December 9, 1997

Mr. Robert A. Williams Safeguards Coordinator Westinghouse Electric Corporation Commercial Nuclear Fuel Division Drawer R Columbia. South Carolina 29250

SUBJECT: AMENDMENT OF LICENSE TO AUTHORIZE RELEASE OF INDUSTRIAL WASTE TREATMENT PRODUCTS TO CEMENT MANUFACTURERS (TAC NO. L31003)

Dear Mr. Williams:

In accordance with your application dated July 14, 1997. and supplement dated November 17, 1997, and pursuant to Part 70 to Title 10 of the Code of Federal Regulations, Materials License SNM-1107 is hereby amended to authorize release of industrial waste treatment products (primarily calcium fluoride) without continuing NRC licensing controls to receivers for cement manufacturing and to delete authorization for use of licensed materials at off-site locations. Accordingly, Safety Condition S-1 has been revised to include the dates of July 14 and November 17, 1997. All other conditions of this license shall remain the same.

Enclosed are copies of the revised Materials License SNM-1107 and the Safety Evaluation Report, which includes the Categorical Exclusion determination.

Sincerely, Original signed by: Walter S. Schwink, Acting Chief Licensing Branch Division of Fuel Cycle Safety and Safeguards, NMSS 5.

Docket 70-1151 License SNM-1107 Amendment 8

Enclosures: 1. Materials License SNM-1107 2. Safety Evaluation Report

cc: Mr. Wilbur Goodwin, Regulatory Affairs Westinghouse Electric Corporation Commercial Nuclear Fuel Division Drawer R Columbia, SC 29250

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UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 9, 1997

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Enclosed are copies of the revised Materials License SNM-1107 and the Safety Evaluation Report, which includes the Categorical Exclusion determination.

Sincerely,

Walter S. Schrink

Walter S. Schwink, Acting Chief Licensing Branch Division of Fuel Cycle Safety and Safeguards, NMSS

Docket 70-1151 License SNM-1107 Amendment 8

Enclosures: 1. Materials License SNM-1107 2. Safety Evaluation Report

cc: Mr. Wilbur Goodwin, Regulatory Affairs Westinghouse Electric Corporation Commercial Nuclear Fuel Division Drawer R

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(7-94)		U.S.	NUCLEAR REGU		i	
			MATERIA	LS LICENSE		
ursua Federa by the materia person specifi Nuclea	ant to the Atomic Energy Act of al Regulations, Chapter I, Parts 30 licensee, a license is hereby issue al designated below; to use such s authorized to receive it in accor ied in Section 183 of the Atomic ar Regulatory Commission now c	1954, as amer 0, 31, 32, 33, 3 ed authorizing material for t dance with the Energy Act co or hereafter in	ided, the Energy 4, 35, 36, 39, 40, the licensee to rea he purpose(s) and regulations of the of 1954, as among effect and to any	Reorganization Act of and 70, and in reliance ceive, acquire, possess, d at the place(s) design e applicable Part(s). Th ded, and is subject to a conditions specified be	1974 (Pi on stater and trans ated belo is license il applic low.	ublic Law 93-438), and Title 10, Coo nents and representations heretofore n sfer byproduct, source, and special nuc ow; to deliver or transfer such materi e shall be deemed to contain the condit sable rules, regulations, and orders of
	Licensee					
1. We	estinghouse Electric	Corporati	on	3. License Number	SNM- Amen	1107 dment 8
2. Pi	ittsburgh, Pennsylvan	ia 15230-	0355	4. Expiration Date	Nove	mber 30, 2005
				5. Docket or Reference No.	70-1	151
6. Byp Spec	roduct, Source, and/or cial Nuclear Material		7. Chemical and Form	Vor Physical		8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A. B.	U-235 U-235	A. B.	Any Any, exce metal. er to not mo than 5 0	ept iriched pre w/o	A. B.	0.35 kg 75.000 kgs
C. D.	U-233 Pu-238. Pu-239	C. D.	Any Sealed so	burces	C. D.	5 grams 1.5 grams
9.	Authorized place of Carolina.	use: Th	e licensee'	s existing fac	iliti	es at Columbia, South
10.	This license shall I Safeguards Condition subject to compliand	be deemed ns. Thes ce with a	to contair e sections 11 listed c	i two sections: are part of th conditions in e	Safe e lic ach se	ety Conditions and ense and the licensee i ection.
			FOR THE N	IUCLEAR REGULAT	ORY C	OMMISSION
Date	: <u>12/09/97</u>		By: <u>Walt</u> Div Was	ter S. Schwink Vision of Fuel and Safeguards shington, DC 2	<u>(jal</u> Cycle 20555	<u>the S. Schih</u> Safety

