REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8101210357 DOC.DATE: 81/01/12 NOTARIZED: NO DOCKET # FACIL:50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220 AUTH.NAME AUTHOR AFFILIATION DISE,D.P. Niagara Mohawk Power Corp. RECIP.NAME RECIPIENT AFFILIATION

IPPOLITO, T.A. Operating Reactors Branch 2

SUBJECT: Forwards EIA for chemical treatment of main condenser cooling water, Effect on environ during feed of Nalco 7348 & 7388 to main condenser cooling water negligible. Hazleton rept to Nalco Chemical Corp encl.

DISTRIBUTION CODE: COOIS COPIES RECEIVED:LTR _ ENCL _ SIZE: _//e_____ TITLE: Environ. Report Amendments & Related Correspondence

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NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

January 12, 1981

Director of Nuclear Reactor Regulation Attn: Mr. Thomas Ippolito, Chief Operating Reactors Branch No. 2 U.S. Nuclear Regulatory Commission Washington, D.C. 20555

> Re: Nine Mile Point Unit 1 Docket No. 50-220 DPR-63

Dear Mr. Ippolito:

The study for the treatment of the main condenser cooling water at Nine Mile Point Unit 1, with cooling water dispersants, was completed between August 14, 1980 and September 8, 1980. Enclosed is our Environmental Impact Assessment for this treatment program. This Environmental Impact Assessment was completed per the requirements of Section 4.0 of Appendix B to the Nine Mile Point Unit 1 license.

The results of the Environmental Impact Assessment indicate that the effect on the environment during the feed of Nalco 7348 and 7388 to the main condenser cooling water was negligible. However, due to the inconclusive results regarding the effectiveness of cleaning condenser tubes, it is likely that these chemicals will not be used at Nine Mile Point Unit 1 on a long-term basis. The Nuclear Regulatory Commission, the New York State Department of Environmental Conservation, and the United States Environmental Protection Agency will be properly notified, should Niagara Mohawk decide to use these chemicals in the future.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Donald P. Dero

Donald P. Dise Vice President Engineering

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"Environmental Impact Assessment" for Chemical Treatment of Main Condenser Cooling Water, Niagara Mohawk Power Corporation, 9 Mile Nuclear Plant

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Enclosed is the data for the Nalco 7348/7388 condenser chemical treatment program which was evaluated on the dates of October 26th. - October 29th., 1979 and between the dates of August 14th. - September 8th., 1980.

Recommended Feedrate

The recommended maintenance dosage for the Nalco¹⁷348/7388 was 2 ppm for a 24 minute interval twice per day. Feed of the 7348 to disperse microbio masses should have been .5 ppm or 1900 ml. per minute. The feed of the 7388 to disperse silt/dirt should have been .46 gpm or 1740 ml. per minute.

The 7348 was fed via a chemical pump and timer through the drain opening for the containment spray pump drain pipes which were located directly above the secondary forebay. The 7388 was fed in the same location via a timer and gravity feed through a 3/4 inch line.

Enclosed are the plant's log sheets for the condenser chemical addition study between the dates of 8/14/80 and 9/8/80 for both the Nalco 7348 and 7388. The maximum feedrate for these chemicals were noted on: August 17th. for the 7388 where 12.5 gallons were fed in the morning to a flow rate of 241,332 gpm for 24 minutes which would have given the total volume of water treated with chemical at 5,791,968 and this would have been equivalent to a dosage of 2.15 ppm for the 7388. The maximum dosage for the 7348 was noted on August 30, 1980, where 11.3 gallons of the 7348 was fed to a flow rate of 242,920 gpm for 24 minutes. The total volume of water treated at this feed interval was 5,830,080 gallons and this would have been equivalent to a dosage of 1.95 ppm.

Environmental Impact Assessment

Prior to the initial startup of the study in October of 1979, a 48 hour daphnia test was performed by the Hazleton Environmental Sciences Corporation on the use of Nalco 7348 and Nalco 7388. A copy of this report is enclosed. The results of the Hazleton, study indicated: "Insufficient mortalities to calculate an LC50 were observed in the requested test concentration series". The LC50 value of 7348 and 7388 in combination exceeds 100 mg/l. As stated above, the maximum dosage fed during the evaluation was 2.15 ppm for the 7388 and 1.95 ppm for the 7348.

