

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461A - Cooling Tower Blowdown						
10A. EFFLUENT DATA - PART A												
POLLUTANT	EFFLUENT							Intake (Optional)				
	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples		
	Conc.	loading	conc.	loading		conc.	loading	conc.	loading			
Biochemical Oxygen Demand (BOD ₅)	A											
Chemical Oxygen Demand (COD)	A											
Total Organic Carbon (TOC)	16.2(E)	2876	8.4(E)	1491	48	mg/L	Kg/day	6.5	1363	48		
Total Suspended Solids (TSS)	92	16,331	92	16,331	1(F)	mg/L	Kg/day	79	16,565	1(F)		
Total Dissolved Solids (TDS)	5840	1.0 E 6	5840	1.0 E 6	1	mg/L	Kg/day	4420	0.9 E 6	1		
Ammonia (as N)	0.17	30	0.17	30	1	mg/L	Kg/day	0.17	36	1		
UNITS AS INDICATED												
Flow (specify units)	Daily Max. 96.9		Monthly Avg. 46.9		1461	MGD	MGD	55.4		1461		
Temperature (winter)	Daily Max. 34.6		Monthly Avg. 22.3		1096	°C		12.9		1096		
Temperature (summer)	Daily Max. 36.7		Monthly Avg. 31.3		365	°C		25.3		365		
pH	minimum 6.9	maximum 8.8				208	STANDARD UNITS		minimum 7.5	maximum 7.5	1	
10B. EFFLUENT DATA - PART B												
POLLUTANT (AND CAS NUMBER WHERE AVAILABLE)	MARK "X"		EFFLUENT							INTAKE (Optional)		
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	
CONVENTIONAL and NON-CONVENTIONAL POLLUTANTS												
Bromide (24959-67-9)	X(B)											
Chlorine, Total Residual	X		0.3	53	<0.1	N/A	624	mg/L	Kg/day			
Color, (specify units)	X(B)											
Fecal Coliform	X(C)											
Fluoride (16984-48-8)	X		0.45	80	0.45	80	1	mg/L	Kg/day	0.33	69	1
Nitrate-Nitrite (as N)	X		2.3	408	2.3	408	1	mg/L	Kg/day	1.5	314	1

FACILITY NAME: HOPE CREEK GENERATING STATION

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10B. EFFLUENT DATA - PART B (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"		EFFLUENT							INTAKE (Optional)		
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	
Nitrogen, Total Organic (as N)	X(C)		<0.2	N/A	<0.2	N/A	1	mg/L	Kg/day	<0.2	N/A	1
<input type="checkbox"/> Oil & Grease or <input checked="" type="checkbox"/> Pet. Hydrocarbons	X(C)		<1.0	N/A	<1.0	N/A	1	mg/L	Kg/day	<1.0	N/A	1
Phosphorus (as P), Total (7723-14-0)	X(C)		0.27	48	0.27	48	1	mg/L	Kg/day	0.067	14	1
Alpha, Total	X				3.0 E-15	N/A	505	Ci/L				
Beta, Total	X				2.9 E-10	N/A	505	Ci/L				
Radium, Total		X										
Radium 226, Total		X										
Surfactants	X(C)											
Sulfide (as S)	X		1.9	337	1.9	337	1	mg/L	Kg/day	1.3	273	1
Sulfite (as SO ₃) (14265-45-3)	X(C)											
Sulfate (as SO ₄) (14808-79-8)	X		373	66,213	373	66,213	1	mg/L	Kg/day	292	61,229	1
Aluminum, Total (7429-90-5)	X(C)											
Barium, Total (7440-39-3)	X(C)											
Boron, Total (7440-42-8)	X		894	159	894	159	1	µg/l	Kg/day	697	146	1
Cobalt, Total (7440-48-4)		X										
Iron, Total (7439-89-6)	X(C)											
Magnesium, Total (7439-95-4)	X(C)											
Molybdenum, Total (7439-98-7)	X(C)											
Manganese, Total (7439-96-5)	X(C)											
Tin, Total (7440-31-5)		X										
Titanium, Total (7440-32-6)	X(C)											

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10C. EFFLUENT DATA - PART C ☐ If you do not analyze a sample for certain Item 10C pollutants because you qualify as a "Small Business" (see instructions for details), check this box and attach sales data for the most recent three years.

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT						INTAKE (Optional)			
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	

OTHER TOXIC POLLUTANTS (METALS and CYANIDE) and TOTAL PHENOLS

Antimony, Total (7440-36-0)	X		X	<5.8	N/A	<5.8	N/A	1	µg/l	Kg/day	<5.8	N/A	1
Arsenic, Total (7440-38-2)	X		X	<3.2	N/A	<3.2	N/A	1	µg/l	Kg/day	<3.2	N/A	1
Beryllium, Total (7440-41-7)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1
Cadmium, Total (7440-43-9)	X	X(C)		<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<0.4	N/A	1
Chromium, Total (7440-47-3)	X	X(C)		7.7	1.4	7.7	1.4	1	µg/l	Kg/day	6.5	1.4	1
Copper, Total (7550-50-8)	X	X(C)		7.4	1.3	7.4	1.3	1	µg/l	Kg/day	8.3	1.7	1
Lead, Total (7439-92-1)	X	X(C)		4.0	0.7	4.0	0.7	1	µg/l	Kg/day	2.9	0.6	1
Mercury, Total (7439-97-6)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day	<0.1	N/A	1
Nickel, Total (7440-02-0)	X	X(C)		4.7	0.8	4.7	0.8	1	µg/l	Kg/day	4.3	0.9	1
Selenium, Total (7782-49-2)	X		X	<4.2	N/A	<4.2	N/A	1	µg/l	Kg/day	<4.2	N/A	1
Silver, Total (7440-22-4)	X		X	<1.4	N/A	<1.4	N/A	1	µg/l	Kg/day	<1.4	N/A	1
Thallium, Total (7440-28-0)	X		X	<4.7	N/A	<4.7	N/A	1	µg/l	Kg/day	<4.7	N/A	1
Zinc, Total (7440-66-6)	X	X(C)		44.1	7.8	44.1	7.8	1	µg/l	Kg/day	38.9	8.2	1
Cyanide, Total (57-12-5)	X		X	<10	N/A	<10	N/A	1	µg/l	Kg/day	<10	N/A	1
Phenols, Total	X		X	<50	N/A	<50	N/A	1	µg/l	Kg/day	<50	N/A	1

DIOXIN

2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	<1	N/A	<1	N/A	1	µg/l	Kg/day	<11	N/A	1
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10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - VOLATILES													
Acrolein (107-02-8)	X		X	<7.7	N/A	<7.7	N/A	1	µg/l	Kg/day	<7.7	N/A	1
Acrylonitrile (107-13-1)	X		X	<2.8	N/A	<2.8	N/A	1	µg/l	Kg/day	<2.8	N/A	1
Benzene (71-43-2)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Bromoform (75-25-2)	X	X(B)		4.6	0.8	4.6	0.8	1	µg/l	Kg/day	34	7.1	1
Carbon Tetrachloride (56-23-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Chlorobenzene (108-90-7)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Chlorodibromomethane (124-48-1)	X	X(B)		0.15	0.03	0.15	0.03	1	µg/l	Kg/day	1.8	0.4	1
Chloroethane (75-00-3)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1
2-Chloro-ethyl-vinyl Ether (110-75-8)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<0.4	N/A	1
Chloroform (67-66-3)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Dichlorobromomethane (75-27-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,1-Dichloroethane (75-34-3)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,2-Dichloroethane (107-06-2)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,1-Dichloroethylene (75-35-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,2-Dichloropropane (78-87-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,3-Dichloropropylene (542-75-6)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Ethylbenzene (100-41-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Methyl Bromide (74-83-9)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Methyl Chloride (74-87-4)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1

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10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT						INTAKE (Optional)			
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - VOLATILES (continued)													
Methylene Chloride ((75-09-2)	X		X	<1.0	N/A	<1.0	N/A	1	µg/l	Kg/day	<1.0	N/A	1
1,1,2,2-Tetrachloroethane (79-34-5)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day	<0.1	N/A	1
Tetrachloroethylene (127-18-4)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1
Toluene (108-88-3)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,2-Transdichloroethylene (156-60-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
1,1,1-Trichloroethane (71-55-6)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1
1,1,2-Trichloroethane (79-00-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
Trichloroethylene (79-01-6)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<0.3	N/A	1
Vinyl Chloride (75-01-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<0.2	N/A	1
ORGANIC TOXIC POLLUTANTS - ACID COMPOUNDS													
2-Chlorophenol (95-57-8)	X		X	<1.4	N/A	<1.4	N/A	1	µg/l	Kg/day	<15	N/A	1
2,4-Dichlorophenol (120-83-2)	X		X	<2.1	N/A	<2.1	N/A	1	µg/l	Kg/day	<22	N/A	1
2,4-Dimethylphenol (105-67-9)	X		X	<1.5	N/A	<1.5	N/A	1	µg/l	Kg/day	<16	N/A	1
4,6-Dinitro-O-Cresol (534-52-1)	X		X	<1.3	N/A	<1.3	N/A	1	µg/l	Kg/day	<14	N/A	1
2,4-Dinitrophenol (51-28-5)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.0	N/A	1
2-Nitrophenol (88-75-5)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day	<13	N/A	1
4-Nitrophenol (100-02-7)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.3	N/A	1
p-Chloro-M-Cresol (59-50-7)	X		X	<2.0	N/A	<2.0	N/A	1	µg/l	Kg/day	<2.0	N/A	1
Pentachlorophenol (87-86-5)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day	<12	N/A	1
Phenol (108-95-2)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<3.3	N/A	1
2,4,6-Trichlorophenol (88-06-2)	X		X	<1.6	N/A	<1.6	N/A	1	µg/l	Kg/day	<17	N/A	1

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10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS													
Acenaphthene (83-32-9)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.1	N/A	1
Acenaphthylene (208-96-8)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.1	N/A	1
Anthracene (120-12-7)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.5	N/A	1
Benzidine (92-87-5)	X		X	<25	N/A	<25	N/A	1	µg/l	Kg/day	<260	N/A	1
Benzo (a) Anthracene (56-55-3)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.0	N/A	1
Benzo (a) Pyrene (50-32-8)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<1.6	N/A	1
3,4-Benzofluoranthene (205-99-2)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<2.9	N/A	1
Benzo (ghi) Perylene (191-24-2)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<3.7	N/A	1
Benzo (k) Fluoranthene (207-08-9)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.7	N/A	1
Bis (2-Chloroethoxy) Methane (111-91-1)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.8	N/A	1
Bis (2-Chloroethyl) Ether (111-44-4)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.4	N/A	1
Bis (2-Chloroisopropyl) Ether (102-60-1)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day	<5.3	N/A	1
Bis (2-Ethylhexyl) Phthalate (117-81-7)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.7	N/A	1
4-Bromophenyl Phenyl Ether (101-55-3)	X		X	<1.9	N/A	<1.9	N/A	1	µg/l	Kg/day	<20	N/A	1
Butyl Benzyl Phthalate (85-68-7)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.2	N/A	1
2-Chloronaphthalene (91-58-7)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.5	N/A	1
4-Chlorophenyl Phenyl Ether (7005-72-3)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.9	N/A	1
Chrysene (218-01-9)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day	<5.2	N/A	1
Dibenzo (a,h) Anthracene (53-70-3)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.7	N/A	1

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10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS (continued)													
1,2-Dichlorobenzene (95-50-1)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.8	N/A	1
1,3-Dichlorobenzene (541-73-1)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.1	N/A	1
1,4-Dichlorobenzene (106-46-7)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.5	N/A	1
3,3 -Dichlorobenzidine (91-94-1)	X		X	<1.3	N/A	<1.3	N/A	1	µg/l	Kg/day	<14	N/A	1
Diethyl Phthalate (84-66-2)	X	X(B)		<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	29	6.1	1
Dimethyl Phthalate (131-11-3)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day	<5.7	N/A	1
Di-N-Butyl Phthalate (84-74-2)	X	X(B)		0.4	0.07	0.4	0.07	1	µg/l	Kg/day	<4.5	N/A	1
2,4-Dinitrotoluene (121-14-2)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day	<2.6	N/A	1
2,6-Dinitrotoluene (606-20-2)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.2	N/A	1
Di-N-Octyl Phthalate (117-84-0)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day	<1.4	N/A	1
1,2-Diphenylhydrazine (122-66-7)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<3.7	N/A	1
Fluoranthene (206-44-0)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.4	N/A	1
Fluorene (86-73-7)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.5	N/A	1
Hexachlorobenzene (118-74-1)	X		X	<1.1	N/A	<1.1	N/A	1	µg/l	Kg/day	<12	N/A	1
Hexachlorobutadiene (87-68-3)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day	<12	N/A	1
Hexachlorocyclopentadiene (77-47-4)	X		X	<1.7	N/A	<1.7	N/A	1	µg/l	Kg/day	<18	N/A	1
Hexachloroethane ((67-72-1)	X		X	<0.9	N/A	<0.9	N/A	1	µg/l	Kg/day	<1.9	N/A	1
Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day	<1.5	N/A	1
Isophorone (78-59-1)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day	<2.3	N/A	1

FACILITY NAME: HOPE CREEK GENERATING STATION							OUTFALL NUMBER (DSN): 461A - Cooling Tower Blowdown						
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS (continued)													
Naphthalene (91-20-3)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.7	N/A	1
Nitrobenzene (98-95-3)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.0	N/A	1
N-Nitrosodimethylamine (62-75-9)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day	<6.6	N/A	1
N-Nitrosodi-N-Propylamine (621-64-7)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day	<13	N/A	1
N-Nitrosodiphenylamine (86-30-6)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day	<5.5	N/A	1
Phenanthrene (85-01-8)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day	<5.2	N/A	1
Pyrene (129-00-0)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day	<4.5	N/A	1
1,2,4-Trichlorobenzene (120-82-1)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day	<8.1	N/A	1
ORGANIC TOXIC POLLUTANTS - PESTICIDES													
Aldrin (309-00-2)			X										
Alpha-BHC (319-84-6)			X										
Beta-BHC (319-85-7)			X										
Gamma-BHC (58-89-9)			X										
Delta-BHC (319-86-8)			X										
Chlordane (57-74-9)			X										
4,4'-DDT (50-29-3)			X										
4,4'-DDE (72-55-9)			X										
4,4'-DDD (72-54-8)			X										
Dieldrin (60-57-1)			X										

FACILITY NAME: HOPE CREEK GENERATING STATION				OUTFALL NUMBER (DSN): 461A - Cooling Tower Blowdown									
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				Conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - PESTICIDES (continued)													
Alpha-Endosulfan (115-29-7)			X										
Beta-Endosulfan (115-29-7)			X										
Endosulfan sulfate (1031-07-8)			X										
Endrin (72-20-8)			X										
Endrin Aldehyde (7421-93-4)			X										
Heptachlor (76-44-8)			X										
Heptachlor Epoxide (1024-57-3)			X										
PCB-1242 (53469-21-9)			X										
PCB-1254 (11097-69-1)			X										
PCB-1221 (11104-28-2)			X										
PCB-1232 (11141-16-5)			X										
PCB-1248 (12672-29-6)			X										
PCB-1260 (11096-82-5)			X										
PCB-1016 (12674-11-2)			X										
Toxaphene (8001-35-2)			X										

EXPLANATION OF NOTES - FORM C, ITEM 10 - DSN 461A

- (A) Analysis of these parameters is not required per approval of the NJDEP as specified under Item 10A on Page 4 of 8 of the instructions for Form C.
- (B) These pollutants are believed present in the effluent based on their presence in the intake water. No addition of these pollutants in the effluent from facility operations is expected to occur.
- (C) These pollutants are believed present in the effluent based on their presence in the intake water. These pollutants are also utilized at the facility in areas that could discharge through the respective outfall in the event of a spill, leak or inadvertent drain. These pollutants are not intentionally added to this effluent stream, and are not, therefore, normally discharged through this outfall and are not anticipated to be detected in the outfall in greater mass than the intake water.
- (D) These pollutants are utilized at the facility in areas that could discharge through the respective outfall in the event of a spill, leak or inadvertent drain. These pollutants are not intentionally added to this effluent stream, and are not, therefore, normally discharged through this outfall and are not anticipated to be detected in the outfall in greater mass than the intake water.
- (E) Total Organic Carbon (TOC) is monitored monthly by grab sample at the intake and discharge. The net value reported is calculated to account for the water mass change in the cooling tower. The values reported on Form C are single sample results collected for this purpose only. The net TOC concentrations reported for the period are a maximum of 6.0 mg/L and an average of 0.02 mg/L. The net TOC concentration values are the results of calculations considering the water mass change in the cooling tower and using concurrent samples. The volume of water in the cooling tower basin and circulating water system (approximately 11 million gallons) also dampens intake variability.
- (F) The Total Suspended Solids (TSS) value reported reflects only the current sample. The TSS study results are discussed at Tab DSN 461A.