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NRC FORM 374	A U.S. NUCLEAR REGULATORY COMMISSION		PAGE	2	OF	8	PAGES
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			SNM-1107				
	MATERIALS LICENSE	Docket or Referen	nce Number				
	SUPPLEMENTANT SHEET	· · · · · · · · · · · · · · · · · · ·	/0-1151				
			Safety C	ondit	ions		
<u></u>		<u></u>					
	SAFETY CONDITIO	INS					
S-1	Authorized use: For use in accordance w conditions in the license application da dated May 11 and 18, August 4 and 25, Se August 11, and November 17, 1997.	vith statem ted April ptember 25	ents, re 30, 1995 , 1995:	prese , and July	ntati supp 14 ar	ions, oleme nd 25	and nts
	and will be completed as described in Se application for each step of the process by Westinghouse which will include infor against the commitments listed in Section These submittals will not be specific con demonstration of the adequacy of the base 6.2.3. The contents listed in Section 6 commitments. The demonstration will show Fabrication Facility (CFFF) in developing understood that this demonstration may cl consist of a summary of the CSE or CSA as (which shall include fault trees for those done). The adequacy of the commitments application will be evaluated and a reply be generated and sent from the staff to I CFFF will be provided according to the for	ctions 6.4 A submi mation whi n 6.2.3 of mmitments, es of safe .4.2 of th w the logi g the crit hange over s annotate se systems in Section y in the f Westinghou ollowing s	1 and 6 ttal to ch the s the lic but are ty itemi e license c used b icality time. d below for whie 6.2.3 o orm of a se. The chedule:	.4.2 (the NI taff n ense a inter zed in e app y the safety for ea ch a (f the subm	of th RC wi will appli nded n Sec licat Colu y bas ubmit ach s CSE w lice er re ittal	ine lie ine lie revie cation cation cion cion cion cion cion cion cion c	e mac ew on. Fuel It i will be will the
	 UN tanks - summary of CSE -10/95 URRS Dissolver - summary of CSE - 10/ Solvent Extraction - summary of CSE URRS Scrap Processing: Low-Level Waste Processing System - summary Incinerator System Equipment summary of CSE Ash Recovery System - summary of CSE Liquid Honing System - summary of CSE Liquid Honing System - summary of CSE Ultrasonic Cleaning System - summary of CSE URRS Waste Treatment - summary of CSE IDR Conversion - summary of CSE - 9! URRS Waste Treatment - summary of CSE - 6/9! ADU Pelleting - summary of CSE - 6/9! Powder Blending - summary of CSE - 1 Miscellaneous: 	/95 - TBD* summary of of CSA - - 9/96 E - 9/96 of CSE - /96 A - 11/95 ior to Res 96 6 /96	CSA - 9 9/96 9/96 tart	/96			

