

P.O. Box 63 Lycoming, NY 13093

April 15, 2005 NMP2L 2123

United States Nuclear Regulatory Commission Attn: Document Control Desk Washington, DC 20555-0001

SUBJECT: Nine Mile Point Unit 2 Docket No. 50-410 Facility Operating License No. NPF-69

> Licensee Event Report 05-001, "Both Standby Gas Treatment Subsystems Inoperable Due to an Original Design Deficiency"

Gentlemen:

In accordance with 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v)(C), we are submitting Licensee Event Report 05-001, "Both Standby Gas Treatment Subsystems Inoperable Due to an Original Design Deficiency."

4-15-05 y J. O'Connor Tim

Plan General Manager

TJO/DEV/sac Attachment

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I Mr. G. K. Hunegs, NRC Senior Resident Inspector

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NRC FORM	366			U.S. NUCLEAR	R REG	ULATORY	COMMISS	SION A	PPROVE	D BY OMB:	NO. 3150-0104	•	EXPIRES:	06/30/2007
(6-2004)								E	stimated	burden pe	r response to	comply with the	his mand	atory collection
								pi	ocess an	d fed back	to industry. Send	d comments reg	arding bur	den estimate to
]		LICEN	SEE E\	/ENT REPO	DRT	(LER)		R	egulatory	Commissio	n, Washington,	DC 20555-000	1. or by in	ternet e-mail to
						• •		R	egulatory	Affairs, NEC	B-10202, (3150-	-0104), Office of	Managem	ent and Budget,
I		(See re	everse f	or required	num	ber of		d	pes not di	splay a cum	ently valid OMB	control number,	the NRC r	nay not conduct
		digits	/charao	cters for each	ch blo	ock)			sponso	r, and a p	erson is not p	equired to res	pona to,	ine information
1. FACILIT	Y NAME				-		-	2.	DOCK	T NUMB	ER 3.	PAGE		
Nine	e Mile	Point U	Init 2							050	00410	1	OF	5
4. TITLE BC	th Sta	ndby G	as Tre	eatment Su	ubsys	stems Ir	nóperat	ole Due	to an	Origina	l Design D	eficiency		
5. EV		TE	6. 1	ER NUMBER	2	7. R	EPORT D	ATE		8	OTHER FAC	ILITIES INVO	DLVED	
				SEQUENTIAL	REV				FACILITY	NAME			DOCKET	NUMBER
MONTH	DAY	YEAR	YEAR	NUMBER	NO.	MONTH	DAY	YEAR			-		050	000
03	17	2005	2005	- 001 -	00	04	15	2005	FACILITY	NAME			DOCKET	NUMBER
9. OPERA	TING MO	DDE	1	1. THIS REPO	ORT IS	SUBMITT	ED PURS	SUANT TO	THE R	EQUIREN	IENTS OF 10	CFR§: (Che	ck all that	apply)
			20.2	201(b)		□ 2	0.2203(a)	(3)(i)		50.73(a)	(2)(i)(C)	50.73	(a)(2)(vii)	
	1		20.2	201(d)			0.2203(a)	(3)(ii)		50.73(a)	(2)(ii)(A)	50.73	(a)(2)(viii)(A)
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10. POWE	R LEVE	L	20.2	203(a)(2)(ii)			0.36(c)(1)	(ii)(A)		50.73(a)	(2)(iv)(A)	50.73	(a)(2)(x)	~
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	100			203(a)(2)(iv) 203(a)(2)(v)			0.46(a)(3) 0 73(a)(2)	(II) /i)/A)		50.73(a)	(2)(V)(B) (2)(V)(C)		(a)(5) =R	