SUMMARY TABLE DSN 461A

Facility: PSEG-Hope Creek

Latitude: 39° 28' 14"

Receiving Stream: Delaware Estuary

Discharge Serial Number (DSN): 461A

Longitude: 75° 32' 34"

Classification: Zone 5

WQMP Basin 17/Delaware River Basin

Wastewater Type: Non-contact cooling water cooling tower blowdown, LRW (DSN 461B, Note 2) effluent, LVOW (DSN 461C) effluent, STP (DSN 462B) effluent, ancillary sumps and drains. (Note 1)

Parameter All units in mg/L (kg/day) unless otherwise noted		NJPDES/ DSW Permit Application	Existing NJPDES/DSW Permit limits DSN 461A	NJPDES/ DSW DMR 4/97-3/01	Note	Draft Permit Limits for DSN 461A
Flow, Effluent, MGD	avg.	46.9	NL	46.9	3	NL
	max.	96.9	NL	96.9	4	NL
	data pts.	1461	---	1461	5	---
	monitor	---	Cont/Mt	---	6	Cont/Mt
Temperature, Influent °F (°C) (Sep-May)	avg.	(12.9)	NL	(12.9)	7	NL
	max.	---	NL	(28.6)	6	NL
	data pts.	1096	---	1096		---
	monitor	---	Cont/---	---		Cont/---
Temperature, Influent °F (°C) (Jun-Aug)	avg.	(25.3)	NL	(25.3)	7	NL
	max.	---	NL	(30.3)	6	NL
	data pts.	365	---	365		---
	monitor	---	Cont/---	---		Cont/---
Temperature, Effluent, °F (°C) (Sep-May)	avg.	(22.3)	NL	(22.3)	8	NL
	max.	(34.6)	97.1(36.2)	(34.6)	6	97.1(36.2)
	data pts.	1096	---	1096		---
	monitor	---	Cont/---	---		Cont/---
Temperature, Effluent, °F (°C) (Jun-Aug)	avg.	(31.3)	NL	(31.3)	8	NL
	max.	(36.7)	97.1(36.2)	(36.7)	6	97.1(36.2)
	data pts.	365	---	365		---
	monitor	---	Cont/---	---		Cont/---
Heat Rate MBTU/HR (Sep-May)	avg.	---	NL	240.2	9	NL
	max.	---	662	500.0		662
	data pts.	---	---	1461		---
	monitor	---	D/Calc	---		D/Calc
Heat Rate MBTU/HR (Jun-Aug)	avg.	---	NL	175.8	9	NL
	max.	---	534	376.0		534
	data pts.	---	---	1461		---
	monitor	---	D/Calc	---		D/Calc
Chlorine Produced Oxidants (mg/L)	avg.	<0.1	0.2	<0.1	10	0.2
	max.	0.3	0.5	0.3		0.5
	data pts.	624	---	624		---
	monitor	---	3-W/G	---		3-W/G

Parameter All units in mg/L (kg/day) unless otherwise noted		NJPDES/ DSW Permit Application	Existing NJPDES/DSW Permit limits DSN 461A	NJPDES/ DSW DMR 4/97-3/01	Note	Draft Permit Limits for DSN 461A
pH, Effluent (S.U.)	min. max. data pts. monitor	6.9 8.8 208 ---	6.0 9.0 --- W/G	6.9 8.8 208 ---	11	6.0 9.0 --- W/G
Organic Carbon, Total Net (mg/L)	avg. max. data pts. monitor	--- --- --- ---	NL 20 --- M/G	0.02 6.0 48 ---	12	N/A Note A Below
Organic Carbon, Total (mg/L)	avg. max. data pts. monitor	8.4 16.2 48 ---	N/A	N/A	12	N/A
Acute Toxicity, LC 50	avg. max. data pts. monitor	LC50>100% LC50>100% 5 ---	N/A N/A --- N/A	LC50>100% LC50>100% 5 ---	13	N/A N/A --- N/A
Chronic Toxicity, IC25 (NOEC)	avg. max. data pts. monitor	IC25>100% IC25>100% 5 ---	N/A N/A --- N/A	IC25>100% IC25>100% 5 ---	13	N/A N/A --- N/A
Phosphorous, (mg/L)	avg. max. data pts. monitor	0.27 0.27 1 ---	NL NL --- M/G	N/A	14	N/A Note B Below
Total Suspended Solids (mg/L)	avg. max. data pts. monitor	92 92 1 ---	N/A	N/A	15	N/A

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required.

"MGD" denotes "million gallons per day"

"ND" denotes "Non-detected" value.

Monitoring requirement abbreviations are: "Cont" denotes "Continuous"; "D" denotes "Daily"; "3-W" denotes "three times per week"; "W" denotes "Weekly"; "2-M" denotes "Twice per Month"; "M" denotes "Monthly"; "Q" denotes "Quarterly"; "Mt" denotes "Meter"; "Cal" denotes "Calculated"; "G" denotes "Grab"; "Comp" denotes "Composite"

Note A: Requested deletion of TOC monitoring, conditions, and limitations.

Note B: Requested Phosphorus provisions not be incorporated in renewal.

1. The effluent discharged via DSN 461A is the largest discharge from HCGS, and primarily consists of cooling tower blowdown (46.9 MGD) with minor waste stream contributions from the Low Volume and Oily Waste System (DSN 461C, 0.04 MGD), liquid radioactive waste system (DSN 461B, 0.06 MGD), and the Sewage Treatment System (DSN 462B, 0.02 MGD) as shown in the enclosed schematic entitled Cooling Tower Blowdown. Sediment which collects in the cooling tower basin is removed as necessary for disposal of at an onsite dredge spoil area.

The cooling tower removes heat from the circulating water system by latent and sensible heat transfer from the circulating water to the air, at the cooling tower fill, causing the evaporation of a portion of the water (approximately 13 MGD). To makeup for this evaporative loss, service water enters the cooling tower basin near the circulating water pump suction. To prevent an excessive concentration of solids in the cooling tower, there is a continuous cooling tower blowdown back to the Delaware Estuary. The service water entering the cooling tower is chlorinated to prevent biofouling, using sodium hypochlorite, at the service water intake. Additional sodium hypochlorite is added to the cooling tower basin to prevent biofouling and biological growth. Ammonium bisulfate is added in the cooling tower blowdown to dechlorinate the cooling tower blowdown before discharge to the Delaware Estuary. Sodium hydroxide is added to the cooling tower basin to protect the cooling tower structure and components. Boron used in the Station can enter the circulating water, primarily in the condenser bay dewatering sump, and be discharged in the cooling tower blowdown. The deicing line shown on the Schematic of Water Flow (Form C, Item 3B) allows a small amount of heated water from the circulating water system or service water system to be directed to the service water intake to prevent icing during harsh winter conditions. This flow path

EXPLANATION OF SUMMARY TABLE NOTES

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bypasses the dechlorination system but is infrequently used and most of the water used for deicing is returned to the system through the service water pumps.

The contributions from the Low Volume and Oily Waste System (LVOW, DSN 461C) and the Sewage Treatment System (STP, DSN 462B) are discussed at the respective Tabs.

2. The liquid radioactive waste system (DSN 461B) is a low volume (0.06 MGD) wastewater source which mixes with the cooling tower blowdown, prior to the effluent monitoring point. The liquid radioactive waste (LRW) system is designed to process liquid waste streams from inside the power generation facilities that may potentially contain radioactivity. The treatment system contains all necessary equipment to meet both U.S. Nuclear Regulatory Commission standards for the discharge of radioactivity and the applicable New Jersey State Water Quality Standards, as discussed in the Liquid Radioactive Waste System Treatment Works Application. Much of the wastewater processed through the system is recycled back into a 500,000 gallon condensate storage tank for reuse by the reactor water makeup systems. However, water used in the reactor must be of an extremely high purity level and, although some of the wastewater would be considered clean according to drinking water standards, it is not practical nor economical to continue the further processing of the wastewater necessary to reach the level of purity needed for reuse in the reactor.

The influent waste streams are segregated and classified based on the source and quality of the five different types of influent waste streams. They include the following systems.

- "Equipment drain wastes", or "high purity wastes", have a conductivity

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value of 10 micromhos per centimeter or less and radioactivity levels ranging from those typical of reactor water to those typical of condensate. Sources of such waste include: reactor recirculation system, condensate system, feedwater system, cleanup phase separator decant, waste sludge phase separator decant, and excess flow from the reactor water cleanup system.

- "Floor drain wastes", or "low purity wastes", have a conductivity on the order of 10 to 100 micromhos per centimeter and generally a low radioactivity concentration. Low purity wastes stem from floor drains, fuel pool cooling, and residual heat removal system flushing and could contain small quantities of boron and cleaning and lubrication products utilized in these areas.
- "High conductivity wastes" have a conductivity on the order of 1,000 micromhos per centimeter or greater and a potentially high radioactivity level. These wastes can be produced by regenerating the condensate demineralizers and the liquid radwaste demineralizers themselves; although, to minimize the volume of radwaste, resins in the liquid radwaste system are not currently regenerated, they are transported to a USNRC licensed facility. "High conductivity wastes" also arise from certain high conductivity sumps in the turbine and auxiliary buildings and could contain river water, and small quantities of boron and cleaning and lubrication products utilized in these areas.
- "Chemical wastes" have a conductivity on the order of 1,000 micromhos per centimeter or greater with variable chemical concentrations, pH, and levels of radioactivity. Chemical wastes include those from laboratory

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drains, decontamination drains, radwaste filter drains, and fuel pool filter demineralizer drains and could contain laboratory reagents, decontamination chemicals, and small quantities of boron and cleaning and lubrication products utilized in these areas.

- "Detergent wastes" have a variable conductivity, low radioactivity levels, but potential surfactant and other organic content. Personnel decontamination and the chemistry laboratory produce such wastes which could contain laboratory reagents, decontamination chemicals, and small quantities of boron and cleaning and lubrication products utilized in these areas. Although Hope Creek was designed to handle laundry cleaning wastes, protective clothing is currently shipped offsite for cleaning.

During normal modes of operation, the LRW system receives waste inputs from the liquid waste drainage and collection system, and from the solid radwaste collection subsystem. The attached two liquid waste management process flow schematics (Equipment/Floor Drain Processing System and Chemical/Detergent Waste Processing System) show the normal process flow of wastewater. The inputs are segregated as to chemical content and purity level, with radioactivity level being a secondary consideration. The inputs may contain iron or zinc which may be added to the reactor coolant system in microgram per liter concentrations. The liquid is then processed on a batch basis in the appropriate subsystem. Processed LRW is then returned for plant reuse or discharged to the cooling tower blowdown through DSN 461B.

Treatment of LRW influent is dependent on the source and type of wastewater received. Each of the five types of influent waste streams is processed differently and can be routed through various components of the

EXPLANATION OF SUMMARY TABLE NOTES

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treatment system. Wastewater is treated in a batch mode and not all wastewater is routed through every component of the treatment system.

High purity wastes are normally processed by filtration and demineralization and returned to the condensate storage tank for reuse. Low purity wastes can be processed by filtration and demineralization followed by reuse or discharge. Future plans include evaporation as an option in which the distillate can be returned for reuse or discharged.

Chemical wastes can be processed in several different ways. When the evaporator is functioning, pH adjustment and evaporation produces a concentrate which can then be solidified and drummed in the solid radwaste system prior to offsite disposal. The distillate can then be recycled to the high purity waste influent stream. Detergent wastes are generally not suitable for plant reuse and are normally processed by filtration and discharged. If necessary, "high conductivity wastes" from the regeneration of the condensate demineralizers or LRW demineralizers can be collected in the neutralization tank and treated to a preset pH value by the addition of chemicals. When the evaporator is available, these wastes can also be processed through the waste evaporator for concentration to remove excess water. The distillate can then be transferred back to the waste collection tank for further processing.

The various subsystems of the LRW treatment system have numerous cross-connections to allow operating flexibility. Wastewaters can also be recirculated back to collection tanks for reprocessing as necessary.

After batch processing, treated wastewaters in excess of Station needs are collected in the final sample tanks where water quality is checked prior to

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discharge. Because of the need to minimize radiation exposure of operating personnel, sampling of these tanks is generally conducted remotely via installed conductivity and radioactivity monitors. A remote sampling panel is also available where various analyses can be performed to check water quality. However, sampling of the treated effluent is restricted to that specifically required to confirm compliance with discharge requirements to preclude unnecessarily exposing operating personnel to additional radioactivity.

3. Effluent Flow is monitored continuously, calculated daily, and the daily maximum and monthly average flow is reported monthly in Million Gallons per Day (MGD). Effluent flow is normally monitored by measuring the height of the effluent over the cooling tower basin effluent weir, the required method is "meter". When the cooling tower is being bypassed, the service water influent flow measurement is reported as the effluent flow. If the continuous monitoring equipment is inoperable (e.g. maintenance, calibration, or repair), the readings will be taken once per eight hour shift to fulfill the continuous monitoring requirement. The provisions in the current Permit at Part IV-B/C.H regarding continuous monitoring should be retained.

4. Although no dye testing is required, the current Permit authorizes that Rhodamine WT may be used as a tracer dye for flow measurements of the cooling tower and cooling tower related systems by following the approval/notification requirements below:

- a. Provide written notification to the Chief, Bureau of Point Source Permitting - Region 2 and the Southern Bureau of Water and Hazardous Waste Enforcement prior to the use of Rhodamine WT dye. This notification shall identify the expected dates of the discharge and the expected concentration of Rhodamine WT dye in the effluent.

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- b. Provide oral notification to the Southern Bureau of Water and Hazardous Waste Enforcement at least 24 hours prior to commencing the discharge of Rhodamine WT dye.
- c. Within thirty (30) days of completion of the testing, provide written notification of completion to the Chief, Bureau of Point Source Permitting - Region 2 and to the Southern Bureau of Water and Hazardous Waste Enforcement. This notification shall include the actual dates of the discharge, the actual concentration of Rhodamine WT dye in the effluent, and the total quantity of Rhodamine WT dye added.

This provision should be retained in the renewed Permit.