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	FORM 374A U.S. NUCLEAR REGULATORY C	OMMISSION PAGE 3 OF 8 PAGES
·~ -94)		License Number
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	SUPPLEMENTARY SHEET	70-1151
		Safety Conditions
	Ventilation Systems (Moderat	ion Controlled) -
	summary of CSE - 12/97**	
	Scrubber Systems - summary o	t CSE - 12/9/**
	Hoods & Containment - summary	y of CSA - 9/96
	Laboratories - summary of CS/	A - 9/96
	 IFBA - summary of CSA - 3/96 	DOF
	 Storage Pad - NCS is based or 	1 DOF LEDOLTS K-1950 AUG K-1903
	 Rods - summary of CSA - 3/96 	AL
	 Storage - summary of CSE - 44 	12 E C. I.
	 Final Assembly - summary of (JSE - 6/9/2 / 2
	 UF₆ Cylinder Washing - summar 	y of USE - 12/95
		I does not have a second fin data for antadula
*	Ine CFFF has performed a CSA upgrade and	a does not have a specific date for schedule
0	of this CSE at this time.	
-t-	and The second superior to be second and with the	- Columbia Dlast Dick Management Drognam
*	These systems are to be coupled with the	ne Loiumbia Plant Risk management Program
()	KMP) to be done for the LPA.	
<u> </u>	The lighter chall maintain and success	the necronce measures in the Site Emergency
2-3	Ine licensee snall maintain and execute	e une response medsures in the stie emergency
	Manch 25 August 15 and Sontombor 20	1001. January Q. Fabruary 17 August 17 and
	Detabor 22 1005, on as further revised	1994, January 9, ICDI Jarg. 17, August 17, and thy the ficences consistent with
	10 CEP 70 32(1)	
۲_2	Notwithstanding the requirements of 10	CFR 20 205(b) to monitor the external
5-4	surfaces of nackaned radioactive materi	al receipts for radioactive contamination
	the licensee is exempted from such real	irement relative to flatbed trailer shipment
	of fuel assemblies received from the Ge	eneral Flectric Company for interim storage
	purnoses only provided the constraints	s. conditions and controls committed to in th
	licensee's letter dated November 30 1	1993. (identification # NRC-93-036). are
	satisfied; and further provided that th	ne total number of such fuel assemblies store
	at the licensee's site at any given tim	e does not exceed 250.
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		U.S. NUCLEAR REGULATORY COMMISSION		PAGE	4	OF	8	PAGES
	~)		License Number					
				SNM-1	107			·
		SUPPLEMENTARY SHEET	Docket or Reference	e Number 70-11	51			
		· ·	Sa	feguards	Cor	ditic	ns	
		SAFEGUARDS CONDIT	IONS					
S	SECTION 1.	0 MATERIAL CONTROL AND ACCOUNTING						
S	G-1.1	The licensee shall follow pages i through its "Fundamental Nuclear Material Contro Fabrication Facility," with all pages ide May 23, 1997). Any further revisions to accordance with, and pursuant to, either	xvii and Plan for entified as this Plan 10 CFR 70.	Chapters the Colu Revisio shall be 32(c) or	1.0 mbia n 27 mad 70.	thro Fuel (dat e onl 34	ugh 9 ed y in	€.0 of
S	G-1.2	Operations involving special fulcies mater Plan identified in Condition SG-1.1 shall appropriate safeguards plan has been appr Commission.	rial which not be in oved by the	are not itiated e Nuclea	ref unti r Re	erenc 1 an gulat	ed in ory	n the
S	G-1.3	In lieu of the requirements contained in the Forms DOE/NRC-742 and 742C, the licer provided all information required by the completing the particular form is include	10 CFR 74.1 see may use latest prin d.	13(a)(1) e computented ins	and er g truc	(a)(enera tions	2) to ted 1 for	o use forms
اد	G-1.4	In lieu of the requirements contained in DOE/NRC Form-741, the licensee may use conformation required by the latest printer particular form is included.	CFR 70.54 mputer gen d instruct	and 74.1 erated f ions for	5 to orms com	use prov pleti	the ided ng tl	all he
S	G-1.5	Deleted Per Amendment 3, August 1996 Comm Fundamental Nuclear Material Control Plan	itment now	contain	ed i	n lic	ense	e's
S	G-1.6	Notwithstanding the requirements of the F Condition SG-1.1, the licensee may use (1 control (including daily control limit mo any linear-response tube or rod scales, i linear over its range of use within the o calculating a bias at four levels across that the four results are not statistical continued linearity of response of the so calibration against at least four traceat use.	NHG Plan in itoring an n any hit iscriminat the range ly different ales is ve le standar	dentifie Standar nd bias ially de ion of t of use a nt. and rified b ds cover	d in d fo corr mons he s nd d (2) y mo ing	Lice r mea ectio trate cale emons that nthly the r	nse suren ns) d to by trat the ange	nent for be ing of
SG	6-1.7	Notwithstanding the requirements contained licensee's Fundamental Nuclear Material (from physical inventory requirements relat Condition S-4: provided the conditions ar licensee's November 30, 1993, letter (ide satisfied.	d in Secti Control Pla Itive to th Id commitme Intificatio	ons 5.2. n, the 1 e materi nts cont n # NRC-	2 ar icer al i aine 93-(nd 5.2 isee i identi ed in 036) a	2.3 o s ex fied the are	of the cempte l in

