Florida Power
CORPORATION

Crystal River Unit 3
Docket No. 50-302

July 11, 1991
3F0791-10

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Environmental Protection Plan

Dear Sir:

Crystal River Unit 3's Environmental Protection Plan (EPP) requires the reporting of certain activities related to the National Pollutant Discharge Elimination System (NPDES) Permit and the State Certification. As a result of a Quality Programs Department review, it was determined that several submittals were inadvertently omitted as a result of an administrative oversight. This administrative error has been corrected. Attached are copies of the correspondence which had been overlooked, and the latest NPDES letter dated June 20, 1991, which is provided in accordance with the EPP, Section 3.2. correspondence.

Sincerely,

P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

PMB:dh

Attachment

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

C001
1/1

Florida Power
CORPORATION

October 4, 1989

Mr. Peter T. McGarry, P.E.
United States Environmental
Protection Agency
Florida Compliance
345 Courtland Street
Atlanta, Georgia 30365

Dear Mr. McGarry:

Re: Florida Power Corporation (FPC)
DMR QA Study Number 009
NPDES Permit No. FL000015901
Crystal River Units 1,2,3

The purpose of this letter is notify the Agency that the determination of the cause of the unacceptable result for Oil & Grease is still under investigation. However, FPC will submit to the Agency the results of the investigation by October 27, 1989. FPC appreciates the cooperation of the EPA in this matter.

Sincerely,

W. Jeffrey Pardue
Supervisor, Water Programs

Florida Power
CORPORATION

October 11, 1989

Mr. Robert Vanderslice
Permitting Supervisor
Florida Department of
Environmental Regulation
Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-9544

Dear Mr. Vanderslice:

Re: Crystal River Energy Complex - Modification of IT09-154804

This is in response to your August 21, 1989 letter requesting additional information regarding modification of IT09-154804 to permit the discharge of hydrazine, morpholine, and ammonia. Attached is a check for the permitting fee ($3,000) and a completed industrial waste application.

Also attached is information regarding the chemical characteristics of hydrazine and morpholine. FPC does not have data on the aquatic toxicity of hydrazine or morpholine. With regard to ammonia, attached are two tables from EPA's Ambient Water Quality Criteria for Ammonia (Saltwater) - 1989 (EPA 440/5-88-004).

Please contact me at (813)866-4387 if you have any questions.

Sincerely,

W. Jeffrey Pardue
Supervisor, Water Programs

bm
Attachments
cc C. Kaplan-w/attachment

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
4520 OAK FAIR BLVD
TAMPA, FLORIDA 33610-7347
813-623-5561
Suncom—552-7812

APPLICATION TO OPERATE/CONSTRUCT INDUSTRIAL WASTEWATER TREATMENT AND DISPOSAL SYSTEMS

Type application: [X] Operation [ ] Temporary Operation [ ] Construction

Source Status: [ ] New [ ] Existing [X] Modification

Source Name: Florida Power Corporation Crystal River Units 1,2,3 County: Citrus

Source Location: Street: Powerline Road City: Crystal River

Latitude 28 ° 57 ' 30 " Longitude 82 ° 42 ' 00 "

Applicant Name and Title: John A. Hancock, Senior Vice President, Power Operations

Applicant Address: 3201 34th Street South, St. Petersburg, FL 33711

DIRECTIONS

1. All applicable items must be completed in full in order to avoid delay in processing this application. Where attached sheets or other technical documentations are utilized in lieu of the space provided, indicate appropriate cross references.

2. Please type or print in ink.

3. Four (4) copies of this application and any supplemental information, and a check for the application fee in accordance with Florida Administrative Code Rule 17-4.05, made payable to the State of Florida Department of Environmental Regulation, must be submitted to the appropriate District office or approved local program.

4. Projects involving construction shall be accompanied by two (2) sets of engineering drawings, specifications and design data as prepared by a Professional Engineer registered in the State of Florida, where required by Chapter 471, Florida Statutes.

5. A map showing site location, property boundaries, layout of installation and other buildings, discharge point(s), etc., shall accompany the application. It shall also include any surface water bodies or potable water supply wells beyond the property boundaries that may be effected by a discharge plume, if any effluent is to be discharged to groundwater.

6. If effluent or sludges generated as wastes in the treatment process qualify as hazardous wastes as defined by Florida Administrative Code Rule 17-30, additional hazardous waste permits may be required.