5. The service water system normally provides makeup water to the cooling tower and discharges through DSN 461A. When the cooling tower is not in operation, service water normally will bypass the cooling tower and discharge through DSN 461A. Due to nuclear safety requirements, the service water system must remain in operation at all times. To facilitate necessary plant maintenance, the current permit authorizes the temporary redirection of service water to discharge through DSN 463A. The addition of sodium hypochlorite (or other biocide) is terminated during the bypass discharge. The following conditions are required for each planned bypass to DSN 463A:

- a. Provide written notification to the Chief, Bureau of Point Source Permitting - Region 2 and the Southern Bureau of Water and Hazardous Waste Enforcement prior to the bypass discharge. This notification shall identify the expected dates of the bypass, confirmation that sodium hypochlorite addition to the service water system will be terminated during the bypass, and a brief description of the reason the bypass is necessary.
- b. Provide oral notification to the Southern Bureau of Water and Hazardous

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Waste Enforcement at least 24 hours prior to commencing the bypass discharge.

The current permit also provides for the periodic anticipated bypass of service water through DSN 463A during service water pump swaps (changeouts) and system transients. The service water pump swaps and resultant bypasses are necessary to ensure sufficient service water cooling volumes to satisfy nuclear safety design parameters, especially during periods of increased river temperature during summer months. The addition of sodium hypochlorite (or other biocide) to the service water system is terminated during these bypass conditions and the bypass is expected to occur for a short duration (less than one minute). The Department has authorized these bypass operations and has specifically determined that these are no additional notifications pursuant to N.J.A.C. 7:14A based on the termination of biocide addition and the short duration of the anticipated bypass.

Both of these bypass provisions should be retained in the renewed Permit.

6. Footnote 6 in the current Permit defines the reporting requirements for continuous monitoring as:

For continuous monitoring, the daily value shall consist of all the values over a given calendar day (24 hour period) averaged together. The permittee shall report the highest of these daily values as the daily maximum on the DMR, and the average of the daily values as the monthly average.

This definition should be retained and is applicable not only to continuous monitoring but to all monitoring which may be conducted more than once per calendar day for which a daily maximum or a monthly average value must be calculated or reported.

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7. Influent Temperature is the temperature in the Delaware Estuary and is monitored continuously and the daily value is used to calculate the heat discharge. Influent temperature is monitored by using either one temperature measuring device or the average of the two temperature measuring devices at the service water intake structure. If these instruments are inoperable (e.g., maintenance, calibration or repair), temporary monitors may be installed, the temperature at the adjacent Salem Generating Station intake may be used, or the influent temperature will be monitored manually once per eight hour shift. The daily maximum and monthly average are reported in degrees C. The provisions in the current Permit at Part IV-B/C.H regarding continuous monitoring should be retained and the provision for using the intake temperature at the adjacent Salem Generating Station should be added.

8. Effluent Temperature is monitored continuously and the daily maximum and monthly average values are reported in degrees C. The daily maximum Effluent Temperature is limited to 97.1 °F (36.2 °C). The Department issued a major modification to the Permit effective 12/01/00 that addressed the efficiency of the cooling tower under varying meteorological conditions and incorporates the following at footnote (7):

Given a coincident occurrence of wet bulb temperature that exceeds 76 °F and a relative humidity below 60% during a given day for a period equal to or greater than 60 minutes, the daily maximum temperature limit does not apply and monitoring only is required. If these two conditions for wet bulb temperature and relative humidity occur, the permittee is required to submit a chart with columns for the following data for each hour of that day: (1) Cooling Tower Blowdown flow (gpm); (2) Intake Temp (°F); (3) Blowdown Temp (°F);

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(4) ΔT (°F); (5) MBTU/Hour; (6) Dry Bulb Temp (°F); (7) Dew Point Temp (°F); (8) Wet Bulb Temp (°F); and (9) Relative Humidity (%).

Dry bulb temperature, dew point, barometric pressure and wind speed and direction are measured at 15 minute intervals at Hope Creek's meteorological Station. Wet bulb temperature and relative humidity are computed using measurements of dry bulb temperature and dew point with a numerical algorithm that relates the dependence of wet bulb temperature and relative humidity on dew point, dry bulb temperature, and atmospheric pressure. In the event that data are not available from the Hope Creek meteorological Tower, then PSEG may utilize data collected at the Wilmington meteorological Station (Wilmington). The use of Wilmington data or another alternative source must be approved in advance by the NJDEP and duly noted on the DMR. The permittee must retain records of the Wilmington data or any other data in its DMR back up file for the term specified by the applicable provisions of the NJPDES regulations.

The single value for effluent temperature identified on Form C-10A and the Summary Table as 36.7 °C occurred on July 5, 1999. PSEG submitted a report to the Department asserting that an upset occurred on July 5, 1999, and also asserted an affirmative defense for that upset, identifying the cause as unusual meteorological conditions and providing operating logs, Station data, and meteorological data. The Department reviewed the PSEG submittal and concurred with the upset assessment and affirmative defense. The major modification discussed above was effective on December 1, 2000. Since the provision was incorporated in the Permit on 12/01/00, the identified meteorological conditions have occurred but have not triggered implementation of this provision.

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The provision that "a coincident occurrence of wet bulb temperature that exceeds 76 °F and a relative humidity below 60% during a given day for a period equal to or greater than 60 minutes, the daily maximum temperature limit does not apply and monitoring only is required" should be retained in the Permit. It should be clarified in the text that the data collection and submittal requirements of Footnote (7) are only applicable if the effluent temperature limitation relief is required.

9. Heat Rate is calculated daily as the product of heat capacity, effluent flow, and discharge-intake temperature difference. The daily maximum and monthly average values are reported in Million British Thermal Units per Hour (MBTU/Hr). Heat Rate is limited to 662 MBTU/Hr from September through May and 534 MBTU/Hr from June through August. The Department performed a review of the cooling tower performance in conjunction with the Permit modification effective 12/01/00 and no substantive changes have occurred. The environmental evaluation conducted relative to the 1.4% power uprate was reviewed by the US Nuclear Regulatory Commission (USNRC) in consultation with the Department (Bureau of Nuclear Engineering) and the USNRC concluded that there are no significant environmental impacts. The current limitations and conditions for Heat Rate should be retained in the Permit.

10. Chlorine Produced Oxidants (CPO) are measured three times per week by grab sample. CPO is limited to a daily maximum of 0.5 mg/L and a monthly average of 0.2 mg/L. In accordance with 40 CFR Section 423.12(b)(8), Part III-B/C.7 prohibits CPO discharges for more than two hours in any one day without prior approval. Chlorine residual concentrations are normally maintained within limitations by the addition of ammonium bisulphate, a dechlorination agent, in the cooling tower blowdown line. The current limitations and conditions for Chlorine Produced Oxidants should be retained in the Permit.

11. pH is measured weekly by grab sample and the daily minimum and daily maximum pH are reported in Standard Units (SU). pH is limited such that the daily minimum pH shall not be less than 6.0 SU and the daily maximum pH shall not be greater than 9.0 SU. The current limitations and conditions for pH should be retained in the Permit.

12. Total Organic Carbon (TOC) is measured monthly by grab sample and the net daily maximum and monthly average values are reported in mg/L. The daily maximum net TOC is limited to 20 mg/L. The net concentration of TOC is determined as follows:

$$\text{Net TOC} = \frac{(\text{Eff. TOC}) \times (\text{Eff. Flow}) - (\text{Inf. TOC}) \times (\text{Inf. Flow})}{\text{Effluent Flow}}$$

The permittee is requesting deletion of TOC monitoring, conditions, and limitations. N.J.A.C. 7:14A-12.4(d) provides that:

Direct discharges to surface water from industrial treatment works shall be exempt from the minimum projected BOD₅ effluent standards in (b) above, when:

- i. Statistically valid data indicate that the maximum projected BOD₅ concentration is consistently below the applicable effluent standard; or
- ii. The Department determines that, based on wastewater generating activities, no potential exists for the discharge to add BOD₅, COD or TOC.

The Hope Creek Cooling Tower is an industrial treatment works designed to remove heat from the circulating water system. In accordance with the current Permit, monitoring has been conducted monthly and the net TOC limitation applied is 20 mg/L. The analytical data for the 48-month period, 04/01/97 (EDP) through 03/30/01, shows an average net TOC concentration of -0.02 mg/L and a maximum net TOC concentration of 6.0 mg/L, consistently (and significantly) below the applicable effluent standard and the permit limitation (see attached two graphs). The calculated net TOC concentration of -0.02 mg/L is essentially zero, the value which is expected since the cooling tower does not have the potential to add measurable amounts of BOD₅, COD or TOC. Consistent compliance with the effluent TOC limitation during the previous Permit period was also identified in the bases for the current Permit. Since this discharge meets both alternative conditions of N.J.A.C. 7:14A-12.4(d), the permittee requests deletion of TOC monitoring, conditions, and limitations.

13. Whole Effluent Toxicity Characterization studies, as required in the current Permit and specified at Part IV-B/C.D and E, were conducted on the effluent. The studies included an acute whole effluent characterization study using *Mysidopsis bahai* as well as a chronic whole effluent characterization study using *Mysidopsis bahai* and *Cyprinodon variegatus*. The results of all acute whole effluent characterization tests were LC 50>100% and the results of all chronic whole effluent characterization tests were IC₂₅>100%. The Department reviewed the results of the acute and chronic characterization studies and found them acceptable and determined no further acute and/or chronic whole effluent toxicity monitoring was required. Additionally, acute and chronic characterization testing was conducted in conjunction with the permit application as required at Form C, Item 12 and the results of the acute whole effluent tests were LC 50>100% and

EXPLANATION OF SUMMARY TABLE NOTES

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the results of the chronic whole effluent characterization tests were $IC_{25} > 100\%$.
No further whole effluent toxicity testing is warranted.

14. The current Permit authorizes the discharge of phosphorus, used as an anti-scalant in the cooling tower system. Part III-B/C.4 provides the conditions and limitations applicable after approval by the Department for the addition of phosphorus containing treatment chemicals. This provision was retained in the current Permit to expedite approval of phosphorus containing treatment chemicals if they were needed to protect the mechanical integrity of the cooling tower system. There has been no use of phosphorus containing treatment chemicals during this Permit cycle. The permittee is recommending deletion of the phosphorus conditions and limitations at this time. If cooling tower conditions require the addition of phosphorus containing treatment chemicals in the future, the permittee will request authorization in accordance with Part III-B/C.3 or the applicable regulations.

15. The cooling tower system Total Suspended Solids (TSS) study was developed, implemented, and completed in accordance with Part IV-B/C.K of the current Permit and the final report was submitted on October 1, 1999. The study was conducted in two phases, Phase 1 included six sample events of hourly samples over each calendar day at two influent locations and two effluent locations. Phase 2 consisted of bi-monthly 24-hour composite samples at the influent and the effluent for a ten month period. This period was designed to include tidal variations (neap, spring, and average) and fresh water flow variations. The analytical data collected shows that there is a high variability in TSS concentrations in the Delaware Estuary, the intake ranged from 16 mg/L to 2910 mg/L and the effluent ranged from 14 mg/L to 592 mg/L during the study period. Dampening of the intake variability occurs in the cooling tower system

EXPLANATION OF SUMMARY TABLE NOTES

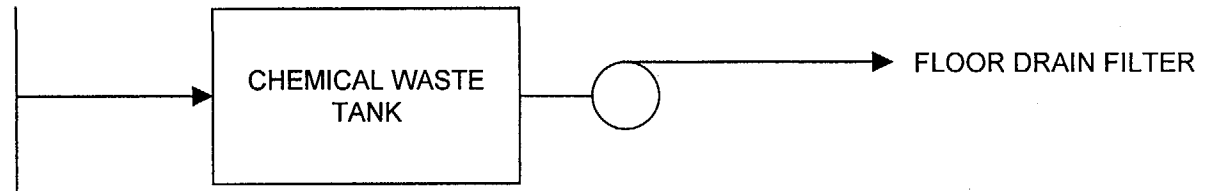
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due to the volume and detention characteristics of the cooling tower system, the effluent variability is less pronounced. Neither the hourly samples nor the 24-hour composite samples provided a representative indication of TSS in any single sample. The extensive sampling over an extended period was required to reasonably assess the TSS characteristics across the cooling tower system. The study concluded that the cooling tower system is not quantitatively changing the volume (mass) of TSS from the influent volume of TSS and demonstrated that the cooling tower system is not adding TSS to the wastewater. Further TSS monitoring is not warranted.

16. Cadmium, chromium, lead, nickel, and zinc were identified in the effluent and at the intake. Based on the approximate concentration factor of 1.3 through the cooling tower system and comparing the mass at the intake and effluent, these parameters are not added in the cooling tower system. All are significantly below water quality standards. Copper was also identified in the intake and effluent and the data demonstrates that copper in the ambient (intake) water exceeds the water quality standard and that copper is not added in the cooling tower system. Organic parameters identified are also significantly below the respective water quality standards.