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NRC FORM 374A	U.S. NUCLEAR REGULATORY COMMISSION	PAGE 5 OF 8 PAGE
(7 -94)		License Number
	MATERIALSLICENSE	SNM-110/
	SUPPLEMENTARY SHEET	70-1151
		Safequards Conditions
SG-1.8	Notwithstanding the requirement of Section Fundamental Nuclear Material Control Plan count upon receipt of special nuclear material such requirement relative to the material provided the conditions and commitments of	on 6.2.1(a).5 of the licensee's to unpackage and perform an item terial. the licensee is exempted from lidentified in Condition S-4; contained in the licensee's
SG-1.9	Notwithstanding the requirement of Section which is incorporated via 10 CFR 74.15. It scrap receipts (following recovery process licensee shall not be subject to any time	on II.A.7, block U, of NUREG/BR-0006 co complete receiver's measurements (sing) within 60 days of receipt, the limit relative to recovering and
SG-1.10	With respect to Section 5.1.4 (b) of the "allowed number" within the phrase "allow specified as being	Plan identified by Condition SG-1.1 ved number of defects" is hereby
	(i) up to two defects when each item with value equal to or less than 50 grams U-23	nin a batch of items has an assigned 35:
	(ii) no more than one defect when each it assigned value of less than 500 grams U-2 assigned value in excess of 50 grams U-23	em within a batch of items has an 235, but one or more items has an 25; and
	(iii) zero defect when any item within a grams U-235.	batch of items contains 500 or more
SG-1.11	Notwithstanding the first paragraph of Se Condition SG-1:1, the licensee shall cond all SNM materials received (regardless of receiver's or shipper's values), except to Section 7.1 of NUREG-1065 (Rev. 2) as be comparisons.	ction 7.1 of the Plan identified by uct shipper-receiver comparisons on whether booked on the basis of or those materials identified in ng exempted from shipper-receiver
		ATECTC STONIETCANCE
SECTION 2.1	J PRISICAL PROTECTION OF SIM OF LOW SIN	MIEUIC STUNIFICANCE
SG-2.1	The licensee shall follow the "Site Physic Electric Corporation, Columbia, S.C.," do October 1, 1987; the "Revision Record" consecurity Plan (current to October 1, 1994) accordance with the provisions of 10 CFR	ical Security Plan - Westinghouse ated March 1980; Revision 10.0 dated ontained in the approved Physical 4); and as may be revised in 70.32(e).
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(License Number					
			SNM-11	07			•
1	MATERIALS LICENSE	Docket or Reference	e Number				
9	SUPPLEMENTARY SHEET		70-11	51			
		Safeg	uards C	ondi	tions	•	
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SECTION 3.0 -- INTERNATIONAL SAFEGUARDS

- The licensee shall follow Codes 1 through 6 of Transitional Facility SG-3.1 Attachment No. 5A dated August 31, 1988, to the US/IAEA Safeguards Agreement. Such Transitional Facility Attachment shall be interpreted in accordance with Conditions SG-3.1.1 through SG-3.1.7.
- With respect to Transitional Facility Attachment Code 2: SG-3.1.1

The reference design information is that dated by the licensee on October 14. 1985. "Information on the facility" also includes other facility information submitted via Concise Notes in accordance with 10 CFR 75.11(c).

SG-3.1.2

submitted via Concise Notes in accordance with 10 CFR 75.11(c).
With respect to Transitional Facility Attachment Code 2.2:
Substantive changes to the information provided in the Columbia Plant Design
Information Questionnaire (DIQ) means those changes requiring amendment of the
Transitional Facility Attachment. Such changes shall be provided by letter to
the NRC Office of Nuclear Material Safety and Safeguards at least 70-days in
advance of implementation.
Non-substantive changes to the information in the DIQ means those changes not
requiring amendment of the Transitional Facility Attachment. Such changes
shall be provided by Concise Note (From DOE/NRC-740M) within 30 days of
receiving notification from the NRC that the facility has been identified
under Article 39(b) of the US/IAEA Safeguards Agreement.
The types of modifications with respect to which information is required under
10 CFR 75.11. (to be submitted in advance). are those items stated in Code
2.2. specifically:
(a) "Any change in the purpose of type of facility" means:
Any deviation from the described activities involving special nuclear material
and any change to the maximum enrichment and/or quantities of U-235 currently
authorized by License No. SNM-1107. and/or as described in Paragraph 5 of the
Device Advance IM 1000 detabot IM 10000 detabot IM 10000 detabot IM 100000 detabot IM

authorized by License No. SNM-1107, and/or as described in Paragraph 5 of the Design Information Questionnaire (DIQ) dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c). Included also is any deviation from the described special nuclear material (SNM) production activities described in paragraph 6 of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c).