PART II - DETAILED DESCRIPTION OF SOURCE

A. Describe the nature and extent of the project. Refer to existing pollution control facilities, expected improvements in performance of the facilities and state whether the project will result in full compliance. Attach additonal sheet if necessary.

FPC proposes to discharge low concentrations of hydrazine, ammonia, and morpholine contained in the Crystal River Unit 3 secondary plant liquid discharges. A complete characterization and release pathway are described in Attachment 1. No specific water quality standards exist for hydrazine or morpholine.

B. Construction schedule, if applicable. N/A

Start of Construction (Date):

Completion of Construction (Date):

C. Cost of Construction (Show a breakdown of costs for individual components/units of the project serving pollution control purposes only). Information on actual costs shall be furnished with the application for operation permit.

N/A

D. For this source indicate any previous DER permits; issuance dates, and expiration dates; and orders and notices.

This source is not presently covered by a DER permit. Outfall OSN-006 is permitted under IT09-154804.

E. Indicate the relationship between this project and area regional planning for wastewater treatment. List steps to be taken for this industrial waste facility to become part of an area wide wastewater treatment system.

N/A

F. Indicate EPA NPDES permit, effective date and expiration date.

Permit No. FL: 0000159	9/1/88	9/30/93
	Issue Date	Expiration Date

PART IV - INDUSTRIAL WASTEWATER CHARACTERISTICS

Information furnished in this section for construction permit shall be based on reasonable prediction and good professional judgment. However, actual data shall be submitted when applying for an operation permit. Note: If there is more than one discharge point, submit the following data for each point.

A. Flow (MGD):

0.36	0.86	
Average	Maximum	Design

B. Water Quality Characteristics of Effluent

PARAMETER	CONCENTRATION (note units)		
	Minimum	Maximum	30-day Average
Organic:			Batch releases
volatile or purgeable			
base/neutral extractable			
acid extractables			
total organic carbon (TOC)			
biological oxygen demand (BOD)			
Inorganic			
heavy metals			
major ions			
Physical			
pH			
specific conductivity			
temperature			
suspended solids			
hydrazine (normal operations)	0.24 ppb	1.18 ppb	
(outage)	1.18 ppm	8.82 ppm	
ammonia (normal operations)	0.01 ppm	0.03 ppm	
(outage)	0.01 ppm	0.12 ppm	
morpholine (normal operations)	0.02 ppm	0.6 ppm	
(outage)	0.02 ppm	0.6 ppm	

*concentration at OSN-006 based on 17:1 minimum dilution. Typical dilution is 40:1.

2. Location(s) of application area(s):

_____

_____

3. Ownership of land (if different from applicant): _____
Attach approval from owner for use of land for effluent disposal.

4. Describe the hydrology and geologic structures of the affected area, using site specific information, including the general vertical and lateral limits of each classification of groundwater. (Maps and cross sections are suggested.)

5. What is the direction of groundwater flow? _____

6. Water table levels generally range from a high of _____feet to a low of _____ feet below average land surface elevation.

7. Surface or sub-surface irrigation:

a. Description of disposal structure(s).

b. Area under irrigation; total _____ per rotation.

Latitude ____°____'____"N Longitude ____°____'____"W

c. Irrigation rate: _____

d. Percolation rate: _____

e. Ultimate disposal of surface/sub-surface runoff: _____

f. Type of cover crop and general routine operation of the system:

8. Surface Impoundments:

a. Number of cells and latitude and longitude of each. _____

_____

b. Bottom area of cells: _____ft^2 _____acres

c. Design depth of water in cells: _____ft

d. Cell configuration (if rectangular): Length _____ft; Width _____ft

e. Average hydraulic loading rate: _____inches/day _____ GPD/ft^2

f. Hydraulic loading period: _____days; resting period _____days

g. Percolation rate: _____gpd/ft^2

9. Number and location of monitoring wells: _____

_____

C. Plans for meeting full compliance with Chapter 403, F.S., and Rules 17-3, 17-4 and 17-6.

Schedule of Increments of Progress to meet compliance:

1. Date when planning is expected to be complete _____

2. Date when engineering will be complete _____

3. Date construction application will be submitted to upgrade or replace the existing plant or build lift station and force main to phase out the present facility _____