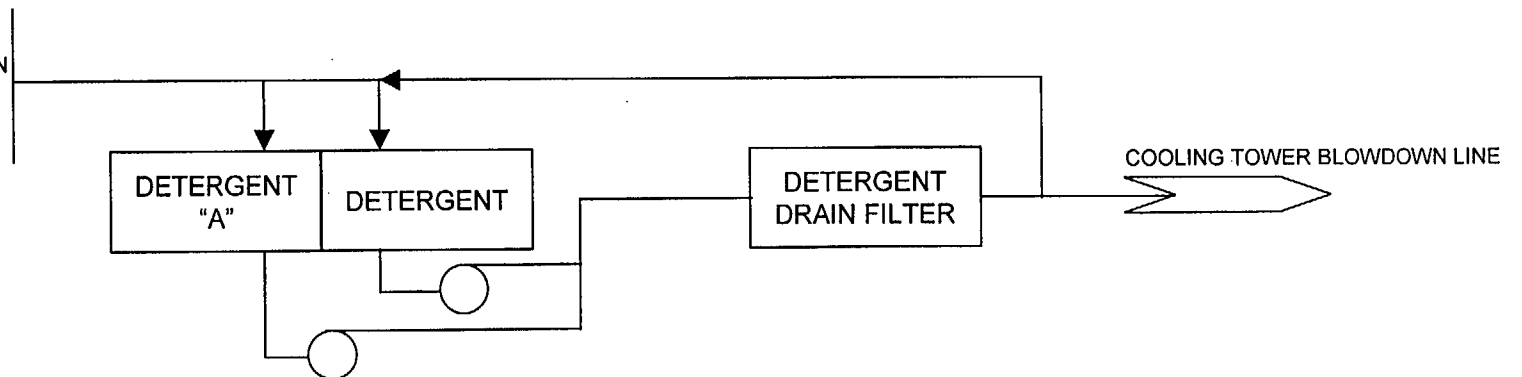
CHEMICAL WASTE (DECONTAMINATION SOLUTION) PROCESSING SYSTEM

- LABORATORY WASTES
- FUEL POOL F/D DRAINS
- WASTE FILTER DRAINS
- FL DR FILTER DRAINS
- RWCU F/D DRAINS



DETERGENT WASTE PROCESSING SYSTEM

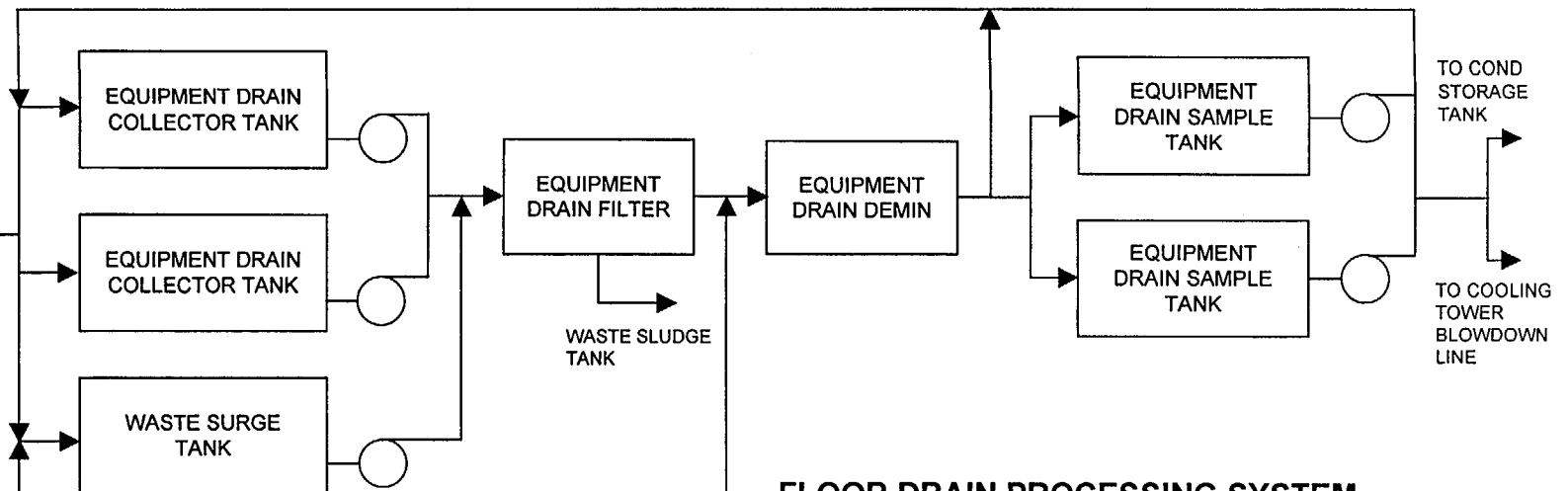
- PERSONNEL DECONTAMINATION
- LAUNDRY DRAINS
- MISCELLANEOUS



HOPE CREEK GENERATING STATION
CHEMICAL/ DETERGENT WASTE
PROCESSING SYSTEM
NJPDES PERMIT NO. NJ0025411
SEPTEMBER 2001

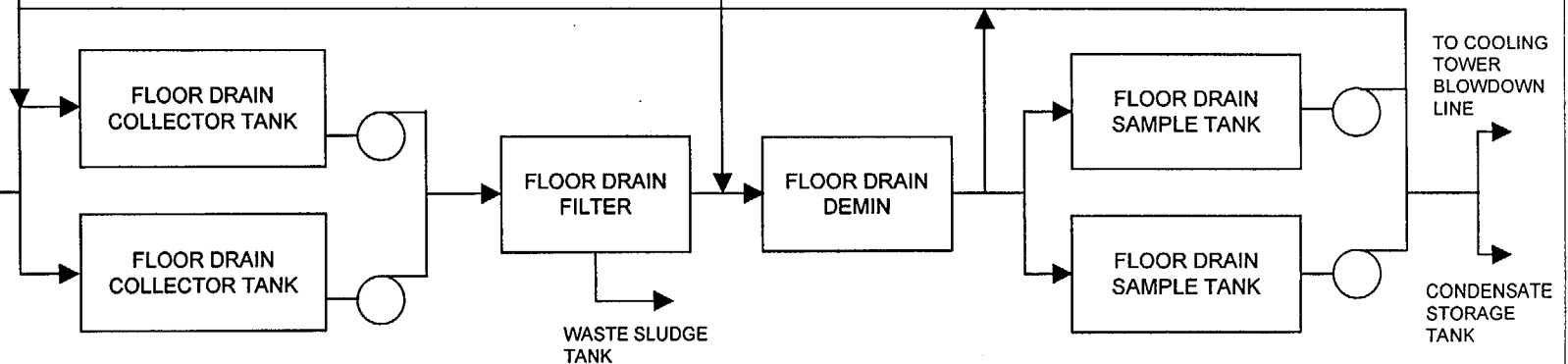
EQUIPMENT DRAIN PROCESSING SYSTEM

- DRYWELL & REACTOR BLDG EQUIPMENT DRAIN SUMPS
- TURBINE BLDG EQUIP DRAIN SUMP
- WASTE CONCENTRATORS CONDENSERS
- OFF STANDARD RECYCLE
- REACTOR WATER CLEANUP SYSTEM
- CLEAN-UP PHASE SEPARATOR DECANT
- LOW CONDUCTIVITY RINSE COND DEMIN
- LOW CONDUCTIVITY RINSE RADWASTE DEMIN
- RADWASTE BLDG EQUIP DRAIN SUMPS
- OFF STANDARD RECYCLE



FLOOR DRAIN PROCESSING SYSTEM

- CONDENSATE STORAGE TANK RADWASTE AREA
- FLOOR DRAIN SUMPS DRYWELL & REACTOR BLDG
- FLOOR DRAIN SUMPS FLOOR DRAIN OFF STANDARD
- RECYCLE WASTE SLUDGE PHASE SEP DECANT
- TURBINE BLDG FLOOR DRAIN SUMPS RHR SYSTEM

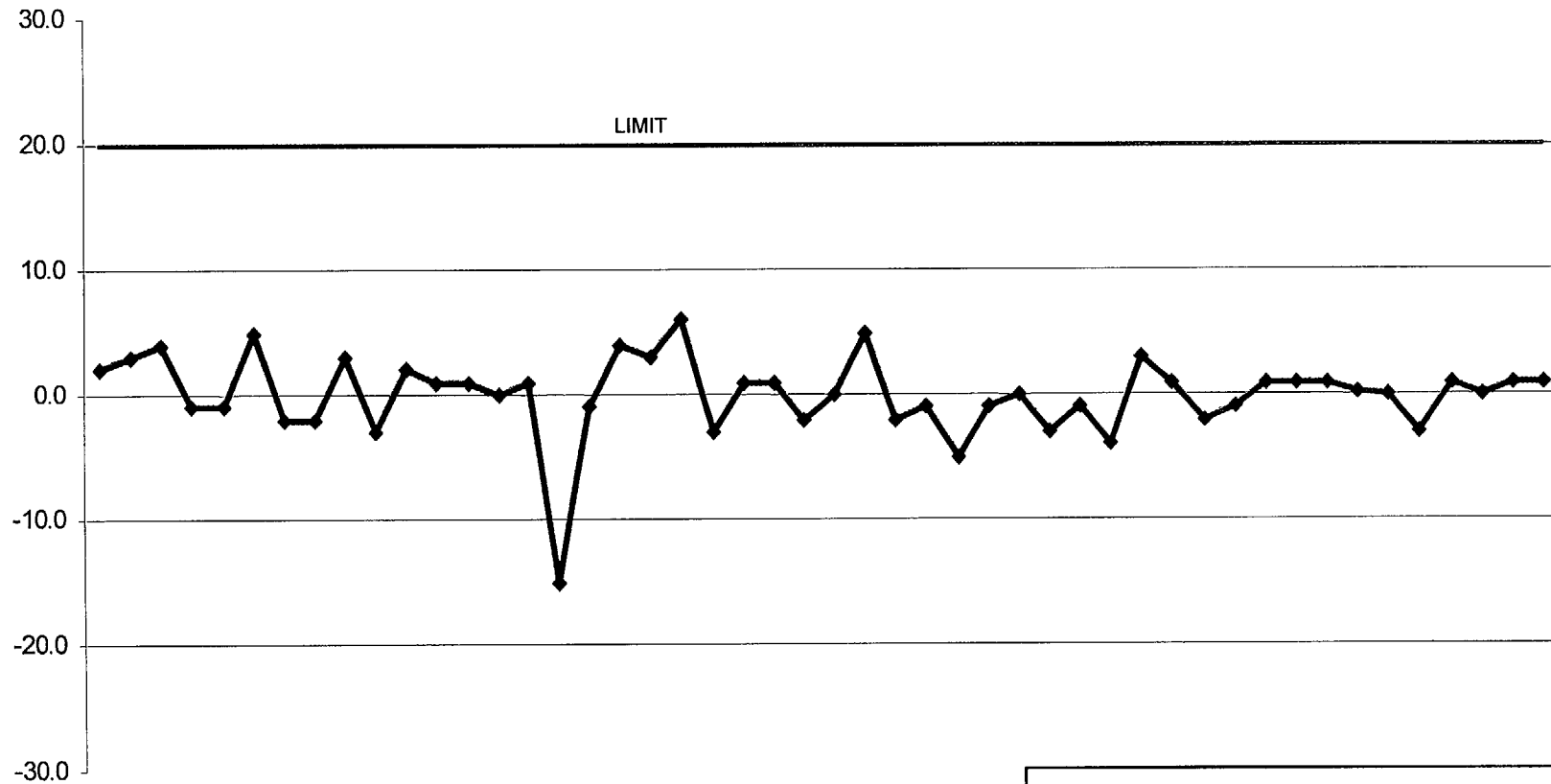


**HOPE CREEK GENERATING STATION
EQUIPMENT/FLOOR DRAIN PROCESSING
SYSTEM**

NJPDES PERMIT NO. NJ0025411

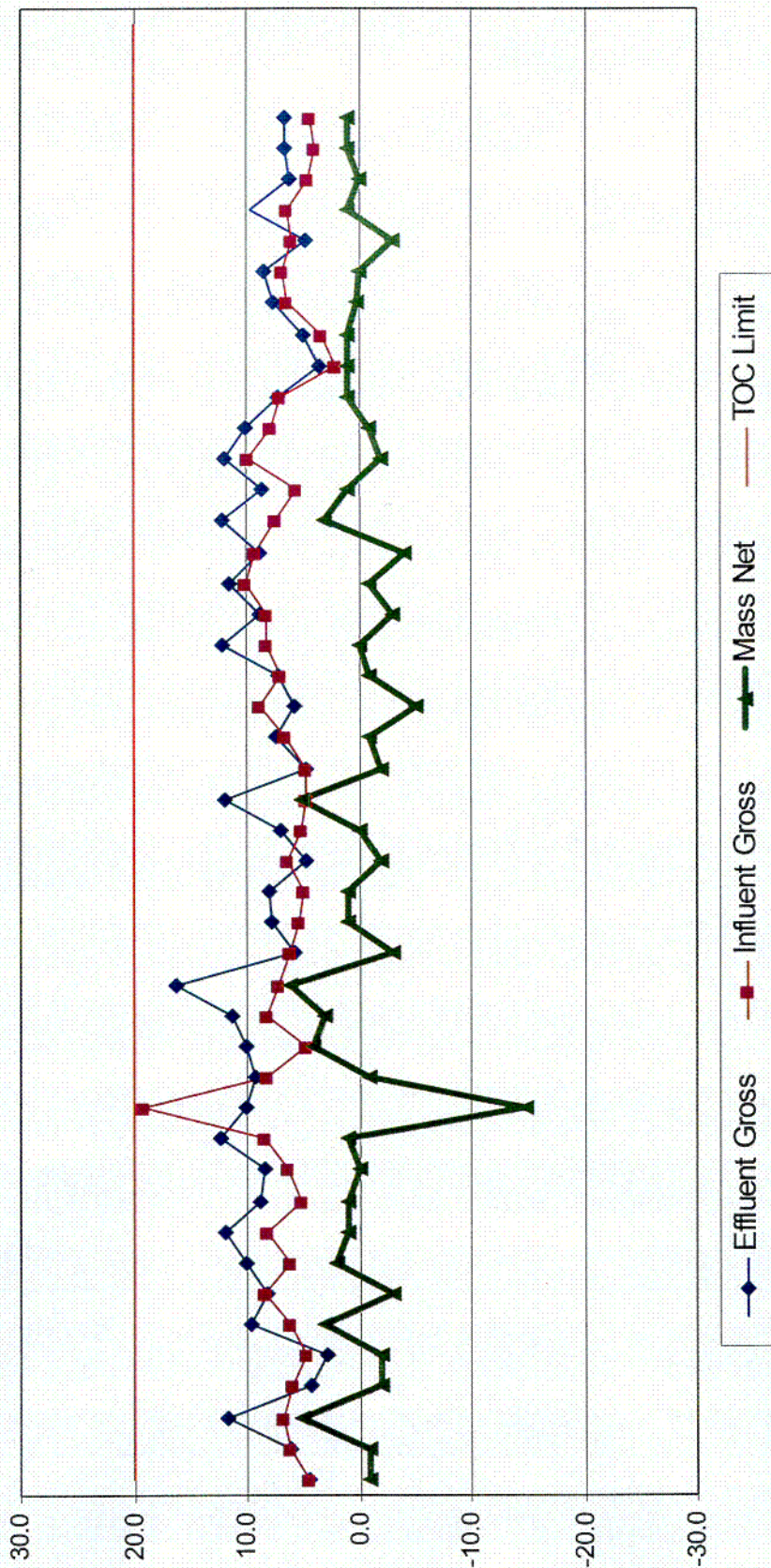
SEPTEMBER 2001

HOPE CREEK NET TOC - PPM 4/97 THROUGH 3/01



HOPE CREEK GENERATING STATION
NET TOTAL ORGANIC CARBON
NJPDES PERMIT NJ0025411
NJPDES OUTFALL DSN 461A
SEPTEMBER 2001

HOPE CREEK TOC
4/97 - 3/01



HOPE CREEK GENERATING STATION
BLOWDOWN TOTAL ORGANIC CARBON
NJPDES PERMIT NJ0025411
NJPDES OUTFALL DSN 461A
SEPTEMBER 2001

DELAWARE RIVER

BLOWDOWN
DSN 461A

INTAKE
SCREEN

CHLORINATION

SW
PUMPS

FILTERS

SACS

STILLING WELL

(S)

STP DSN 462B

LV&OW DSN 461C

RADWASTE DSN 461B

DECHLORINATION

BYPASS

COOLING TOWER
MAKEUP

CHLORINATION
CAUSTIC (NaOH)

MAIN
CIRCULATING
WATER PUMPS

MAIN
CONDENSERS

INTAKE DEICING

NATURAL DRAFT
COOLING TOWER

(F)

SACS - SAFETY AUXILIARIES COOLING SYSTEM
RACS - REACTOR AUXILIARIES COOLING SYSTEM
(S) - SAMPLE LOCATION
(F) - FLOW MEASURING POINT

HOPE CREEK GENERATING STATION
COOLING TOWER BLOWDOWN
NJPDES PERMIT NO NJ0025411
NJPDES OUTFALL - DSN 461A
SEPTEMBER 2001

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System

10A. EFFLUENT DATA - PART A

POLLUTANT	EFFLUENT							Intake (Optional)		
	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
	Conc.	loading	conc.	loading		conc.	loading	conc.	loading	
Biochemical Oxygen Demand (BOD ₅)	A									
Chemical Oxygen Demand (COD)	A									
Total Organic Carbon (TOC)	26.0	3.9	10.1	1.5	48	mg/L	Kg/day			
Total Suspended Solids (TSS)	22.0	3.3	6.5	1.0	48	mg/L	Kg/day			
Total Dissolved Solids (TDS)	762	115	762	115	1	mg/L	Kg/day			
Ammonia (as N)	0.3	0.04	0.3	0.04	1	mg/L	Kg/day			

UNITS AS INDICATED

Flow (specify units)	Daily Max. 0.27		Monthly Avg. 0.04		1461	MGD	MGD		
Temperature (winter)	Daily Max. 17.5		Monthly Avg. 17.5		1	°C			
Temperature (summer)	Daily Max. 19.5		Monthly Avg. 19.5		1	°C			
pH	minimum 8.3	maximum 8.3			1	STANDARD UNITS		minimum	maximum

10B. EFFLUENT DATA - PART B

POLLUTANT (AND CAS NUMBER WHERE AVAILABLE)	MARK "X"		EFFLUENT							INTAKE (Optional)		
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	