(b) "Any changes in the layout of the facility which affects safeguards implementation of the provisions of the Protocol means:

Any change in the existing facility and/or site layout or new addition affecting any activity involving SNM as described in Paragraphs 10 and 11

NRC FORM 374A	U.S. NUCLEAR REGULATORY COMMISSION		PAGE 7		8	PAGES
(7-84)		License Number	AGE /	Ur	0	FAUCO
			SNM-110	7		
	MATERIALS LICENSE SUPPLEMENTARY SHEET	Docket or Reference Nu	^{mber} 70-1151			
		Safeg	uards C	onditi	ons	
		<u></u>			<u> </u>	
	(per the referenced attachments of t modified in accordance with 10 CFR 7 modification to. or deviation from. 14 (per the referenced attachments) as modified in accordance with 10 CF	he DIQ dated (5.11(c). Incl the data provi of the DIQ dat R 75.11(c).	October Uded al ded in Ged Octo	14. 19 so is Paragr ber 14	85, o any aphs . 198	n as 13 and 5, or
(c)	"Any change that makes the selected described in Code 3.1.2) inadequate means:	Key Measuremer for the Agency	it Point 's acco	s (KMP unting	s) (a purp	s ose"
	Any change to the KMPs as described Columbia Transitional Facility Attack Agreement, or as modified in accordan in any KMP alteration affecting the p 10 CFR 75.4(m)	in Code 3.1.2 hment to the U nce with 10 CF ourpose of KMP	of the S/IAEA R 75.11 s as st	Westin Safegu (c), tl ipulato	ghous ards nat r ed by	e- esults
. (d)	"Any change in the physical inventory affect the inventory taking for the A	y procedures t Agency's accou	hat wou nting p	ld adve urpose	ersel s" me	y ans :
	Any change to the description data correferenced attachments) of the DIQ data in accordance with 10 CFR 75.11(c), the conclude an SNM material balance for	ontained in Pa ated October 1 that would not the Westingho	ragraph 4. 1985 permit use-Col	34 (p . or a the A umbia	er th s mod gency facil	e ified to ity.
(e)	"Introduction of a significantly less accounting purposes" means:	s accurate ana	lytical	metho	d for	- -
	Any recalculation of the "Relative Er in Attachment 36.2 referenced in Para 1985, or as modified in accordance with the estimates of the random and syste factor of two or more.	rrors-Random a agraph 36 of t ith 10 CFR 75. ematic errors	nd Syst he DIQ 11(c). being a	ematic dated that r ffecte	" as Octob esult d by	listed er 14. s in a
(f)	"Decrease in the frequency of calibra significantly decreases the accuracy means:	ating measurin of the materi	g equip als acc	ment i countin	fit gsys	stem"
	Any change that results in the estima affected by a factor of two or more.	ates of the sy	vstemati	c erro	r bet	ing
(g)	"Any change in the statistical proce measurement error estimates to obtain (S/R) differences and material unacce	dures used to n limits of en ounted for (Ml	combine ror for JF)" mea	e indiv shipp ans:	vidua ber/re	l eceiver