4. Date contract will be let _____

5. Date construction will commence _____

6. Date construction is to be complete and so certified _____

7. Date that wastewater collection/transmission/treatment/effluent disposal systems will be certified "in compliance" with your permit _____

(cross out inappropriate components)

D. Who will be responsible for overseeing that the above time schedule will be met?

NAME _____
(Print or type)

TITLE _____

ADDRESS _____

_____

TELEPHONE NUMBER _____

Signature _____

Date _____

CHEMICAL CHARACTERIZATION OF SECONDARY PLANT RELEASES FOR CRYSTAL RIVER UNIT 3

The purpose of this document is to describe the release pathway and chemical characteristics of routine releases from CR-3's secondary plant.

o **NON-OUTAGE CONDITIONS (NORMAL OPERATIONS)**

All releases are by way of OSN-007 (SDT-1) to OSN-006. The source of SDT-1 water is the turbine building sump which collects water from steam leaks, sample line run offs, pump leak-offs, bleeding of closed cycle cooling systems, etc. SDT-1 is released in the batch mode about once every four days with a volume of approximately 50,000 gallons per batch, although situations may arise which could warrant releasing 200,000 gallons in one day. The normal release rate (1) is 250 gpm with a maximum of 600 gpm. The expected concentrations of chemicals in SDT-1 are:

	Maximum	Normal
Hydrazine (2)	20 ppb	< 5 ppb
Ammonia	0.5 ppm	< 0.1 ppm
Morpholine	10 ppm	< 0.35 ppm

For a SDT-1 release of 50,000 gallons the above concentrations convert to the following pounds per release:

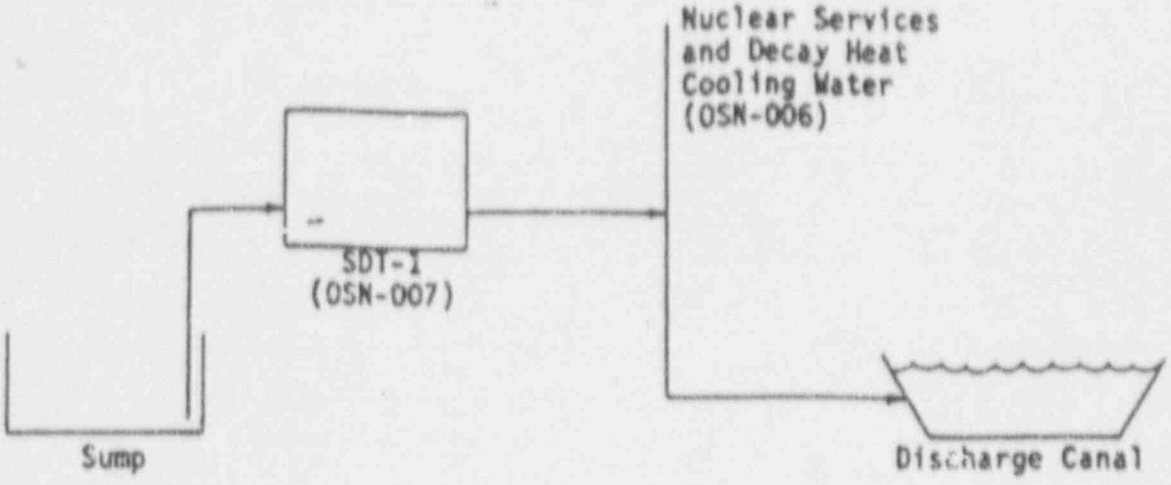
	Maximum	Normal
Hydrazine	0.008 lbs	< 0.002 lbs
Ammonia	0.2 lbs	< 0.04 lbs
Morpholine	4 lbs	< 0.14 lbs

---

(1) SDT-1 is diluted at OSN-006 and again at the outfall of OSN-006 (i.e., the discharge canal). The minimum dilution provided by OSN-006 is 17 to 1 with a typical dilution of 40 to 1. Condenser cooling water in the discharge canal normally adds 600,000 to 1,200,000 gallons per minute of dilution water.

(2) Hydroquinone is present in a ratio of 1 part to 175 parts hydrazine.