	•		20.2	203(a)(2)(vi)		⊠ 5	0.73(a)(2)	(i)(B)	ā	50.73(a)	(2)(v)(D)	Specif	y in Abstra	ct below
					1	2. LICENS	SEE CON	TACT FO		ER		or in N	RC Form :	366A
NAME											TELEI	PHONE NUMBER	(Include An	ea Code)
Robert	C. Go	dley, M	lanage	r Operatio	ns						(31	15) 349-70	023	
			13. COM	PLETE ONE	LINE	FOR EACH	H COMPO	NENT FA	ILURE	DESCRIB	ED IN THIS R	EPORT		
CAUS	E	SYSTEM	COMPO	NENT FACTU	IU- JRER	REPOR TO E	TABLE EPIX	CAL	SE	SYSTEM	COMPONENT	MANU- FACTURER	REF 1	ORTABLE O EPIX
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		14.	SUPPLE	MENTAL RE	PORT	EXPECTE				15. E)	PECTED	MONTH	DAY	YEAR
☐ YES	(If yes, d	complete	15. EXPE	ECTED SUBM	iissio	N DATE)				SUB				
ABSTRAC	T (Limit	to 1400 si	aces. i.e	approximate	elv 15	sinale-spa	ced typew	ritten line	s)			l		L
On Ma	rch 17	2005.	with Nin	e Mile Poir	nt Uni	t 2 (NMF	2) oper	ating at	approx	imately	100 percen	t power. Ni	ne Mile	Point
Nuclea	ar Stati	on, LLC	determ	ined that o	n şev	eral occ	asions d	uring th	e last t	hree yea	ars, NMP2 I	nad operate	ed with	both
subsys	stems of	of the St	andby (Gas Treatm	ient (SGT) sy	stem sin	nultaneo	ously ir	operable	e, that Tech	nical Spec	ificatior	(TS)
Limitin	g Cono	lition for	Opera		3.0.3	was not	entered	as requ	lired by	y Conditi	on D of TS	3.6.4.3, an	id that t	he na da
inertine	, and	nuraina	nermitt	ed operatio	n of a	an SGT s	u. Fianti subsyste	m with	be filte	euures r er train re	ecirculation	line pressi	ire conf	rol valve
in the i	manua	control	mode	and not fully	y clos	ed. An e	engineer	ing eval	uation	conclude	ed that, in th	nis configu	ration, t	he SGT
subsys	tem is	not cap	able of	automatica	Ily pe	erforming	g its desi	ign basi:	s secol	ndary co	ntainment o	irawdown f	function	and,
therefo	ore, sho	ould be a	conside	ered inopera	able.									
This of	ont ic	ronortal	le in ar	cordance v	with 1		50 73(a)/	(2)/i)/B)	ac anv	onerati	on or condit	ion which y	Nas pro	hibited by
the pla fulfillm	nt's Te ent of a	chnical a safety	Specifi function	cations and n of the SG	10 C T sys	CFR 50.7	'3(a)(2)(v)(C) as	an ev	ent or co	ndition that	could have	e preve	nted
		46.1			- 1 1			1				14 A - •		
pressu	re con	troi valv	ent was e manu	an original ally throttle	d ope	en rende	red the	SGT sub	ystem osyster	operatio n incapa	ible of autor	matically p	erformir	ion line ng its
valves	do not	return t	o the a	utomatic op	awdo eratii	ng mode	on in a c on an S	GT sys	asis ad tem ini	tiation si	gnal.	nce the pre	ssure c	ontroi
Plant o	peratir	ng proce	dures v	were revise	d to r	equire d	eclaring	an SGT	subsy	rstem ind	operable wh	nen operate	ed with a	а
Piessu														