CONVENTIONAL and NON-CONVENTIONAL POLLUTANTS

Bromide (24959-67-9)		X										
Chlorine, Total Residual	X		<0.1	N/A	<0.1	N/A	1	mg/L	Kg/day			
Color, (specify units)		X										
Fecal Coliform		X										
Fluoride (16984-48-8)	X(B)		0.61	0.09	0.61	0.09	1	mg/L	Kg/day			
Nitrate-Nitrite (as N)	X		1.4	0.21	1.4	0.21	1	mg/L	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System

10B. EFFLUENT DATA - PART B (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"		EFFLUENT							INTAKE (Optional)		
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	
Nitrogen, Total Organic (as N)	X		0.52	0.08	0.52	0.08	1	mg/L	Kg/day			
<input type="checkbox"/> Oil & Grease or xPet. Hydrocarbons	X		8.0	1.2	<1.0	NA	96	mg/L	Kg/day			
Phosphorus (as P), Total (7723-14-0)	X		9.3	1.4	9.3	1.4	1	mg/L	Kg/day			
Alpha, Total		X										
Beta, Total		X										
Radium, Total		X										
Radium 226, Total		X										
Surfactants		X(B)										
Sulfide (as S)	X(B)		<1.0	N/A	<1.0	N/A	1	mg/L	Kg/day			
Sulfite (as SO ₃) (14265-45-3)		X										
Sulfate (as SO ₄) (14808-79-8)	X(B)		32.0	4.8	32.0	4.8	1	mg/L	Kg/day			
Aluminum, Total (7429-90-5)		X										
Barium, Total (7440-39-3)		X										
Boron, Total (7440-42-8)		X										
Cobalt, Total (7440-48-4)		X										
Iron, Total (7439-89-6)	X		1.36	0.21	1.36	0.21	1	mg/L	Kg/day			
Magnesium, Total (7439-95-4)		X										
Molybdenum, Total (7439-98-7)		X(B)										
Manganese, Total (7439-96-5)		X										
Tin, Total (7440-31-5)		X										
Titanium, Total (7440-32-6)		X										

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System							
10C. EFFLUENT DATA - PART C													
<input type="checkbox"/> If you do not analyze a sample for certain Item 10C pollutants because you qualify as a "Small Business" (see instructions for details), check this box and attach sales data for the most recent three years.													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
OTHER TOXIC POLLUTANTS (METALS and CYANIDE) and TOTAL PHENOLS													
Antimony, Total (7440-36-0)	X		X	< 5.8	N/A	< 5.8	N/A	1	µg/l	Kg/day			
Arsenic, Total (7440-38-2)	X		X	< 3.2	N/A	< 3.2	N/A	1	µg/l	Kg/day			
Beryllium, Total (7440-41-7)	X		X	< 0.3	N/A	< 0.3	N/A	1	µg/l	Kg/day			
Cadmium, Total (7440-43-9)	X	X		0.59	0.0001	0.59	0.0001	1	µg/l	Kg/day			
Chromium, Total (7440-47-3)	X		X	< 1.6	N/A	< 1.6	N/A	1	µg/l	Kg/day			
Copper, Total (7550-50-8)	X	X		191	0.03	191	0.03	1	µg/l	Kg/day			
Lead, Total (7439-92-1)	X		X	< 2.3	N/A	< 2.3	N/A	1	µg/l	Kg/day			
Mercury, Total (7439-97-6)	X		X	< 0.1	N/A	< 0.1	N/A	1	µg/l	Kg/day			
Nickel, Total (7440-02-0)	X		X	< 1.6	N/A	< 1.6	N/A	1	µg/l	Kg/day			
Selenium, Total (7782-49-2)	X		X	< 4.2	N/A	< 4.2	N/A	1	µg/l	Kg/day			
Silver, Total (7440-22-4)	X		X	< 1.4	N/A	< 1.4	N/A	1	µg/l	Kg/day			
Thallium, Total (7440-28-0)	X		X	< 4.7	N/A	< 4.7	N/A	1	µg/l	Kg/day			
Zinc, Total (7440-66-6)	X	X		63.6	0.01	63.6	0.01	1	µg/l	Kg/day			
Cyanide, Total (57-12-5)	X		X	< 10	N/A	< 10	N/A	1	µg/l	Kg/day			
Phenols, Total	X		X	< 50	N/A	< 50	N/A	1	µg/l	Kg/day			
DIOXIN													
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	< 5.0	N/A	< 5.0	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System							
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - VOLATILES													
Acrolein (107-02-8)	X		X	<7.7	N/A	<7.7	N/A	1	µg/l	Kg/day			
Acrylonitrile (107-13-1)	X		X	<2.8	N/A	<2.8	N/A	1	µg/l	Kg/day			
Benzene (71-43-2)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Bromoform (75-25-2)	X	X		0.4	0.0001	0.4	0.0001	1	µg/l	Kg/day			
Carbon Tetrachloride (56-23-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Chlorobenzene (108-90-7)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Chlorodibromomethane (124-48-1)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
Chloroethane (75-00-3)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
2-Chloro-ethyl-vinyl Ether (110-75-8)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Chloroform (67-66-3)	X	X		1.0	0.0002	1.0	0.0002	1	µg/l	Kg/day			
Dichlorobromomethane (75-27-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,1-Dichloroethane (75-34-3)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,2-Dichloroethane (107-06-2)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,1-Dichloroethylene (75-35-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,2-Dichloropropane (78-87-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,3-Dichloropropylene (542-75-6)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Ethylbenzene (100-41-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Methyl Bromide (74-83-9)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Methyl Chloride (74-87-4)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System							
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - VOLATILES (continued)													
Methylene Chloride ((75-09-2)	X		X	<1.0	N/A	<1.0	N/A	1	µg/l	Kg/day			
1,1,2,2-Tetrachloroethane (79-34-5)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
Tetrachloroethylene (127-18-4)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
Toluene (108-88-3)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,2-Transdichloroethylene (156-60-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,1,1-Trichloroethane (71-55-6)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
1,1,2-Trichloroethane (79-00-5)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Trichloroethylene (79-01-6)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
Vinyl Chloride (75-01-4)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
ORGANIC TOXIC POLLUTANTS - ACID COMPOUNDS													
2-Chlorophenol (95-57-8)	X		X	<7.0	N/A	<7.0	N/A	1	µg/l	Kg/day			
2,4-Dichlorophenol (120-83-2)	X		X	<10	N/A	<10	N/A	1	µg/l	Kg/day			
2,4-Dimethylphenol (105-67-9)	X		X	<7.6	N/A	<7.6	N/A	1	µg/l	Kg/day			
4,6-Dinitro-O-Cresol (534-52-1)	X		X	<6.4	N/A	<6.4	N/A	1	µg/l	Kg/day			
2,4-Dinitrophenol (51-28-5)	X		X	<1.9	N/A	<1.9	N/A	1	µg/l	Kg/day			
2-Nitrophenol (88-75-5)	X		X	<6.0	N/A	<6.0	N/A	1	µg/l	Kg/day			
4-Nitrophenol (100-02-7)	X		X	<3.9	N/A	<3.9	N/A	1	µg/l	Kg/day			
P-Chloro-M-Cresol (59-50-7)	X		X	<2.0	N/A	<2.0	N/A	1	µg/l	Kg/day			
Pentachlorophenol (87-86-5)	X		X	<5.8	N/A	<5.8	N/A	1	µg/l	Kg/day			
Phenol (108-95-2)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
2,4,6-Trichlorophenol (88-06-2)	X		X	<8.2	N/A	<8.2	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System							
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS													
Acenaphthene (83-32-9)	X		X	< 2.8	N/A	< 2.8	N/A	1	µg/l	Kg/day			
Acenaphthylene (208-96-8)	X		X	< 2.9	N/A	< 2.9	N/A	1	µg/l	Kg/day			
Anthracene (120-12-7)	X		X	< 2.1	N/A	< 2.1	N/A	1	µg/l	Kg/day			
Benzidine (92-87-5)	X		X	< 120	N/A	< 120	N/A	1	µg/l	Kg/day			
Benzo (a) Anthracene (56-55-3)	X		X	< 1.9	N/A	< 1.9	N/A	1	µg/l	Kg/day			
Benzo (a) Pyrene (50-32-8)	X		X	< 0.8	N/A	< 0.8	N/A	1	µg/l	Kg/day			
3,4-Benzofluoranthene (205-99-2)	X		X	< 1.4	N/A	< 1.4	N/A	1	µg/l	Kg/day			
Benzo (ghi) Perylene (191-24-2)	X		X	< 1.8	N/A	< 1.8	N/A	1	µg/l	Kg/day			
Benzo (k) Fluoranthene (207-08-9)	X		X	< 4.1	N/A	< 4.1	N/A	1	µg/l	Kg/day			
Bis (2-Chloroethoxy) Methane (111-91-1)	X		X	< 3.2	N/A	< 3.2	N/A	1	µg/l	Kg/day			
Bis (2-Chloroethyl) Ether (111-44-4)	X		X	< 6.2	N/A	< 6.2	N/A	1	µg/l	Kg/day			
Bis (2-Chloroisopropyl) Ether (102-60-1)	X		X	< 2.5	N/A	< 2.5	N/A	1	µg/l	Kg/day			
Bis (2-Ethylhexyl) Phthalate (117-81-7)	X		X	< 2.2	N/A	< 2.2	N/A	1	µg/l	Kg/day			
4-Bromophenyl Phenyl Ether (101-55-3)	X		X	< 9.6	N/A	< 9.6	N/A	1	µg/l	Kg/day			
Butyl Benzyl Phthalate (85-68-7)	X		X	< 2.0	N/A	< 2.0	N/A	1	µg/l	Kg/day			
2-Chloronaphthalene (91-58-7)	X		X	< 4.0	N/A	< 4.0	N/A	1	µg/l	Kg/day			
4-Chlorophenyl Phenyl Ether (7005-72-3)	X		X	< 4.2	N/A	< 4.2	N/A	1	µg/l	Kg/day			
Chrysene (218-01-9)	X		X	< 2.4	N/A	< 2.4	N/A	1	µg/l	Kg/day			
Dibenzo (a,h) Anthracene (53-70-3)	X		X	< 3.2	N/A	< 3.2	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System

10C. EFFLUENT DATA - PART C (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)			
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples	
				conc.	loading	conc.	loading		conc.	loading	conc.	loading		
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS (continued)														
1,2-Dichlorobenzene (95-50-1)	X		X	<4.2	N/A	<4.2	N/A	1	µg/l	Kg/day				
1,3-Dichlorobenzene (541-73-1)	X		X	<3.8	N/A	<3.8	N/A	1	µg/l	Kg/day				
1,4-Dichlorobenzene (106-46-7)	X		X	<4.0	N/A	<4.0	N/A	1	µg/l	Kg/day				
3,3 -Dichlorobenzidine (91-94-1)	X		X	<6.5	N/A	<6.5	N/A	1	µg/l	Kg/day				
Diethyl Phthalate (84-66-2)	X	X		4.4	0.0007	4.4	0.0007	1	µg/l	Kg/day				
Dimethyl Phthalate (131-11-3)	X		X	<2.7	N/A	<2.7	N/A	1	µg/l	Kg/day				
Di-N-Butyl Phthalate (84-74-2)	X		X	<2.1	N/A	<2.1	N/A	1	µg/l	Kg/day				
2,4-Dinitrotoluene (121-14-2)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day				
2,6-Dinitrotoluene (606-20-2)	X		X	<2.0	N/A	<2.0	N/A	1	µg/l	Kg/day				
Di-N-Octyl Phthalate (117-84-0)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day				
1,2-Diphenylhydrazine (122-66-7)	X		X	<1.8	N/A	<1.8	N/A	1	µg/l	Kg/day				
Fluoranthene (206-44-0)	X		X	<2.0	N/A	<2.0	N/A	1	µg/l	Kg/day				
Fluorene (86-73-7)	X		X	<3.0	N/A	<3.0	N/A	1	µg/l	Kg/day				
Hexachlorobenzene (118-74-1)	X		X	<5.6	N/A	<5.6	N/A	1	µg/l	Kg/day				
Hexachlorobutadiene (87-68-3)	X		X	<5.7	N/A	<5.7	N/A	1	µg/l	Kg/day				
Hexachlorocyclopentadiene (77-47-4)	X		X	<8.4	N/A	<8.4	N/A	1	µg/l	Kg/day				
Hexachloroethane ((67-72-1)	X		X	<4.3	N/A	<4.3	N/A	1	µg/l	Kg/day				
Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X	<0.7	N/A	<0.7	N/A	1	µg/l	Kg/day				
Isophorone (78-59-1)	X		X	<1.1	N/A	<1.1	N/A	1	µg/l	Kg/day				

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System

10C. EFFLUENT DATA - PART C (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)			
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples	
				conc.	loading	conc.	loading		conc.	loading	conc.	loading		
ORGANIC TOXIC POLLUTANTS – BASE/NEUTRAL COMPOUNDS (continued)														
Naphthalene (91-20-3)	X		X	< 3.2	N/A	< 3.2	N/A	1	µg/l	Kg/day				
Nitrobenzene (98-95-3)	X		X	< 3.8	N/A	< 3.8	N/A	1	µg/l	Kg/day				
N-Nitrosodimethylamine (62-75-9)	X		X	< 3.1	N/A	< 3.1	N/A	1	µg/l	Kg/day				
N-Nitrosodi-N-Propylamine (621-64-7)	X		X	< 6.1	N/A	< 6.1	N/A	1	µg/l	Kg/day				
N-Nitrosodiphenylamine (86-30-6)	X		X	< 2.6	N/A	< 2.6	N/A	1	µg/l	Kg/day				
Phenanthrene (85-01-8)	X		X	< 2.4	N/A	< 2.4	N/A	1	µg/l	Kg/day				
Pyrene (129-00-0)	X		X	< 2.1	N/A	< 2.1	N/A	1	µg/l	Kg/day				
1,2,4-Trichlorobenzene (120-82-1)	X		X	< 3.8	N/A	< 3.8	N/A	1	µg/l	Kg/day				
ORGANIC TOXIC POLLUTANTS – PESTICIDES														
Aldrin (309-00-2)			X											
Alpha-BHC (319-84-6)			X											
Beta-BHC (319-85-7)			X											
Gamma-BHC (58-89-9)			X											
Delta-BHC (319-86-8)			X											
Chlordane (57-74-9)			X											
4,4'-DDT (50-29-3)			X											
4,4'-DDE (72-55-9)			X											
4,4'-DDD (72-54-8)			X											
Dieldrin (60-57-1)			X											

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 461C - Low Volume & Oily Waste System								
10C. EFFLUENT DATA - PART C (continued)														
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT								INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples	
				Conc.	loading	conc.	loading		conc.	loading	conc.	loading		
ORGANIC TOXIC POLLUTANTS - PESTICIDES (continued)														
Alpha-Endosulfan (115-29-7)			X											
Beta-Endosulfan (115-29-7)			X											
Endosulfan sulfate (1031-07-8)			X											
Endrin (72-20-8)			X											
Endrin Aldehyde (7421-93-4)			X											
Heptachlor (76-44-8)			X											
Heptachlor Epoxide (1024-57-3)			X											
PCB-1242 (53469-21-9)			X											
PCB-1254 (11097-69-1)			X											
PCB-1221 (11104-28-2)			X											
PCB-1232 (11141-16-5)			X											
PCB-1248 (12672-29-6)			X											
PCB-1260 (11096-82-5)			X											
PCB-1016 (12674-11-2)			X											
Toxaphene (8001-35-2)			X											

EXPLANATION OF NOTES - FORM C, ITEM 10 - DSN 461C

(A) Analysis of these parameters is not required per approval of the NJDEP as specified under Item 10A on Page 4 of 8 of the instructions for Form C.