NON-OUTAGE CONDITIONS
(DISCHARGE FLOW PATH FROM SECONDARY PLANT)



o OUTAGE CONDITIONS (INCLUDES SHUTDOWN AND STARTUP)

All releases are either by way of OSN-007 (SDT-1) to OSN-006 or condensate system discharge to OSN-006. For cold shutdown situations in which it is necessary to chemically layup the secondary plant in a manner that would minimize corrosion there are three release scenarios as outlined below:

- Condensate releases during shutdown but prior to layup.

The normal release rate is above 250 gpm with a total release volume of 200,000 gallons, although the flow rate could be as high as 600 gpm and the total volume as high as 1,500,000 gallons. The expected concentrations of chemicals are:

	Maximum	Normal
Hydrazine	50 ppb	30 ppb
Ammonia	0.5 ppm	0.2 ppm
Morpholine	10 ppm	< 0.35 ppm

For a condensate release of 200,000 gallons the above concentrations convert to the following pounds released:

	Maximum	Normal
Hydrazine	0.08 lbs	0.05 lbs
Ammonia	0.8 lbs	0.3 lbs
Morpholine	16 lbs	0.6 lbs

- SDT-1 releases to OSN-006.

During the beginning of an outage, but prior to layup, SDT-1 may be discharged. If this occurs the release characteristics will be that of releases during normal operations. After the plant has been layed up it will be necessary to batch release several SDT-1's. These releases will be due to steam generator drain-downs, condensate system leak off, closed cycle cooling system bleed off, system drain downs. The normal release rate is 250 gpm with a release volume of 100,000 gallons. The expected concentrations of chemicals in SDT-1 are:

	Maximum	Normal
Hydrazine	150 ppm	0.2 - 20 ppm
Ammonia	2 ppm	0.2 ppm
Morpholine	10 ppm	0.35 ppm

For an SDT-1 release of 100,000 gallons the above concentrations convert to the following pounds released:

	Maximum	Normal
Hydrazine	125 lbs	.1 - 13 lbs
Ammonia	1.7 lbs	.1 lbs
Morpholine	8.5 lbs	.21

Condensate releases during plant cleanup.

The normal release rate is 250 gpm with a release volume of 200,000 gallons, although the total release volume may be as high as 1,500,000 gallons. The expected concentrations of chemicals are:

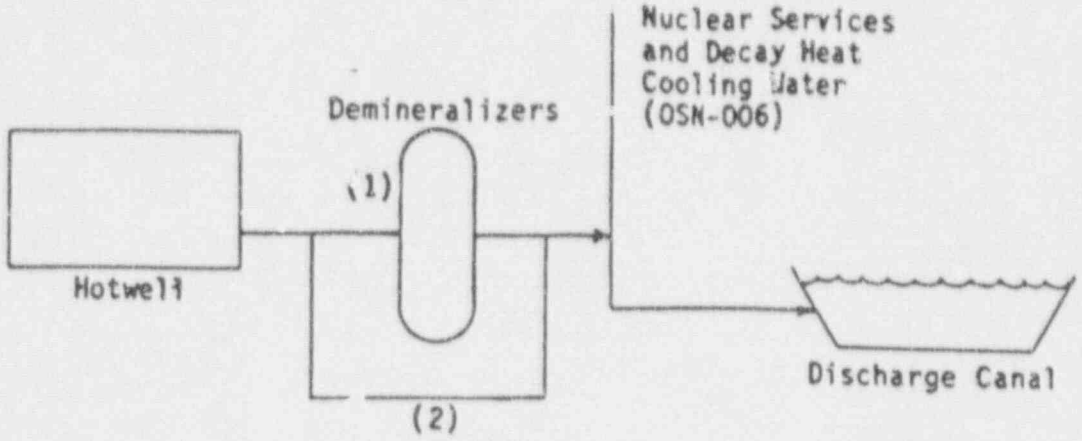
	Maximum	Normal
Hydrazine	10 ppm	1 ppm
Ammonia	1 ppm	0.2 ppm
Morpholine	10 ppm	< 0.35 ppm

For a condensate release of 200,000 gallons the above concentrations convert to the following pounds released:

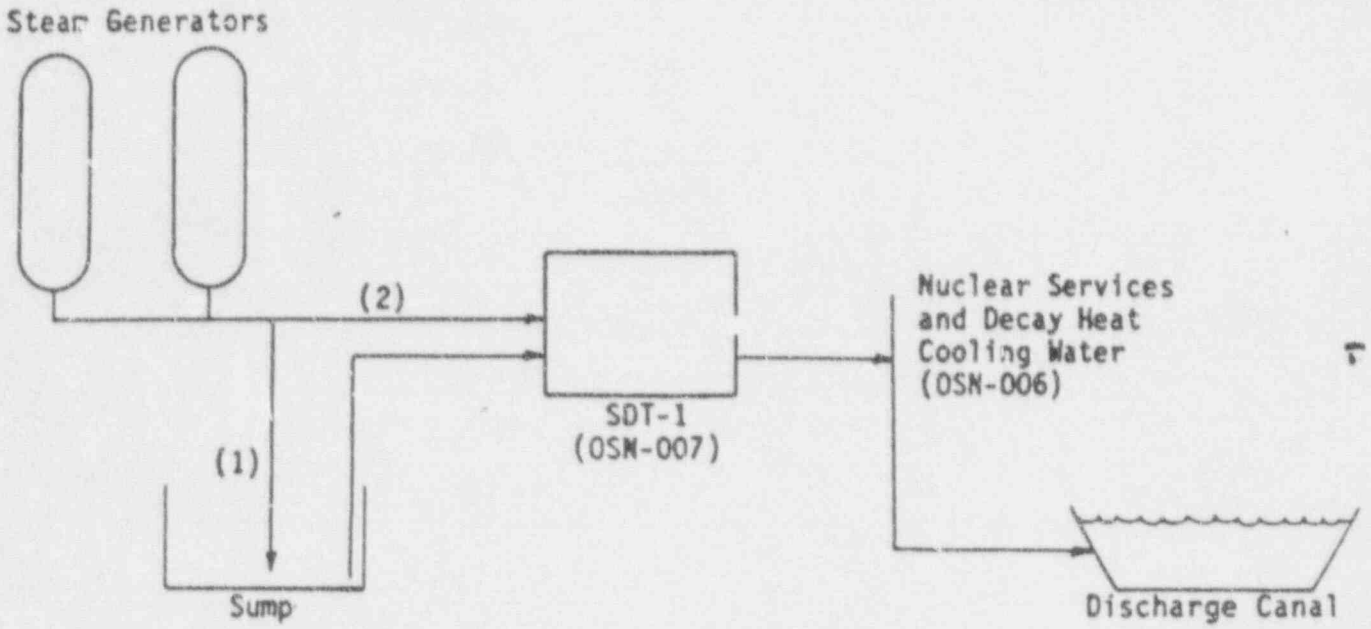
	Maximum	Normal
Hydrazine	16.7 lbs	1.7 lbs
Ammonia	1.7 lbs	.3 lbs
Morpholine	16 lbs	.6 lbs

— OUTAGE CONDITIONS
(DISCHARGE FLOW PATHS FROM SECONDARY PLANT)

- CONDENSATE RELEASES



- SDT-1 RELEASES TO OSN-006



---

(1) Primary Path

(2) Alternate Path

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
sec-Hexyl acetate $C_8H_{16}O_2$ 108-84-9 SA7525000 1233 26	1,3-Dimethylbutyl acetate, Methylamyl acetate, Methylisoamyl acetate, Methylisobutyl carbinol	50 ppm (300 mg/m³)	4000 ppm	Colorless liquid with a mild pleasant fruity odor	MW 144 BP 295°F Sol 0.13% FlP 113°F	VP 4 mm MP -60°F UEL ? LEL 0.9 (at FlP)	Nitrates, strong oxidizers, alkalies, and acids	Char CS₂ GC III
Hydrazine N_2H_4 302-01-2 MU7175000 2029 26	Hydrazine, anhydrous	1 ppm (1.3 mg/m³) [15] 0.04 mg/m³ 120-min ceil See Appendix A (ACGIH) 0.1 ppm, A2	Ca	Colorless liquid with a weak, ammonia-like odor; can be solid (36°F)	MW 32 BP 236°F Sol Miscible FlP 100°F IP 8.38 eV	VP 10 mm MP 36°F UEL 100% LEL 4.7%	Oxidizers, hydrogen peroxide, nitric acid, metal oxides, strong acids, porous materials	Sub (HCl) p-Dimethyl aminobenz aldehyde Color III
Hydrogen bromide HBr 10035-10-6 MW3850000 1048 15	Anhydrous hydrobromic acid	3 ppm (10 mg/m³) (ACGIH) 3 ppm ceil (10 mg/m³)	50 ppm	Colorless gas with an irritating, sharp odor; liquid under pressure	MW 81 BP -88°F Sol 194% Not combustible IP 11.62 eV	VP >1 atm MP -124°F	Strong oxidizers, strong caustics, metals, moisture	SiO_2 $NaHCO_3$ IC III
Hydrogen chloride HCl 7647-01-0 MW4025000 1050 15	Anhydrous hydrogen chloride, Hydrochloric acid, anhydrous	5 ppm ceil (7 mg/m³)	100 ppm	Colorless gas with an irritating, pungent odor	MW 37 BP -121°F Sol 82% Not combustible IP 12.74 eV	VP >1 atm MP -173°F	Most metals, alkali or active metals	SiO_2 $NaHCO_3$ IC III