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C FORM 366A U.S. NUCLEAR REGULATORY COMMISSION 01) LICENSEE EVENT REPORT (LER)									
FACILITY NAME (1) DOCKET (2) LER NUMBER (6) PAGE (3) NUMBER (2)									
Nine Mile Point Unit 2	05000410	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF	5		
		2005	001	00					
On March 17, 2005, with Nine Mile Point Un	nit 2 (NMP2) operating	at approxi	imately 100 per	rcent powe	er, Nine	e Mile F	Point		
On March 17, 2005, with Nine Mile Point U Nuclear Station, LLC determined that NMP Treatment (SGT) system simultaneously in (LCO) 3.0.3 was not entered as required by were not initiated.	nit 2 (NMP2) operating 2 had operated in the p operable, that Technic y Condition D of TS 3.6	at approxipast with b al Specific 3.4.3, and t	imately 100 per oth subsystem ation (TS) Limi that the actions	rcent powe s of the St ting Condi prescribe	er, Nine andby ition for d by TS	e Mile F Gas r Opera S LCO	Point ation 3.0.3		

The safety function of the SGT system is to ensure that radioactive materials that leak from the primary containment into the secondary containment following a DBA are filtered and adsorbed prior to exhausting to the environment. This is accomplished by establishing and maintaining a negative secondary containment pressure of at least 0.25 inches water gauge with respect to the outside atmosphere. The SGT system consists of two fully redundant subsystems, each with its own set of ductwork, dampers, charcoal filter train, and controls. Following initiation, both subsystem fans start and the associated subsystem inlet and fan discharge valves open. Negative pressure in the secondary containment is automatically controlled by the SGT subsystem filter train recirculation line pressure control valves.

The SGT system also provides charcoal filtration of the primary containment atmosphere during inerting, de-inerting, and purging. In this operating mode, the SGT filter train recirculation line pressure control valve must be manually throttled open to balance drywell in-flow and out-flow, to maintain drywell pressure within the desired band and prevent isolations/initiations on high drywell pressure. If a DBA occurred while the SGT subsystem was in this configuration, the pressure control valve would remain in the throttled position, and the net SGT subsystem exhaust rate would be reduced due to flow through the filter train recirculation line. An engineering evaluation concluded that with this reduced net exhaust rate, the SGT subsystems were not capable of automatically performing their design basis secondary containment drawdown function and, therefore, should be considered inoperable.

A review of SGT system operation during the past three years was subsequently conducted to identify those occasions when an SGT subsystem was operated with the filter train recirculation line pressure control valve in the manual control mode, and to then determine the plant status (operating mode) and configuration of other required systems and components (e.g., the other SGT subsystem, power sources, etc.) during those periods. This review identified the following:

 On March 15 and 16, 2002, during shutdown for a refueling outage, the Division 2 SGT subsystem was operated with pressure control valve 2GTS*PV5B in manual for primary containment purging and should have been declared inoperable. The Division 1 emergency diesel generator was simultaneously inoperable (for pre-planned maintenance) for greater than four hours, thereby rendering the Division 1 SGT subsystem inoperable. With both SGT subsystems inoperable, TS LCO 3.0.3 should have been immediately entered in accordance with Condition D of TS 3.6.4.3, "Standby Gas Treatment (SGT) System," and the actions specified in TS LCO 3.0.3 should have been initiated.

(1-2001)	LICENSE	E EVENT RE	PORT (L	.ER)				
FACILITY NAME (1)		DOCKET (2) NUMBER (2)	l	LER NUMBER (6)			PAGE (3)
Nine Mile Point Unit 2		05000410	YEAR	AR SEQUENTIAL REVISION NUMBER NUMBER			OF	5
			2005	001	00			
NARRATIVE (If more space is required, use addit	ional copies of NH d)	RC Form 366A) (17	7)					