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A 1 ppm dosage rate of the 7348/7388 will increase the total organic carbon approximately .64 ppm and the hexane extractables (oil and grease) by approximately .4 ppm. The Nalco laboratory analyses for TOC content between the inlet and outlet of the condensers during the evaluation period showed the following:

Date	Inlet	Discharge
10/25/79	6 ppm TOC	6 ppm TOC
10/26/79	6 ppm TOC	6 ppm TOC
10/28/79	6 ppm TOC	
7/16/80		
7/28/80	22 ppm TOC	21 ppm TOC
8/06/80	7 ppm TOC	6 ppm TOC
8/14/80	8 ppm TOC	8 ppm TOC
.9/03/80	5 ppm TOC	5 ppm TOC

In addition to the above, enclosed is a copy of the Niagara Mohawk internal correspondence from P. M. Lazarski to H. Flanagan which shows the results of the milligrams per liter of oil and grease performed on four samples of water from 9 Mile Point I.

Conclusions

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Based on the data discussed above and that which has previously been submitted to Niagara Mohawk, the impact on the environment during the feed of the Nalco 7348/7388 to the main condenser cooling water was negligible during the evaluation dates listed above.

> James R. Scott District Manager Nalco Chemical Company

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ENVIRONMENTAL SCIENCES CORPORATION

ISOD FRONTAGE ROAD, NORT HBROOK, ILLINDIS 60062, U.S.A.

REPORT TO

NALCO CHEMICAL CO. P. O. BOX 249 CAMILLUS, NEW YORK 13031

48-HOUR DAPHNIA PULEX LC50 TEST USING NALSPERSE 7348 AND 7388

Prepared by:

George Carpenter Aquatic Toxicology Group Leader

Approved by:

Dougl Overhart

Director, Aquatic Ecology

B. G. Johnson, Ph.D.

Vice President and Technical Manager

Project No. 9034 12 September 1979 * ' \$ •

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1.0 Introduction

The <u>Daphnia pulex</u> tests described in this report were initiated on 10 September 1979 in response to a telephone request from Jim Scott, District 2 Manager, Nalco Chemical Co. on 30 August. Nalsperse 7348 and 7388 and authorization to proceed were received on 7 September 1979. The purpose of this test was to conduct a 48-hour LC50 test using 7348 and 7388 in equal concentrations (by weight) in a test series ranging from 100 to 10 mg/l as requested by the New York State Department of Environmental Control.

Test Material Treatment

Nalsperse 7348 is a clear colorless viscous liquid and 7388 is a light brown watery liquid. Solubilization was accomplished by adding 72 mg each of 7348 and 7388 to 1500 ml of diluent water and stirring (no heat applied) with a magnetic stirrer for two hours. Nalsperse 7348 was slow to dissolve while 7388 quickly dissolved. No sample residue remained after the solubilization period.

Because complete solubilization occurred, the final test concentrations were 100, 75, 50, 25 and 10 mg/l total 7348 and 7388 and a Diluent Control. Authorization to analyze for the actual concentrations was not received. Therefore, the test concentrations reported are the nominal concentrations based on the weight of test material added during solubilization.

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2.0 <u>Results</u>

Insufficient mortalities to calculate an LC50 were observed in the requested test concentration series. The LC50 value of Nalsperse 7348 and 7388 in combination exceeds 100 mg/l.

Copies of the event and bench sheets and diluent water characterization are presented in Appendix A.

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3.0 Materials and Methods

Diluent Water

The diluent water used to dissolve the test material, to obtain test concentrations, and for the diluent control was prepared by activated charcoal filtration. Activated charcoal filtration was utilized to remove chlorine, organic and hexane soluble chemicals, and detergents from laboratory tap water. The tap water source was Lake Michigan via the municipal water supply system. This water has been demonstrated to be safe for aquatic organism testing; all laboratory fish cultures are maintained in water treated in the above fashion and <u>Daphina pulex</u> cultures have attained numerous generations with no effect on fecundity.

Daphina Tests

Daphnia pulex were obtained from the HES laboratory culture, which originated from the Carolina Biological Supply Company. This culture has attained numerous generations since its origin. Daphnia less than 24 hours old were obtained by isolating gravid adult females 24 hours before test initiation and then selecting, from the isolation container, juvenile Daphnia as required for the test.