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,,		License Number
	MATERIALS LICENSE	Docket or Reference Number
	SUPPLEMENTARY SHEET	70-1151
		Safequards Conditions
	Any deviation from (or modification outlined in Attachments 37.1. 37.2, the DIQ dated October 14, 1985, or a 75.11(c).	of) the equations and/or calculations and 37.3 referenced in Paragraph 37 of s modified in accordance with 10 CFR
SG-3.1.3	With respect to Transitional Facility At	tachment Code 3.1.2:
	KMP* This is a KMP in which all shipp recorded and reported even if numericall reported by the Nuclear Materials Manage receipt of the receiver's measurement re	er receiver differences (SRDs) must be y zero. SRDs are computed and ment and Safeguards System upon sults.
SG-3.1.4	With respect to Transitional Facility At	tachment Code 4:
	The licensee shall use the material comp dated October 14, 1985, and as modified notwithstanding any other requirements for reporting, the licensee may add or delet material routinely processed and on inver- telephone notification to the Office of Safeguards. Follow-up documentation, in accompanied by appropriate changes to Tal shall be submitted within three regular we notification.	osition codes documented in the DIQ by Concise Notes. Further, or advance notification and/or e composition codes for nuclear ntory at CFFF immediately upon Nuclear Material Safety and the form of a Concise Note ble 1 of Attachment 34.8 to the DIQ workdays of the telephone
SG-3.1.5	With respect to Transitional Facility At	tachment Code 4.1:
	Measured discards should be reported as facility) when shipped off-site to an ausystem will not process measured discards shipped off-site).	an SN (Shipment to non-safeguards thorized burial ground. (The IAEA s as loss/disposal (LDs) when they are
SG-3.1.6	With respect to Transitional Facility At	tachment Code 5.1.1:
	For inventory changes, time of recording next regular workday (Monday through Fri	, wupon" means: No later than the day).
,	For those occasions where natural or dep enriched above 0.711 percent through com uranium in process equipment, the result being produced through a blending operat shall be recorded upon obtaining measure category change has occurred.	leted uranium is inadvertently mingling with residual enriched ant product shall be considered as ion and the material category change ment confirmation that a material
~G-3.1.7	With respect to Transitional Facility At	tachment Code 6.2.2:
	For Concise Notes describing the anticip "anticipated operational programme" mean schedule.	ated operational programme, s: Anticipated physical inventory



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D.C. 20555-0001

December 9, 1997

DOCKET:

LICENSEE: Westinghouse Electric Corporation Columbia. SC

70-1151

SUBJECT: SAFETY EVALUATION REPORT: APPLICATION DATED JULY 14, 1997, RELEASE OF INDUSTRIAL WASTE TREATMENT PRODUCTS TO CEMENT MANUFACTURERS

BACKGROUND

By letter dated July 14, 1997, Westinghouse Electric Corporation requested an amendment to License No. SNM-1107 to authorize the release of industrial waste treatment products (primarily calcium fluoride) to cement manufacturers. The July 14, 1997, submittal also requested withdrawal of the authorization to use up to 15 grams of ²³⁵U for testing and demonstration purposes at off-site locations. The licensee indicated that this authorization was used infrequently and that future requirements for this type of activity could be handled more efficiently on a case-by-case basis.

By letter dated November 7, 1997, the NRC staff requested additional information on the licensee's proposal to release waste treatment products to cement manufacturers. The licensee responded by letter dated November 17. 1997, which included a dose assessment on the anticipated use of the material.

DISCUSSION

In 1985, the NRC authorized the licensee to dispose of industrial waste treatment products, in which the mean concentration of uranium does not exceed 30 pCi/g, in a chemical landfill. The NRC granted further authorization in 1987 to allow release of the material to be used in the production of steel. By letter dated July 14, 1997, the licensee also requested authorization to release the waste treatment products to cement manufacturers. The waste treatment products will be used as a filler and as a fluxing agent in the cement.

The licensee has committed to reducing the radioactive contents of all such transferred materials to levels as low as reasonably achievable below the 30 pCi/g limit. To ensure that the concentration of materials released is less than 30 pCi/g, the licensee has committed to implementation of a sampling plan to characterize the material transferred in accordance with

NUREG/CR-2082, "Monitoring for Compliance with Decommissioning Termination Survey Criteria."

The licensee has also committed to maintaining records pertaining to the release of the waste treatment products, including identities of receivers. In addition, the licensee will notify each receiver in writing of the uranium content by including the radionuclide concentration on the Material Safety Data Sheet for each batch of material.

The NRC staff performed a conservative dose assessment to estimate the potential risks to a worker from exposure to uranium during the manufacture of cement with the licensee's material. A conservative assessment was performed because, once the material is released from the licensee's control, the NRC can no longer place restrictions on its use to reduce potential doses.

The staff assumed that the worker is exposed to dust with an insoluble uranium concentration of 30 pCi/g for 40 hours per week. 50 weeks per year. The dust concentration in air was assumed to be 5 mg/m^3 , which is the maximum exposure level (without a respirator) to nuisance dust of a respirable fraction established by the Occupational Health and Safety Administration in 29 CFR 1910.1000. Table Z-3. The worker's breathing rate was assumed to be 2.4x10⁶ L/yr for a man engaged in light activity. taken from the "Report of the Task Group on Reference Man," International Commission on Radiation Protection (ICRP) No. 23, 1974.