- 2. On November 24 and 25, 2002, during startup from a forced outage, the Division 2 SGT subsystem was operated with pressure control valve 2GTS*PV5B in manual for primary containment purging and should have been declared inoperable. The Division 1 emergency diesel generator was simultaneously inoperable (for pre-planned maintenance) for greater than four hours, thereby rendering the Division 1 SGT subsystem inoperable. With both SGT subsystems inoperable, TS LCO 3.0.3 should have been immediately entered in accordance with Condition D of TS 3.6.4.3, and the actions specified in TS LCO 3.0.3 should have been initiated.
- 3. On March 15, 2004, during shutdown for a refueling outage, the Division 2 SGT subsystem was operated with pressure control valve 2GTS*PV5B in manual for primary containment purging and should have been declared inoperable. Shortly after entering Mode 2, the Division 1 SGT subsystem was declared inoperable. Thus, both SGT subsystems were inoperable. TS LCO 3.0.3 should have been, but was not, entered; however, plant shutdown was already in progress and all of the actions specified in TS LCO 3.0.3 were actually satisfied. Thus, there was no violation of the TS 3.0.3 requirements.

The above review and the associated reportability evaluation were completed on March 17, 2005. The review concluded that there were instances when both SGT subsystems were simultaneously inoperable, and the actions prescribed by TS LCO 3.0.3 were not initiated. Therefore, the event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v)(C).

II. Cause of Event

The cause of this event was an original design deficiency. SGT subsystem operation with the filter train recirculation line pressure control valve manually throttled open during containment inerting, de-inerting, and purging rendered the SGT subsystem incapable of automatically performing its design basis secondary containment drawdown function if a DBA occurred, since the pressure control valves do not return to the automatic operating mode on an SGT system initiation signal. In addition, the procedures for operating the SGT system during primary containment inerting, de-inerting, and purging permitted placing the SGT pressure control valves in manual without declaring the associated SGT subsystem inoperable and entering TS LCO 3.6.4.3. Personnel involved with development and review of the original operating procedures apparently did not recognize the effect of manual operation of an SGT subsystem's pressure control valve on the capability of the SGT subsystem to perform its safety function. As a result, there were three instances during the last three years when it was not recognized that both SGT subsystems were simultaneously inoperable:

- 1. March 15 and 16, 2002 (during shutdown for a refueling outage) Total duration of approximately 27.9 hours.
- 2. November 24 and 25, 2002 (during startup from a forced outage) Total duration of approximately 16.7 hours.
- 3. March 15, 2004 (during shutdown for a refueling outage) Total duration of approximately 11 hours.

NRC FORM 366A (1-2001)	U.S. NUCLEAR REGULATORY CO	LER)						
	FACILITY NAME (1)	DOCKET (2 NUMBER (2	2)	LER NUMBER (6)			PAGE (3)
Nine Mile	Point Unit 2	05000410) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4	OF	5
			2005	001	00			

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

III. Analysis of Event

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications." The SGT system is required to be operable during power operation. As noted above, both SGT subsystems were inoperable on three occasions. For two of those occasions (March 15 and 16, 2002 and November 24 and 25, 2002), TS LCO 3.0.3 was not entered and the actions prescribed by TS LCO 3.0.3 were not initiated. For the March 15, 2004 occurrence, although TS 3.0.3 was not entered, plant shutdown was already in progress and all of the actions specified in TS LCO 3.0.3 were actually satisfied; thus, there was no actual violation of the TS LCO 3.0.3 requirements.

Additionally, this event is reportable in accordance with 10 CFR 50.73(a)(2)(v), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (C) Control the release of radioactive material." There were three occasions when both SGT subsystems were simultaneously inoperable; thus, fulfillment of the SGT system safety function could not be assured.

There were no actual consequences of this event since no design basis accidents occurred during the time periods when both SGT subsystems were inoperable.

The current design basis accident radiological consequence analyses assume that a negative secondary containment pressure of at least 0.25 inches water gauge with respect to the outside atmosphere is established at 60 minutes following event initiation. During this 60-minute period, primary containment leakage and engineered safety feature system leakage are assumed to be released from the secondary containment to the environment at ground level. Thereafter, the secondary containment atmosphere is processed through the SGT system charcoal filters and released to the environment via the main stack.

