JOHN P. HOLDREN

UNCLASSIFIED U.S. Department of State Case No. F-2014-20439 Doc No. C05778828 Date: 02/29/2016

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Michael A; Sullivan, Jacob			
Cc: Michael.Weber	; Martin.Virgilio	Bill.Borchardt	Brian.McDermott
Nader. Mamish			
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	Kern, Dab		; Hammer, Michael A
Cc: Weber, Michael	_	Virgilio, Martin	>; Borchardt, Bill
	; McDermott, Brian <		NA L. NI J
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	>; Kern, Dab <	>; 'HammerMA@state.gov'
HammerMA@state.gov	v>	
Cc: Weber, Michael; Virg	gilio, Martin; Borchardt, Bill; McDermott, B	rian; Mamish, Nader
Sent: Wed Mar 16 08:08	3:17 2011	
Subject: Re: 4 points on	protecting us personnel and actions needs	ed for Dai-ihi reactors
Number 2 is not an actio	on for amcits and number 4 is difficult to co	ommunicate, are we saying don't evacuate yet but get
		ngs continue to deteriorate? And state would likely
•	rations amcits should be making	
• •	· ·	
Original Message	·	
rom: Holdren, John P.		
To: Miller, Chris	>; Brennan, John O.; Jaczko,	. Gregory <
Daniel.Poneman		roosj@state.gov' <roosj@state.gov>;</roosj@state.gov>
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Shapiro, Nicholas S.	, , , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Cc: Weber, Michael <	; Virgilio, Martin <	; Borchardt, Bill
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Sent: Wed Mar 16 07:56		
	protecting us personnel and actions neede	ed for Dai-ihi reactors
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Chris		
Can you please clarify th	ne status of the attached points: under co	nsideration? about to be issued for USG officials?
bout to be made public	· · · · · · · · · · · · · · · · · · ·	
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Γhanks,		
ohn		
OHN P. HOLDREN		
Assistant to the Presider	nt for Science and Technology and Directo	r, Office of Science and Technology Policy Executive
,	of the United States email	assistant Karrie
Pitzer		
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Original Message	. -	
From: Miller, Chris [mail		
Sent: Wednesday, Marc		
•	in, John O.; Jaczko, Gregory; 'Daniel.Ponen	nan Holdren, John P.; 'roosj@state.gov'
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