(B) These pollutants are utilized at the facility in areas that could discharge through the respective outfall in the event of a spill, leak or inadvertent drain. These pollutants are not intentionally added to this effluent stream, and are not, therefore, normally discharged through this outfall.

SUMMARY TABLE DSN 461C

Facility: PSEG-Hope Creek

Latitude: 39° 28' 13"

Discharge Serial Number (DSN): 461C

Longitude: 75° 32' 23"

Internal Monitoring Point

Wastewater Type: Effluent of the LVOW oil water separator from area, building, auxiliary boiler, and equipment drains. (Note 1)

Parameter All units in mg/L (kg/day) unless otherwise noted		NJPDES/ DSW Permit Application	Existing NJPDES/DSW Permit limits DSN 461C	NJPDES/ DSW DMR 4/97-3/01	Note	Draft Permit Limits for DSN 461C
Flow, Effluent, MGD	avg. max. data pts. monitor	0.04 0.27 1461 ---	NL NL --- Cont/Mt	0.04 0.27 1461 ---	2	NL NL --- Cont/Mt
Organic Carbon, Total (mg/L)	avg. max. data pts. monitor	10.1 26.0 48 ---	NL 50 --- M/Comp	10.1 26.0 48 ---	3	NL 50 --- M/Comp
Petroleum Hydrocarbons (mg/L)	avg. max. data pts. monitor	<1.0 8.0 96 ---	10 15 --- 2-M/G	<1.0 8.0 96 ---	4	10 15 --- 2-M/G
Total Suspended Solids (mg/L)	avg. max. data pts. monitor	6.5 22.0 48 ---	30 100 --- M/Comp	6.5 22.0 48 ---	5	30 100 --- M/Comp

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required.

"MGD" denotes "million gallons per day"

"ND" denotes "Non-detected" value.

Monitoring requirement abbreviations are: "Cont" denotes "Continuous"; "D" denotes "Daily"; "3-W" denotes "three times per week"; "W" denotes "Weekly"; "2-M" denotes "Twice per Month"; "M" denotes "Monthly"; "Q" denotes "Quarterly"; "Mt" denotes "Meter"; "Cal" denotes "Calculated"; "G" denotes "Grab"; "Comp" denotes "Composite"

EXPLANATION OF SUMMARY TABLE NOTES

PAGE 1 OF 4

1. The low volume and oily waste (LVOW) system, DSN 461C, is a low volume (0.04 MGD) internal waste stream that collects and treats potentially oily wastewater from area, building, and equipment drains throughout the site. The major influents, flowpaths, and treatment components are shown on the enclosed schematic entitled Low Volume and Oily Waste System. The oily waste collection system includes transformer catch basins, switchyard underdrains, the fuel oil tank dike and transfer station, secondary containments for tank truck unloading areas, emergency diesel fire pump oil tank dike drains, the turbine building emergency sumps, and miscellaneous equipment drains. The turbine building emergency sumps are designed to remove excess water from the turbine building in the event of flooding. Normal discharges from these sumps are minimal and are composed primarily of groundwater infiltration. Most influent water to the oily waste collection system is precipitation, other influents may include fresh water or service water, along with the pollutants handled or stored within the area drained, primarily petroleum products. The low volume system collects waste streams from cooling tower chemical tank dikes and drains (sodium hydroxide, ammonium bisulfate, and sodium hypochlorite), chlorine analyzer drains (including the analytical reagents), circulating water system building drains, the fuel oil day tank containment drain, and the auxiliary boiler building and blowdown drains (including ammonia and ammonia related [e.g., hydrazine and carbohydrazide] treatment chemicals and analytical reagents).

The permittee is requesting authorization to use carbohydrazide at the Station. Carbohydrazide is proposed for use in the auxiliary boiler system as a corrosion prevention agent, similar to that in use at most PSEG fossil stations. Effluent concentration will be less than 1.0 mg/L and no change to any existing permit limitation is requested. A representative Material Safety Data Sheet is attached.

EXPLANATION OF SUMMARY TABLE NOTES

PAGE 2 OF 4

Flows from containments and dikes are primarily precipitation and may include circulating water or service water and the auxiliary boiler blowdown contains quench water. Most flows to the system are intermittent. Waste waters are collected in one of two lift stations which have level-operated pumps to transfer the wastewater to the treatment system as required.

Collected waste streams are processed through an API-type oil water separator for removal of solid and floatable materials. Settleable solids are removed from the waste stream by gravity separation and are transferred to the oily sludge holding tank before being removed to an USNRC-licensed facility, if the residuals contain low levels of radioactivity, or trucked offsite to a licensed disposal facility. The system also has provisions for recycle of this oily sludge to aid in settling of the influent wastewaters. Oil and floatables removed by the separator are routed to the waste oil tank before being trucked offsite to a licensed disposal facility.

Treated effluent is then discharged through the internal monitoring point DSN 461C (0.04 MGD) which combines with DSN 461A (46.9 MGD) before discharge to the Delaware Estuary. This results in a reduction in concentration of a pollutant by a factor of approximately 1000 prior to discharge. The monitoring point for DSN 461A is after the commingling with DSN 461C.

2. Effluent Flow is monitored continuously by meter and the daily maximum and monthly average flow is reported monthly in Million Gallons per Day (MGD). If the continuous monitoring equipment is inoperable (e.g. maintenance, calibration, or repair), the flow is calculated based on the operating hours of the lift station pumps or the lift station operating events to fulfill the continuous

EXPLANATION OF SUMMARY TABLE NOTES

PAGE 3 OF 4

monitoring requirement. The provisions in the current Permit at Part IV-B/C.H regarding continuous monitoring should be retained.

Footnote 1 in the current Permit defines the reporting requirements for continuous monitoring as:

For continuous monitoring, the daily value shall consist of all the values over a given calendar day (24 hour period) averaged together. The permittee shall report the highest of these daily values as the daily maximum on the DMR, and the average of the daily values as the monthly average.

This definition should be retained and is applicable not only to continuous monitoring but to all monitoring which may be conducted more than one per calendar day for which a daily maximum or a monthly average value must be calculated or reported.

3. Total Organic Carbon (TOC) is measured monthly by 24-hour composite sample. TOC is limited to a daily maximum of 50 mg/L. The daily maximum concentration and monthly average concentration are reported monthly in mg/L . The current limitations and conditions for Total Organic Carbon should be retained in the Permit.

4. Total Petroleum Hydrocarbons (TPH) is measured twice per month by grab sample. TPH is limited to a daily maximum of 15 mg/L and a monthly average of 10 mg/L. The daily maximum concentration and monthly average concentration are reported monthly in mg/L . The current limitations and conditions for Total Petroleum Hydrocarbons should be retained in the Permit.

EXPLANATION OF SUMMARY TABLE NOTES

PAGE 4 OF 4

5. Total Suspended Solids (TSS) is measured monthly by 24-hour composite sample. TSS is limited to a daily maximum of 100 mg/L and a monthly average of 30 mg/L. The daily maximum concentration and monthly average concentration are reported monthly in mg/L. The current limitations and conditions for Total Suspended Solids should be retained in the Permit.

**BETZDEARBORN MATERIAL
SAFETY DATA SHEET**



EFFECTIVE DATE: 20-JUL-1999
PRINTED DATE: 25-JUL-1999

1) CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : CORTROL OS5607

**PRODUCT APPLICATION AREA: WATER BASED DISSOLVED OXYGEN
SCAVENGER/METAL PASSIVATOR.**

COMPANY ADDRESS:

BetzDearborn Inc.
4636 Somerton Road, Trevose, Pa. 19053
Information phone number: (215) - 355-3300

EMERGENCY TELEPHONE (HEALTH/ACCIDENT): (800)-877-1940 (USA)

2) COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the
U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to
additional sections of this MSDS for our assessment of the potential
hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
497-18-7	CARBONIC DIHYDRAZIDE Exothermic hydrolysis to hydrazine can occur with high temperature; also occurs by contact with alkalies, oxidizers, or low grade metals; irritant (eyes and skin)

No component is considered to be a carcinogen by the National Toxicology
Program, the International Agency for Research on Cancer, or the
Occupational Safety and Health Administration at OSHA thresholds for
carcinogens.

Avoid contact with low grade metals (LCS, Al, Cu), alkalies and oxidizers
to avoid accelerated actives degradation.

Do not mix with other chemicals. Feed independently to system.

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause slight irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable

Emergency Response Guide is not applicable

Odor: Slight; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause slight irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

FIRST AID MEASURES

SKIN CONTACT:

Remove contaminated clothing. Wash exposed area with a large quantity of soap solution or water for 15 minutes.

EYE CONTACT:

Immediately flush eyes with water for 15 minutes. Immediately contact a physician for additional treatment.

INHALATION:

Remove victim from contaminated area to fresh air. Apply appropriate first aid treatment as necessary.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

5) FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6) ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7) HANDLING AND STORAGE

HANDLING:

Contact with oxidizers, peroxide and metal oxide may result in a violent reaction. Contamination with high pH products and low grade metal accelerate decomposition to hydrazine.

STORAGE:

Keep containers closed when not in use. Store in a manner that minimizes potential contamination. Store only in vented containers. Protect from freezing.

8) EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

CARBONIC DIHYDRAZIDE
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9) PHYSICAL AND CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.021	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	32	Vapor Density (air=1)	< 1.00
Freeze Point (C)	0		
Viscosity(cps 70F, 21C)	9	% Solubility (water)	100.0
Odor		Slight	
Appearance		Colorless To Light Yellow	
Physical State		Liquid	
Flash Point	P-M(CC)	> 200F > 93C	
pH As Is (approx.)		8.0	
Evaporation Rate (Ether=1)		< 1.00	

NA = not applicable ND = not determined

10) STABILITY AND REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

BETZDEARBORN INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11) TOXICOLOGICAL INFORMATION

Oral LD50 RAT: >2,000 mg/kg
NOTE - Value is for testing of similar material.
Dermal LD50 RABBIT: >2,000 mg/kg
NOTE - Value is for testing of similar material.
Skin Irritation Score RABBIT: 0.23
NOTE - Value is for testing of similar material.
Eye Irritation Score RABBIT: 0.33
NOTE - Value is for testing of similar material.

12) ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay

LC50: 850 mg/L

No Effect Level: 190 mg/L

Fathead Minnow 96 Hour Static Renewal Bioassay

Mortality was observed in lowest concentration tested. A no effect level cannot be defined.

LC50: 260 mg/L

5% Mortality: 96 mg/L

Ceriodaphnia 48 Hour Static Renewal Bioassay

Mortality was observed in lowest concentration tested. A no effect level cannot be defined.

LC50: 160 mg/L

10% Mortality: 96 mg/L

BIODEGRADATION

No Data Available.

13) DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14) TRANSPORT INFORMATION

DOT HAZARD:	Not Applicable
UN / NA NUMBER:	Not applicable
DOT EMERGENCY RESPONSE GUIDE #:	Not applicable

15) REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

SARA SECTION 312 HAZARD CLASS:

Immediate(acute)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

6) OTHER INFORMATION

NFPA/HMIS

Health
Fire
Reactivity
Special
(1) Protective Equipment

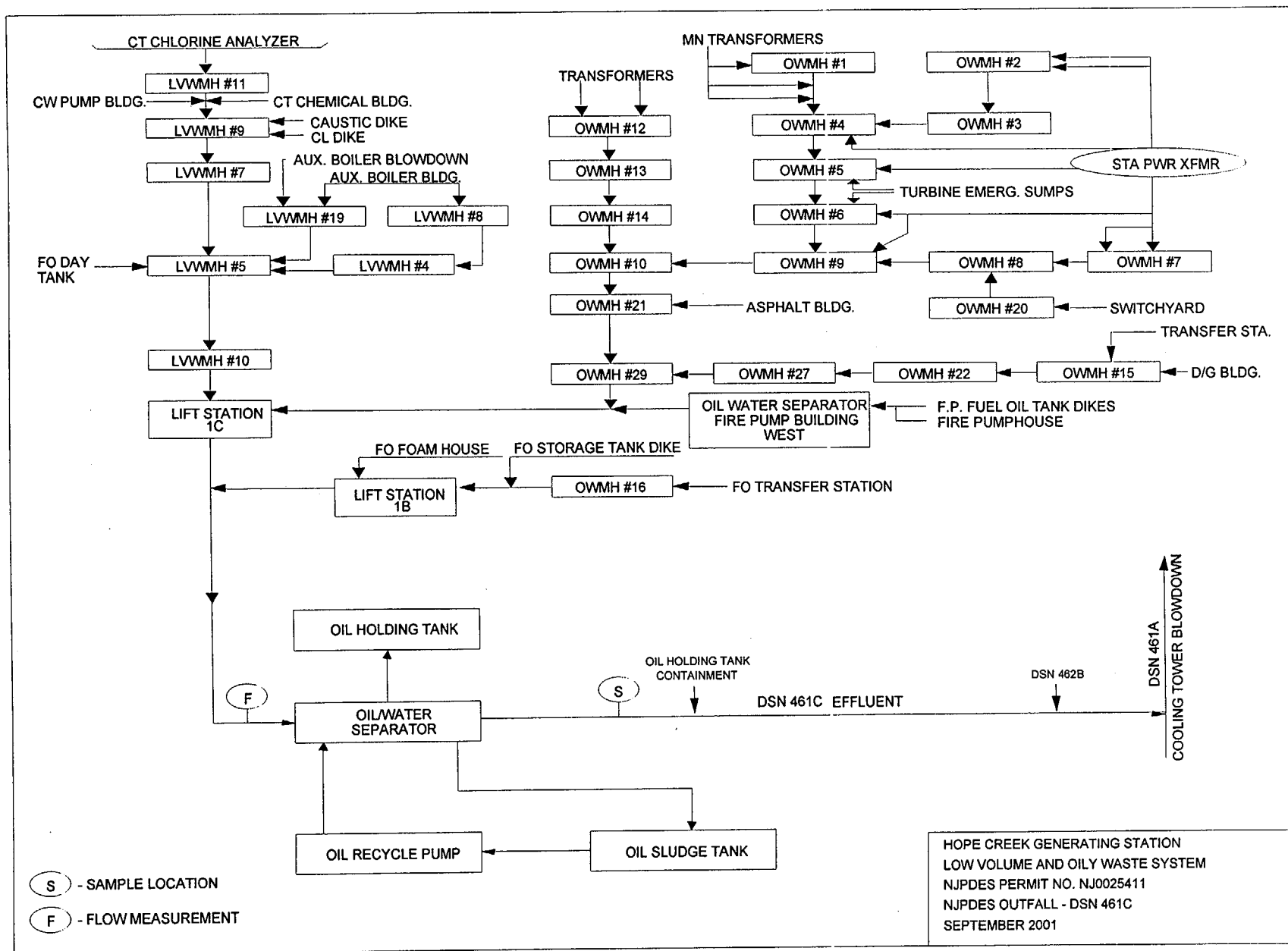
CODE TRANSLATION

1	Slight Hazard
1	Slight Hazard
0	Minimal Hazard
NONE	No special Hazard
B	Goggles, Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	05-MAY-1999		** NEW **
	13-MAY-1999	;EDIT:9	05-MAY-1999
	20-JUL-1999	12	13-MAY-1999