Static 48-hr LC50 tests were conducted using 250 mF beakers containing 200 ml of water. Each test concentration and diluent control was challenged using duplicate beakers. Tests were conducted at ambient light (daylight hours were approximately 6:00 to 19:30 with supplementary room lights from approximately 8:00 to 17:30) and temperature conditions (22 \pm 2C). The a di seconda di seconda

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necessary volumes of toxicant (obtained as described previously) and diluent water (minus 5 ml) were placed in each beaker to obtain the percent concentration test series described above. Dissolved oxygen concentrations and pH were measured in each test container before the addition of test organisms.

Daphnia were removed from the isolation tank described above using a wide-mouthed pipette. Ten individuals were placed in a 10 ml graduated cylinder, the volume concentrated to 5 ml, and added to each beaker. Temperature was recorded in each container after addition of the <u>Daphnia</u>. Live-dead and temperature observations were made at the 24 hour and 48 hour period at which time the test was terminated. Dissolved oxygen concentrations and pH were measured in each test container after the live-dead counts were made. When sufficient mortalities to calculate an LC50 were observed, the 48-hour LC50 was calculated according to the-log concentration versus percent mortality method using probits.

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APPENDIX A

EVENT AND BENCH SHEETS AND DILUENT WATER CHARACTERIZATION

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HAZLE N ENVIRONMENTAL SCIEN AQUATIC TOXICOLOGY EVENT SHEET Client Nalco Chenical Co Material Malsfiere 7348 \$731 Project Nó. <u>9034</u> Dephria pulez____ INVESTIGATOR DATE 29 Aug Dethaite called in referral of static Daphnie tect for Nalc 73,48 \$ 7388 will be used together in a trial period at Niegere Mohawk's Nine nile point plant to control 'sline m condenses. NYSDEC (Ihr. Skinner) wents to see test done with the two materials in combination at the proportio of their use in the plant. Test series is to be 100, 75, 50, and 10 mg/l. Test material and letter of authorization is to come from Nalco-Oakbrock. Dosage rete at plant will be 7348 - 15-gal/day ,7388 - 13.9 gel/day ('each is applied at 125 lb/day. Test cones will therefore that so ng/l each and be diluted Carp. 7 Sept Received test paterial Carp 10Sept Test started. concentrations as above. Stock Soluti prepared by dissolving 72 mg of both 7348 and 7388 in 1500 ml of activated charcoal filtered water. 7388 was a light brown watery liquid which quick dissolved. 7348 was a clear viscous liquid which was slow to dessolve. Mixing was accomplished. by placing the mixing vessel on a magnetic stiner (no heat applied) for two hours. Some foan of the test material was obseared while preparing the test concentrations i 12 Sept Test complete: No LC50 can be calculated for the test range requested. Carp.

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Client _	Nalco Chemical Co	Test Material 7348+7388	Start:	Date 10 Sept 79 Time _	13.00.
Address		Test Organism <u>Daphin pulep</u>	End:	Date 12 Sept 79 Time	13:20

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Concentration or Percent	Tank Number		N Or	umbe of 1. gani	r ive sms	*		ſemp	erat	ure		D	isso	lved	Оху	gen		pt	f ·								
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50 mg/l 7388	2			$\left[\right]$			24	240	23.7			7.7		7.8			7.2		हे.0]
37.5-7348	3						24,6	24,5	23,7			7.6	•	7.8			7.2		8.1		,						1
37.5 - 7588	ΎΥ			V			24/	24,1	23,7			7.7		7.8			7.3		8.1								1
25 mg/l .7348	5			9			24,6	24,1	237			h.)		7,8			7.2		8,1								
25 12/1 7388	6			10	-		246	240	237			7.1		7.9			7,7	}	8.1								
12.5-7348	7						24	+24¢	239			5,8		7.9	7		7,7		8.1								
15.2 - 1200	8						24.	240	23,8			7.6		7.8			7.7	<u> </u>	8.1								
5-7348	9			T			24	24.1	23,9	,		7.7	7	7.9			7.2		8.1								
<u> </u>	10			J.			24	24	123,9			7,0	3	7.9	í		7,7	2	<i>६,</i> ०			ŀ					
Dilvert	11			9			24,0	24.1	23.9	7		7.	/	7.9			7.	17,3	8.1								
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Aquatic Toxicology Laboratory Diluent Water Characterization^a

 Parameter	Unit
Turbidity	0 NTU
Color	. None
Odor	None
Total Hardness	136.9 ppm
pH	7.2
Conductivity	335 µmhos/cm
TDS (est. from Cond.)	200 ppm
Iron (Fe)	<1.0 ppm
Zinc	<1.0 ppm
Copper	<1.0 ppm
Nitrate (N)	<1.0 ppm

^aSource: Lake Michigan via city water supply, activated charcoal filtration.