This scenario results in a committed effective dose equivalent of 0.45 mSv/yr (45 mrem/yr) to the worker. Because the external dose to the worker is orders of magnitude less than the inhalation dose, the total effective dose equivalent for the worker does not exceed the NRC dose limit of 1 mSv/yr (100 mrem/yr) specified in 10 CFR 20.1301(a)(1) for a member of the public. As previously stated, the staff considers the assessment described above to be extremely conservative because it assumes that all of the worker's occupational dust inhalation in a year is composed entirely of the licensee's waste treatment products.

Other exposure scenarios were considered by the staff including (1) exposure to the cement user. (2) exposure during an accidental spill of waste treatment products during transport, and (3) external exposure during use of concrete products. The dose estimated for the worker during the manufacture of cement was determined to be bounding for all of these scenarios.

The cement containing waste treatment products will be provided by the cement manufacturer to a concrete manufacturer. The dose to a worker during the

manufacture of concrete is expected to be orders of magnitude less than the occupational dose during the manufacturer of cement due to the low concentration of uranium in the cement product. As previously stated, the waste treatment products will be used as a filler and as a fluxing agent in the cement, and the licensee expects that the waste treatment products will constitute a maximum of 0.25% of each cement batch. Inhalation exposure during an accident will also be significantly less. due to a relatively short exposure time. Finally, external exposure to a member of the public from finished concrete products was estimated to be 0.05 mSv/yr (5 mrem/yr) after ingrowth of the uranium daughters (up to radon), which is also significantly less than the dose to the worker during the manufacture of cement.

The staff's review of the amendment application has been coordinated with Rodney Wingard from the Bureau of Land Management/Division of Radioactive Waste Management of the South Carolina Department of Health and Environmental Control (DHEC). Although DHEC does not license Westinghouse for radioactive materials, the Westinghouse fuel fabrication facility is located in South Carolina, where DHEC has the responsibility to ensure the public is protected from radiological hazards in accordance with South Carolina Materials Regulations 61-63. Title A. DHEC considers the NRC the lead agency in this matter but provided assistance in this review.

DHEC provided an independent dose assessment using the computer code RESRAD. Using a resident farmer scenario and RESRAD default parameters. DHEC staff estimated that the dose to the maximally exposed individual will be less than 10 mrem/yr for the first 400 years. After 400 years, the dose will increase to approximately 28 mrem/yr at 1000 years due to the ingrowth of radon. The dose estimate remains below 10 mrem/yr if radon is excluded. Although the waste treatment products will be made into cement products and not directly applied to land, this scenario illustrates possible risks in the event that the material is spilled or accidentally disposed of on a land surface. In addition, the concrete products will eventually crumble leaving debris containing uranium in place.

On July 21, 1997, the NRC promulgated a new rule, 10 CFR Part 20, Subpart E. "Radiological Criteria for License Termination." This rule establishes a dose limit of 25 mrem/yr, excluding radon, for unrestricted release of sites. Although the rule is not applicable in this case, the above scenario does result in a dose which meets this limit. On October 16, 1997, Mr. Wingard indicated that DHEC had no objection to the NRC granting the licensee's amendment request.

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ENVIRONMENTAL REVIEW

The staff has determined that the following conditions have been met:

- 1. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.
- 2. There is no significant increase in individual or cumulative occupational radiation exposure.
- 3. There is no significant construction impact.
- 4. There is no significant increase in potential for. or consequences from, radiological accidents.

Accordingly, pursuant to 10 CFR 51.22(c)(11), neither an environmental assessment nor an environmental impact statement is warranted for this action.

CONCLUSION

The staff has determined that release to cement manufacturers of industrial waste treatment products, such as calcium fluoride, which contain less than 30 pCi/g of uranium will not result in any adverse effect on public health and safety or the environment. In addition, the staff does not have any objection to withdrawal of the authorization to use up to 15 grams of ²³⁵U for testing and demonstration purposes at off-site locations. Therefore, the staff recommends that the license amendment be granted.

The Region II project inspector has no objection to the proposed action.

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