FACILITY NAME: HOPE CREEK GENERATING STATION					OUTFALL NUMBER (DSN): 462B - Sewage Treatment System							
10A. EFFLUENT DATA - PART A												
POLLUTANT	EFFLUENT								Intake (Optional)			
	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples		
	Conc.	loading	conc.	loading		conc.	loading	conc.	loading			
Biochemical Oxygen Demand (BOD ₅)	35.0	2.4	12.6	0.7	16	mg/L	Kg/day	389.6	29.5	16		
Chemical Oxygen Demand (COD)	A											
Total Organic Carbon (TOC)	A											
Total Suspended Solids (TSS)	60.0	4.5	18.2	1.4	48	mg/L	Kg/day					
Total Dissolved Solids (TDS)	631	47.8	631	47.8	1	mg/L	Kg/day					
Ammonia (as N)	5.9	0.4	5.9	0.4	1	mg/L	Kg/day					
UNITS AS INDICATED												
Flow (specify units)	Daily Max. 0.07		Monthly Avg. 0.02		1461	MGD	MGD					
Temperature (winter)	Daily Max. 19.0		Monthly Avg. 19.0		1	°C						
Temperature (summer)	Daily Max. 22.9		Monthly Avg. 22.9		1	°C						
pH	minimum 6.4	maximum 7.9				12	STANDARD UNITS		minimum	maximum		
10B. EFFLUENT DATA - PART B												
POLLUTANT (AND CAS NUMBER WHERE AVAILABLE)	MARK "X"		EFFLUENT								INTAKE (Optional)	
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	
CONVENTIONAL and NON-CONVENTIONAL POLLUTANTS												
Bromide (24959-67-9)		X										
Chlorine, Total Residual	X		2.8	0.21	0.6	0.05	12	mg/L	Kg/day			
Color, (specify units)	X(B)											
Fecal Coliform	X		99.0	NA	4.2	NA	48	MPN/100	MPN/100			
Fluoride (16984-48-8)	X(B)		0.92	0.07	0.92	0.07	1	mg/L	Kg/day			
Nitrate-Nitrite (as N)	X		68.3	5.17	68.3	5.17	1	mg/L	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 462B - Sewage Treatment System

10B. EFFLUENT DATA - PART B (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"		EFFLUENT							INTAKE (Optional)		
	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
			conc.	loading	conc.	loading		conc.	loading	conc.	loading	
Nitrogen, Total Organic (as N)	X		3.6	0.27	3.6	0.27	1	mg/L	Kg/day			
X Oil & Grease or <input type="checkbox"/> Pet. Hydrocarbons	X		7.0	0.5	1.4	0.1	48	mg/L	Kg/day			
Phosphorus (as P), Total (7723-14-0)	X		0.21	0.02	0.21	0.02	1	mg/L	Kg/day			
Alpha, Total		X										
Beta, Total		X										
Radium, Total		X										
Radium 226, Total		X										
Surfactants		X(B)										
Sulfide (as S)	X		1.64	0.12	1.64	0.12	1	mg/L	Kg/day			
Sulfite (as SO ₃) (14265-45-3)		X										
Sulfate (as SO ₄) (14808-79-8)	X		12.0	0.91	12.0	0.91	1	mg/L	Kg/day			
Aluminum, Total (7429-90-5)		X										
Barium, Total (7440-39-3)		X										
Boron, Total (7440-42-8)		X										
Cobalt, Total (7440-48-4)		X										
Iron, Total (7439-89-6)	X		0.814	0.06	0.814	0.06	1	mg/L	Kg/day			
Magnesium, Total (7439-95-4)		X										
Molybdenum, Total (7439-98-7)		X(B)										
Manganese, Total (7439-96-5)		X										
Tin, Total (7440-31-5)		X										
Titanium, Total (7440-32-6)		X										

FACILITY NAME: HOPE CREEK GENERATING STATION						OUTFALL NUMBER (DSN): 462B - Sewage Treatment System							
10C. EFFLUENT DATA - PART C						<input type="checkbox"/> If you do not analyze a sample for certain Item 10C pollutants because you qualify as a "Small Business" (see instructions for details), check this box and attach sales data for the most recent three years.							
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
OTHER TOXIC POLLUTANTS (METALS and CYANIDE) and TOTAL PHENOLS													
Antimony, Total (7440-36-0)	X		X	<5.8	N/A	<5.8	N/A	1	µg/l	Kg/day			
Arsenic, Total (7440-38-2)	X		X	<3.2	N/A	<3.2	N/A	1	µg/l	Kg/day			
Beryllium, Total (7440-41-7)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
Cadmium, Total (7440-43-9)	X	X		0.52	0.00004	0.52	0.00004	1	µg/l	Kg/day			
Chromium, Total (7440-47-3)	X	X		3.0	0.0002	3.0	0.0002	1	µg/l	Kg/day			
Copper, Total (7550-50-8)	X	X		76.8	0.006	76.8	0.006	1	µg/l	Kg/day			
Lead, Total (7439-92-1)	X		X(B)	<2.3	N/A	<2.3	N/A	1	µg/l	Kg/day			
Mercury, Total (7439-97-6)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
Nickel, Total (7440-02-0)	X	X		5.9	0.0004	5.9	0.0004	1	µg/l	Kg/day			
Selenium, Total (7782-49-2)	X		X	<4.2	N/A	<4.2	N/A	1	µg/l	Kg/day			
Silver, Total (7440-22-4)	X		X	<1.4	N/A	<1.4	N/A	1	µg/l	Kg/day			
Thallium, Total (7440-28-0)	X		X	<4.7	N/A	<4.7	N/A	1	µg/l	Kg/day			
Zinc, Total (7440-66-6)	X	X		302	0.023	302	0.023	1	µg/l	Kg/day			
Cyanide, Total (57-12-5)	X	X		14	0.001	14	0.001	1	µg/l	Kg/day			
Phenols, Total	X		X	<50	N/A	<50	N/A	1	µg/l	Kg/day			
DIOXIN													
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	<1.0	N/A	<1.0	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION							OUTFALL NUMBER (DSN): 462B - Sewage Treatment System							
10C. EFFLUENT DATA - PART C (continued)														
POLLUTANT (AND CAS NUMBER IF AVAILABLE)		MARK "X"			EFFLUENT							INTAKE (Optional)		
		testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
					conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - VOLATILES														
Acrolein (107-02-8)		X		X	<7.7	N/A	<7.7	N/A	1	µg/l	Kg/day			
Acrylonitrile (107-13-1)		X		X	<2.8	N/A	<2.8	N/A	1	µg/l	Kg/day			
Benzene (71-43-2)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Bromoform (75-25-2)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Carbon Tetrachloride (56-23-5)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Chlorobenzene (108-90-7)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Chlorodibromomethane (124-48-1)		X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
Chloroethane (75-00-3)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
2-Chloro-ethyl-vinyl Ether (110-75-8)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Chloroform (67-66-3)		X	X		2.8	0.0002	2.8	0.0002	1	µg/l	Kg/day			
Dichlorobromomethane (75-27-4)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,1-Dichloroethane (75-34-3)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,2-Dichloroethane (107-06-2)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,1-Dichloroethylene (75-35-4)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,2-Dichloropropane (78-87-5)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
1,3-Dichloropropylene (542-75-6)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Ethylbenzene (100-41-4)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Methyl Bromide (74-83-9)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
Methyl Chloride (74-87-4)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION

OUTFALL NUMBER (DSN): 462B - Sewage Treatment System

10C. EFFLUENT DATA - PART C (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)		MARK "X"			EFFLUENT							INTAKE (Optional)			
		testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples	
					conc.	loading	conc.	loading		conc.	loading	conc.	loading		
ORGANIC TOXIC POLLUTANTS – VOLATILES (continued)															
Methylene Chloride ((75-09-2)		X		X	<1.0	N/A	<1.0	N/A	1	µg/l	Kg/day				
1,1,2,2-Tetrachloroethane (79-34-5)		X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day				
Tetrachloroethylene (127-18-4)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day				
Toluene (108-88-3)		X	X		10	0.0008	10	0.0008	1	µg/l	Kg/day				
1,2-Transdichloroethylene (156-60-5)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day				
1,1,1-Trichloroethane (71-55-6)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day				
1,1,2-Trichloroethane (79-00-5)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day				
Trichloroethylene (79-01-6)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day				
Vinyl Chloride (75-01-4)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day				
ORGANIC TOXIC POLLUTANTS – ACID COMPOUNDS															
2-Chlorophenol (95-57-8)		X		X	<1.4	N/A	<1.4	N/A	1	µg/l	Kg/day				
2,4-Dichlorophenol (120-83-2)		X		X	<2.1	N/A	<2.1	N/A	1	µg/l	Kg/day				
2,4-Dimethylphenol (105-67-9)		X		X	<1.5	N/A	<1.5	N/A	1	µg/l	Kg/day				
4,6-Dinitro-O-Cresol (534-52-1)		X		X	<1.3	N/A	<1.3	N/A	1	µg/l	Kg/day				
2,4-Dinitrophenol (51-28-5)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day				
2-Nitrophenol (88-75-5)		X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day				
4-Nitrophenol (100-02-7)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day				
P-Chloro-M-Cresol (59-50-7)		X		X	<2.0	N/A	<2.0	N/A	1	µg/l	Kg/day				
Pentachlorophenol (87-86-5)		X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day				
Phenol (108-95-2)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day				
2,4,6-Trichlorophenol (88-06-2)		X		X	<1.6	N/A	<1.6	N/A	1	µg/l	Kg/day				

FACILITY NAME: HOPE CREEK GENERATING STATION							OUTFALL NUMBER (DSN): 462B - Sewage Treatment System							
10C. EFFLUENT DATA – PART C (continued)														
POLLUTANT (AND CAS NUMBER IF AVAILABLE)		MARK "X"			EFFLUENT							INTAKE (Optional)		
		testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
					conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS – BASE/NEUTRAL COMPOUNDS														
Acenaphthene (83-32-9)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			
Acenaphthylene (208-96-8)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			
Anthracene (120-12-7)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Benzidine (92-87-5)		X		X	<25	N/A	<25	N/A	1	µg/l	Kg/day			
Benzo (a) Anthracene (56-55-3)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Benzo (a) Pyrene (50-32-8)		X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			
3,4-Benzofluoranthene (205-99-2)		X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
Benzo (ghi) Perylene (191-24-2)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Benzo (k) Fluoranthene (207-08-9)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
Bis (2-Chloroethoxy) Methane (111-91-1)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			
Bis (2-Chloroethyl) Ether (111-44-4)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			
Bis (2-Chloroisopropyl) Ether (102-60-1)		X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day			
Bis (2-Ethylhexyl) Phthalate (117-81-7)		X	X		1.3	0.0001	1.3	0.0001	1	µg/l	Kg/day			
4-Bromophenyl Phenyl Ether (101-55-3)		X		X	<1.9	N/A	<1.9	N/A	1	µg/l	Kg/day			
Butyl Benzyl Phthalate (85-68-7)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
2-Chloronaphthalene (91-58-7)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
4-Chlorophenyl Phenyl Ether (7005-72-3)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
Chrysene (218-01-9)		X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day			
Dibenzo (a,h) Anthracene (53-70-3)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION					OUTFALL NUMBER (DSN): 462B - Sewage Treatment System								
10C. EFFLUENT DATA - PART C (continued)													
POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS (continued)													
1,2-Dichlorobenzene (95-50-1)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
1,3-Dichlorobenzene (541-73-1)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
1,4-Dichlorobenzene (106-46-7)	X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day			
3,3 -Dichlorobenzidine (91-94-1)	X		X	<1.3	N/A	<1.3	N/A	1	µg/l	Kg/day			
Diethyl Phthalate (84-66-2)	X	X		3.4	0.0003	3.4	0.0003	1	µg/l	Kg/day			
Dimethyl Phthalate (131-11-3)	X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day			
Di-N-Butyl Phthalate (84-74-2)	X	X		0.4	0.00003	0.4	0.00003	1	µg/l	Kg/day			
2,4-Dinitrotoluene (121-14-2)	X		X	<0.3	N/A	<0.3	N/A	1	µg/l	Kg/day			
2,6-Dinitrotoluene (606-20-2)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Di-N-Octyl Phthalate (117-84-0)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
1,2-Diphenylhydrazine (122-66-7)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Fluoranthene (206-44-0)	X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day			
Fluorene (86-73-7)	X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day			
Hexachlorobenzene (118-74-1)	X		X	<1.1	N/A	<1.1	N/A	1	µg/l	Kg/day			
Hexachlorobutadiene (87-68-3)	X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day			
Hexachlorocyclopentadiene (77-47-4)	X		X	<1.7	N/A	<1.7	N/A	1	µg/l	Kg/day			
Hexachloroethane ((67-72-1)	X		X	<0.9	N/A	<0.9	N/A	1	µg/l	Kg/day			
Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X	<0.1	N/A	<0.1	N/A	1	µg/l	Kg/day			
Isophorone (78-59-1)	X		X	<0.2	N/A	<0.2	N/A	1	µg/l	Kg/day			

FACILITY NAME: HOPE CREEK GENERATING STATION OUTFALL NUMBER (DSN): 462B - Sewage Treatment System

10C. EFFLUENT DATA - PART C (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)		MARK "X"			EFFLUENT							INTAKE (Optional)				
		testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples		
					conc.	loading	conc.	loading		conc.	loading	conc.	loading			
ORGANIC TOXIC POLLUTANTS - BASE/NEUTRAL COMPOUNDS (continued)																
Naphthalene (91-20-3)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day					
Nitrobenzene (98-95-3)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day					
N-Nitrosodimethylamine (62-75-9)		X		X	<0.6	N/A	<0.6	N/A	1	µg/l	Kg/day					
N-Nitrosodi-N-Propylamine (621-64-7)		X		X	<1.2	N/A	<1.2	N/A	1	µg/l	Kg/day					
N-Nitrosodiphenylamine (86-30-6)		X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day					
Phenanthrene (85-01-8)		X		X	<0.5	N/A	<0.5	N/A	1	µg/l	Kg/day					
Pyrene (129-00-0)		X		X	<0.4	N/A	<0.4	N/A	1	µg/l	Kg/day					
1,2,4-Trichlorobenzene (120-82-1)		X		X	<0.8	N/A	<0.8	N/A	1	µg/l	Kg/day					
ORGANIC TOXIC POLLUTANTS - PESTICIDES																
Aldrin (309-00-2)				X												
Alpha-BHC (319-84-6)				X												
Beta-BHC (319-85-7)				X												
Gamma-BHC (58-89-9)				X												
Delta-BHC (319-86-8)				X												
Chlordane (57-74-9)				X												
4,4'-DDT (50-29-3)				X												
4,4'-DDE (72-55-9)				X												
4,4'-DDD (72-54-8)				X												
Dieldrin (60-57-1)				X												

FACILITY NAME: HOPE CREEK GENERATING STATION OUTFALL NUMBER (DSN): 462B - Sewage Treatment System

10C. EFFLUENT DATA - PART C (continued)

POLLUTANT (AND CAS NUMBER IF AVAILABLE)	MARK "X"			EFFLUENT							INTAKE (Optional)		
	testing required	believed present	believed absent	Daily Maximum		Monthly Average		# of samples	Units		Average		# of samples
				Conc.	loading	conc.	loading		conc.	loading	conc.	loading	
ORGANIC TOXIC POLLUTANTS - PESTICIDES (continued)													
Alpha-Endosulfan (115-29-7)			X										
Beta-Endosulfan (115-29-7)			X										
Endosulfan sulfate (1031-07-8)			X										
Endrin (72-20-8)			X										
Endrin Aldehyde (7421-93-4)			X										
Heptachlor (76-44-8)			X										
Heptachlor Epoxide (1024-57-3)			X										
PCB-1242 (53469-21-9)			X										
PCB-1254 (11097-69-1)			X										
PCB-1221 (11104-28-2)			X										
PCB-1232 (11141-16-5)			X										
PCB-1248 (12672-29-6)			X										
PCB-1260 (11096-82-5)			X										
PCB-1016 (12674-11-2)			X										
Toxaphene (8001-35-2)			X										

EXPLANATION OF NOTES - FORM C, ITEM 10 - DSN 462B

- (A) Analysis of these parameters is not required per approval of the NJDEP as specified under Item 10A on Page 4 of 8 of the instructions for Form C.
- (B) These pollutants are utilized at the facility in areas which could discharge through the respective outfall in the event of a spill, leak or inadvertent drain. These pollutants are not intentionally added to this effluent stream, and are not, therefore, normally discharged through this outfall.