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8/14/50	Ain	@ 40.0	35.0 i	5.0	ιį	53.01 B	45.0	8:0	i i	
8/14/80	PM	649,5	43,0	6.5	: i	54.0 ©	46.54	7.5		;
8/15	Am	@ 49.5 .	42,3	7.5	: [53.0 B	44.7.	2:3	·i	
8/15	ph	(B) 49.18	44,2	SiL		53.0 B	49.8	3.2		
5/16	1.tm	644.2	38.5	5.7		49.8 0	46.5	3.3		
8/16	مدد.	0:50:51	43.0	7.5-		55.0 B	50.0	3,0		
8/17	Ah	C 43.0	37.0	6.0		50.0 B	46.5	3.5		
2/17	An	@ 49.15 .	43,0	6.5		53.3 0	3.5.8	12.5	i	
8/18	Am	(D.50.3	44,6	63		5-2.0 0	40.5	10.5		
8/18	<u>.</u> Dh	05018	43,5	7.6		50.1 E	43.7	91		
8/19	AM	@ 5D.3	42.0	e.3	,	53.3 P	43.2	101		
8/15	-7m	0.05	43.0	7.5		51.0 0	40.8	,0:2		
:8/20	ph	<u>6 51.2</u>	44.0	7,5		51.01 B	43.3	8.7		
	<u>ym</u>	@ 51.3	12.0	<u> 8:3.</u>		53.0. (5)	41.0	11.0		
- 191	AIN	@ 51.D	43.5	2:15		-3.0 ()	41.0	11.0	•	
19/01	<u>An</u>	051.5	43,5	5:7		في احرى	41.4	,0.9		
<u></u>	14.1	@50.7	41.5	5.2		535 B	43.3	11.2 !		
<u>_e/zu!</u>	pin	@ 51.6	425	<u>5:1</u>	: !	5.2 0	43.0	5.2 İ		
623	nh	@ 44.5	35.2	<u>9.3</u>		43.0° (£)	35.5 :	7.5		
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10/35	مبزسر	D 51.6	41.5	5:8		50.3: (E)	45.3	7,0		
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		E 57.8	43.8	8.3		5.5. 0	45.15	7;0		 i
5/34	en	@ <u>57.</u> }	<u>44.</u> 5	7.8		الل الريك	46,3	6.2	1	
	<u>م دبر</u>	B_518	44.D	7,2		52.3 0	45.0	7.1		-
18/27	Pin	3.51.0	43.4	5.5		52.3 1	46.0	6:3	• •	
348	Am	<u>C51.8</u>	41.5	10.3	ι:	53.5 6	42,3	15.2		;
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app &	PM_	(F) 53.8	40.5	F.3 -	extra	10 47.5-	38.0	9.5	
9/3 i	aln	(2) Sa.a	45.6	6.6		(E) 53.0	43.3	9.7	
9/3 :	A	E 52.0	38.0	7.5	> extra	(1) 52.3	<u>41. İ</u>	7.7 -	add 3.5 ertin
G/4!	JM	0 51.8	45.0 1	6.5	1	(e) \$3.0	45.0	6.8	
G/4	Pin	(E) 5/.8	38.0	7.8 .	crin:	(E) 52.5	41.5	5-5	alli 515 extra :
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INTERNAL CORRESPONDENCE



DISTRICT Syracuse

DATE October 22, 1980 FILE CODE SC 1190

SUBJECT Oil and Grease in Water

FROM P. M. Lazarski

70 H. Flanagan

Four samples of water from Nine Mile Point I, #96 and #817 Inlet and Discharge were received in the System Chemical Laboratory for analysis of oil and grease.

Results are as follows:

	mg/l greaseor oil
#96 Inlet	0.0025
#96 Discharge	0.0016
#817 Inlet	0.0015
#817 Discharge	0.0023

Tested by: H. F. Ruhl

Date: 10/22/80

whi <u>P.</u>

PML:VJC

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