For a postulated DBA with both SGT subsystems initially inoperable, negative secondary containment pressure would not be established or maintained in accordance with the radiological consequence analyses design basis assumptions, thereby creating the possibility of an additional period of unfiltered ground-level release of radioactive materials to the environment. Plant operators would be alerted to this condition since the secondary containment (reactor building) pressure is indicated and recorded and loss of negative pressure is alarmed in the main control room. The operators would then take actions to restore an SGT subsystem to full-capacity operation. Assuming an additional 60 minutes to establish a negative secondary containment pressure of at least 0.25 inches water gauge with respect to the outside atmosphere (i.e., 120 minutes from event initiation) and using other design basis assumptions, offsite exposures would remain within the guidelines of 10 CFR 100; however, the control room thyroid dose would exceed the 30-rem guideline value of 10 CFR 50, Appendix A, General Design Criterion (GDC) 19. Potassium Iodide (KI) is, and has been, available to the control room operators in accordance with Emergency Plan implementing procedure EPIP-EPP-15, "Emergency Health Physics Procedure." With administration of KI within two hours of the release, the thyroid dose to control room personnel would be reduced to within the GDC 19 guideline value.

A probabilistic risk assessment evaluation has been performed for this event. The evaluation determined that the function of the SGT system to establish and maintain negative pressure in the secondary containment is a relatively minor contributor to secondary containment effectiveness and is of low safety significance. Defeating the automatic mode of the SGT subsystem filter train recirculation line pressure control valves by placing them in the manual control mode would not result in an increase in the baseline Core Damage Frequency or Large Early Release Frequency.

Based on the above, the event did not pose a threat to the health and safety of the public or plant personnel.

	LICENSEE EVENT REPORT (LER)							
	FACILITY NAME (1)	DOCKET (2) NUMBER (2)	L	PAGE (3)				
1	Nine Mile Point Unit 2	05000410	YEAR 2005	SEQUENTIAL REVISIO NUMBER NUMBE	R 5 OF 9			
ARR/	TIVE (If more space is required, use additional copies of N	RC Form 366A) (17	· · · · · · · · · · · · · · · · · · ·					
/. <u>c</u>	orrective Actions							
Ti be co be	ne operating procedures for primary containmer een revised to clearly indicate that when an SGT ontrol valve in the manual control mode, the sub e entered.	t inerting, de-ine subsystem is o system will be d	erting, and perated will eclared ino	purging and for the SC th the filter train recircu perable and the assoc	ST system have ulation line pressure ciated TS LCO will			
A co ac fu in	n extent of condition review of selected operatin ompleted to determine if there are any other inst ction that inhibits the ability of a safety-related sy nctions (when called upon to do so) from an alig stances of the type identified for the SGT syster	g procedures an ances where ex ystem to automa gnment for non-s n were discover	d their ass isting proce tically align afety-relate ed.	ociated safety related edures contain directio to perform its design ed or off-normal functi	systems has been in which involves an safety-related ons. No other			
A in	design modification to automatically return the pitiation signal is also being considered.	pressure control	valves to tl	he automatic operating	g mode on an SGT			
. <u>A</u>	dditional Information							
Α	Failed Components:							
	None							
В	Previous similar events:			×				
	LER 98-23 reported a condition involving an or SGT system to perform its design function will circuitry for unit coolers that remove heat from actual design or operation of SGT system equ event described in this LER.	original design d thout manual op n the secondary uipment. Thus, t	eficiency th erator actic containme he correctiv	at could have impacte on. The deficiency invo nt following a DBA and ve actions would not h	ed the ability of the plved initiation d did not affect the ave prevented the			
С	. Identification of components referred to in this	Licensee Event	Report:					
	Components	IEEE 80	05 System	<u>ID IEEE 803</u>	.1 Function			
	Standby Gas Treatment System		вн	N	one			
	Pressure Control Valve		вн	P	cv			
	Secondary Containment (Reactor Building)		NG	N	one			
	Primary Containment		NH	N	one			

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