SUMMARY TABLE DSN 462B

Facility: PSEG-Hope Creek

Latitude: 39° 28' 11"

Discharge Serial Number (DSN): 462B

Longitude: 75° 32' 25"

Internal Monitoring Point

Wastewater Type: Effluent of the Sewage Treatment Plant. (Note 1)

Parameter All units in mg/L (kg/day) unless otherwise noted		NJPDES/ DSW Permit Application	Existing NJPDES/DSW Permit limits DSN 462B	NJPDES/ DSW DMR 4/97-3/01	Note	Draft Permit Limits for DSN 462B
Flow, Effluent, MGD	avg. max. data pts. monitor	0.02 0.07 1461 ---	NL NL --- D/Mt	0.02 0.07 1461 ---	2	NL NL --- D/Mt
BOD ₅ (kg/day)	avg. max. data pts. monitor	12.6 35.0 16 ---	8 NL --- M/Comp	--- ---	3	8 NL --- M/Comp
BOD ₅ (% Removal)	min. max. data pts. monitor	--- ---	87.5 N/A --- M/Calc	95.5 99.2 48 ---	4	87.5 N/A --- M/Calc
Total Suspended Solids (mg/L)	avg. max. data pts. monitor	18.2 60.0 48 ---	30 NL --- M/Comp	18.2 60.0 48 ---	5	30 NL --- M/Comp
Total Suspended Solids (% Removal)	min. max. data pts. monitor	--- ---	85 N/A --- M/Calc	95.0 98.0 48 ---	6	85 N/A --- M/Calc
F. Coliform (MPN/100ml)	avg. max. data pts. monitor	4.2 99.0 48 ---	200 400 --- M/G	4.2 99.0 48 ---	7	200 400 --- M/G
Oil and Grease (mg/L)	avg. max. data pts. monitor	1.4 7.0 48 ---	10 15 --- M/G	1.4 7.0 48 ---	8	10 15 --- M/G

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required.

"MGD" denotes "million gallons per day"

"ND" denotes "Non-detected" value.

Monitoring requirement abbreviations are: "Cont" denotes "Continuous"; "D" denotes "Daily"; "3-W" denotes "three times per week"; "W" denotes "Weekly"; "2-M" denotes "Twice per Month"; "M" denotes "Monthly"; "Q" denotes "Quarterly"; "Mt" denotes "Meter"; "Cal" denotes "Calculated"; "G" denotes "Grab"; "Comp" denotes "Composite"

1. The Sewage Treatment System (DSN 462B, an internal monitoring point) treats collected domestic waste waters from the Salem and Hope Creek Generating Stations, support (e.g., administrative) facilities, and sewage holding facilities from unconnected buildings on-site. The major flowpaths and treatment components are shown on the enclosed schematic entitled Sewage Treatment System. Influent wastewater and return activated sludge are introduced into the single-channel oxidation ditch where extended aeration, a modification of the activated sludge process, is used to oxidize the organic constituents of the influent waste water. This process acts to remove Biochemical Oxygen Demand (BOD), reduce suspended solids, nitrify, and partially denitrify the wastewater. Rotor aerators are used to mix air into the contents of the basin and to keep the contents moving around the oxidation ditch. Following aeration, settling in the biological clarifiers is used to separate suspended solids from the liquid flow. The settled solids, or sludge, is either returned to the oxidation ditch or wasted to a sludge holding tank, based upon process requirements. The liquid wastewater flows from the clarifiers to the sand filters or directly to the chlorination facilities. The deep-bed downflow gravity sand filters can be used to further reduce suspended solids. Filter effluent flows to the clearwell for use as filter backwash water or is discharged to the chlorination facilities. The chlorination system is a flow-dependant tablet chlorination system, currently using calcium hypochlorite tablets, followed by chlorine contact tanks to provide retention for the biocide to function. The effluent of the chlorine contact tanks flows over a cascading weir to the effluent pump lift station. Level-controlled effluent pumps transfer the treated water (0.02 MGD) to the cooling tower blowdown, DSN 461A (46.9 MGD), for discharge to the Delaware Estuary. Residual cooling tower blowdown dechlorination chemical, ammonium bisulfite, dechlorinates the sewage treatment system effluent. Settled solids or sludge is removed from the waste stream to the sludge holding tank for aeration

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and dewatering before being trucked offsite to a licensed disposal facility, or to an USNRC-licensed facility if the residuals contain low levels of radioactivity.

In accordance with the current Permit at Part IV-B/C.G, the sewage treatment system effluent was redirected to discharge through the cooling tower blowdown outfall (DSN 461A). The sewage treatment system outfall is now an internal waste stream. Emergency provisions have been retained for discharge of the sewage treatment system effluent through DSN 462A upon failure of the lift station pumps to prevent sewage overflow. Treated effluent is discharged through the internal monitoring point DSN 462B (0.02 MGD) which combines with DSN 461A (46.9 MGD) before discharge to the Delaware Estuary. This results in a reduction in the concentration of a pollutant by a factor of approximately 2000 prior to discharge. The monitoring point for DSN 461A is after the commingling with DSN 462B.

2. Effluent Flow is monitored daily by meter and the daily maximum and monthly average flow is reported monthly in Million Gallons per Day (MGD). If the monitoring equipment is inoperable (e.g. maintenance, calibration, or repair), the flow is calculated based on the manual measurement of height of the effluent over a v-notched weir. Manual flow measurement should be included with the alternative monitoring provisions in the current Permit at Part IV-B/C.H.

3. Biochemical Oxygen Demand (BOD₅) is measured monthly by 24-hour composite sample. The mass of BOD₅ discharged is limited to a monthly average of 8 Kg/day. This is equivalent to a carbonaceous (first stage) oxygen demand (FSOD) of 9.5 Kg/day (21 pounds per day) as assigned by the Delaware River

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Basin Commission. The daily maximum and monthly average are reported monthly in Kg/day. There is no change requested to the current limitations and conditions for BOD₅ loading.

4. The percent removal of Biochemical Oxygen Demand (BOD₅) is calculated from the monthly 24-hour composite samples on the influent and effluent of the Sewage Treatment System. The monthly minimum is reported monthly in percent. The monthly minimum limitation of 87.5% is consistent with the Delaware River Basin Commission (DRBC) Docket Decision D-87-70 and the DRBC Effluent Quality Requirements. There is no change requested to the current limitations and conditions for percent removal of BOD₅.

5. Total Suspended Solids (TSS) is measured monthly by 24-hour composite sample. TSS is limited to a monthly average of 30 mg/L. The daily maximum concentration and monthly average concentration are reported monthly in mg/L. There is no change requested to the current limitations and conditions for Total Suspended Solids.

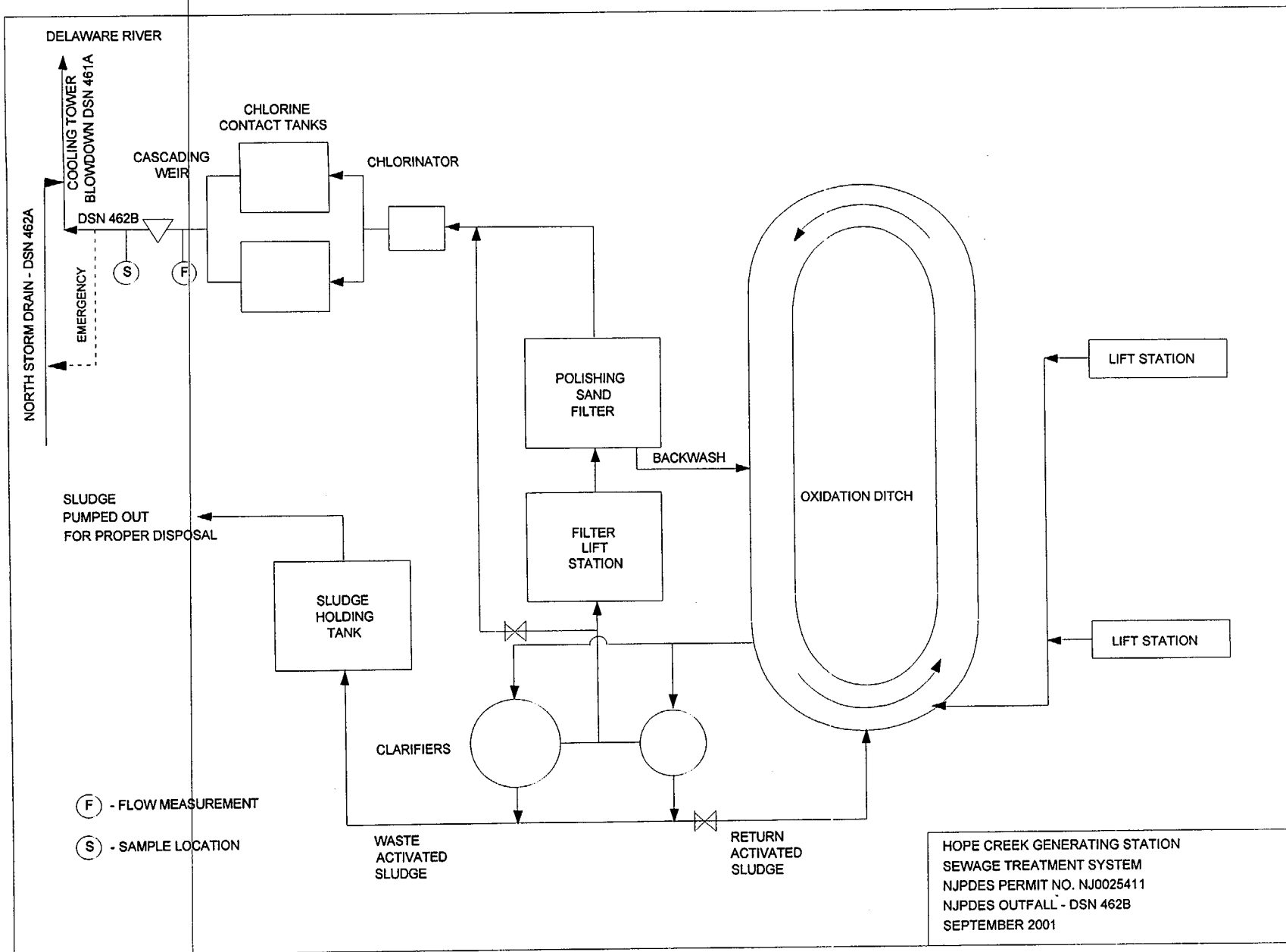
6. The percent removal of Total Suspended Solids (TSS) is calculated from the monthly 24-hour composite samples on the influent and effluent of the Sewage Treatment System. The monthly minimum is reported monthly in percent. The monthly minimum limitation of 85% is consistent with the Delaware River Basin Commission (DRBC) Docket Decision D-87-70 and the DRBC Effluent Quality Requirements. There is no change requested to the current limitations and conditions for percent removal of TSS.

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7. Fecal Coliform is monitored monthly by grab sample and reported monthly . The monthly average is calculated as the geometric mean over a 30 consecutive day period and the maximum is calculated as the geometric mean over a seven consecutive day period. Fecal Coliform is limited to a monthly average of 200 MPN/100ml (based on the DRBC Stream Quality Objectives) and a maximum of 400 MPN/100ml (based on the State Water Quality Standards). There is no change requested to the current limitations and conditions for Fecal Coliform.

8. Oil and Grease (O&G) is measured monthly by grab sample. O&G is limited to a monthly average of 10 mg/L and a daily maximum of 15 mg/L. The daily maximum concentration and monthly average concentration are reported monthly in mg/L . There is no change requested to the current limitations and conditions for Oil and Grease.



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1. The Statement of Basis for the current Permit identified that In accordance with 40 CFR 122.26(a)(1)(i), this facility is required to have a permit for its stormwater discharges to surface water because a permit for those discharges was issued prior to February 4, 1987. The facility's stormwater discharge to surface water is also required to be permitted because the stormwater is associated with an industrial activity pursuant to 40 CFR 122.26(b)(14)(vii). Stormwater runoff at the facility is directed via a conveyance system to three discrete outfalls identified as DSN 462A (North Yard Drain), DSN 463A (South Yard Drain) and DSN 464 (Perimeter Drain). As required in the current Permit at Part IV-RF, the Stormwater Pollution Prevention Plan (SPPP) has been implemented and all requirements of the SPPP have been met for the term of the Permit. The SPPP has been demonstrated to be an effective mechanism to ensure that proper stormwater operations, maintenance procedures, and good housekeeping practices function to minimize the contact between stormwater runoff and the facility's operations. There is no treatment within these systems and therefore there are no residuals generated. As noted in the current Permit, the tidal influence is predominant in the effluent.

2. The North Yard Drain (DSN 462A) collects and discharges (0.24 MGD) to the Delaware Estuary, site drainage from the facility parking lots, Centralized Warehouse roof drain, loading ramp catch basins, Auxiliary Boiler roof drain, Fire Water Pumphouse, No. 2 Reactor Building roof and area drains, Materials Center area and roof drains, construction and excavation dewatering, and runoff from other miscellaneous sources. The sewage treatment system (DSN 462B) emergency overflow can discharge through this outfall but the sewage treatment system is monitored independently. The primary influents and the flow paths are shown on the enclosed schematic entitled North Yard Drain. Containments and isolated

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catch basins which collect precipitation or other sources of water are first evaluated for pollutants then released to the yard drain system. The evaluation includes a determination based on the source of the water and the potential for pollutant presence and then, if appropriate, the water is analyzed prior to release. The North Yard Drain system may contain precipitation, river water or groundwater (including fresh water and potable water), but the effluent consist primarily of Delaware Estuary water, largely due to the tidal influence.

3. The South Yard Drain (DSN 463A) collects and discharges (0.51 MGD) to the Delaware Estuary, site drainage from the Security Center roof, drain and parking lot, roof and area drains from the Administrative Building, Auxiliary Boiler, Turbine Building, Reactor Building, Materials Center, and Services Facility Building, as well as the Chlorine Structure drains, service water valve pit, dewatering sump, construction and excavation dewatering, and runoff from other miscellaneous sources. The primary influents and the flow paths are shown on the enclosed schematic entitled South Yard Drain. Containments and isolated catch basins which collect precipitation or other sources of water are first evaluated for pollutants then released to the yard drain system. The evaluation includes a determination based on the source of the water and the potential for pollutant presence and then, if appropriate, the water is analyzed prior to release. For example, the service water sodium hypochlorite tank containment may contain precipitation, fresh water, and service water and contain low concentrations of chlorine residual. The containment contents are analyzed for residual chlorine prior to release to the South Yard Drain and the release is not conducted if residual chlorine is detected.

The South Yard Drain system may contain precipitation, river water (including service water) or groundwater (including fresh water and potable water), but the effluent consist primarily of Delaware Estuary water, largely due to the tidal influence

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4. The Perimeter Drain (DSN 464) collects and discharges (0.41 MGD) to the Delaware Estuary, site drainage and runoff from the access road area, Administration Building roof drains and parking lots, Combo Shop roof drains, catch basins in undeveloped portions of the site, groundwater infiltration, natural drainage from the adjacent marshes, and drainage from areas external to the Hope Creek site. Due to the facility elevations and proximity to the River, this outfall is also tidally influenced.