Chemical Name, Formula, CAS, RTECS, and DOT UN or NA and Guide Numbers	Synonyms	Exposure Limits	IDLH Level	Physical Description	Chemical and Physical Properties		Incompatibilities	Measurement Method (See Tables 1a and 1b)
Molybdenum, insoluble compounds (as Mo) Mo 7439-98-7 QA4680000	Synonyms vary depending upon specific compound	15 mg/m³ (ACGIH) 10 mg/m³	N.A	Appearance and odor vary depending upon specific compound	Properties depending upon specific compound		Strong oxidizers	Filter acid AA O
Monomethyl aniline $C_6H_5NHCH_3$ 100-61-8 BY4550000 2294 57	N-Methyl aniline, MMA, Methyl aniline	2 ppm (8 mg/m³) (ACGIH) 0.5 ppm (2 mg/m³)	100 ppm	Yellow to light brown liquid with a weak, ammoniacal odor	MW 107 BP 384°F Sol Moderate FlP 175°F IP 7.34 eV	VP <1 mm MP -117°F UEL ? LEL ?	Strong acids, strong oxidizers	Sub (H_2SO_4) NaOH GC K
Monomethyl hydrazine CH_3NHNH_2 60-34-4 MV5600000 1244 28	Methyl hydrazine	0.2 ppm ceil (0.38 mg/m³) [2-hr] (NIOSH) 0.08 mg/m³ 120-min ceil See Appendix A	Ca	Fuming, colorless liquid with an ammonia-like odor	MW 46 BP 190°F Sol Soluble FlP 17°F IP 7.67 eV	VP 36 mm MP -62°F UEL 98% LEL 2.5%	Oxides of iron, copper, manganese, lead, copper alloys, porous metals, earth, asbestos, wood, cloth, oxidants, hydrogen peroxide, nitric acid	Sub (HCl) Phosphomorybdic acid color K
Morpholine C_4H_9ON 110-91-8 QO8475000 2054 29	Tetrahydro-1,4-oxazine, Diethylenimide oxide	20 ppm [70 mg/m³]	1400 ppm	Colorless liquid with a weak, ammonia-like odor	MW 87 BP 263°F Sol Miscible FlP 98°F	VP 7 mm MP 23°F UEL 11% LEL 1.8%	Strong acids, strong oxidizers	SiO_2 H_2SO_4 GC K

Text Table 2
Water quality criteria for saltwater aquatic life based on total ammonia (mg/L)
Criteria Maximum Concentrations

pH	Temperature (°C) 0	5	10	15	20	25	30	35
				Salinity = 10 g/kg				
7.0	270	191	131	92	62	44	29	21
7.2	175	121	83	58	40	27	19	13
7.4	110	77	52	35	25	17	12	8.3
7.6	69	48	33	23	16	11	7.7	5.6
7.8	44	31	21	15	10	7.1	5.0	3.5
8.0	27	19	13	9.4	6.4	4.6	3.1	2.3
8.2	18	12	8.5	5.6	4.2	2.9	2.1	1.5
8.4	11	7.9	5.4	3.7	2.7	1.9	1.4	1.0
8.6	7.3	5.0	3.5	2.5	1.8	1.3	0.98	0.7
8.8	4.6	3.3	2.3	1.7	1.2	0.92	0.71	0.5
9.0	2.9	2.1	1.5	1.1	0.85	0.67	0.52	0.4
				Salinity = 20 g/kg				
7.0	291	200	137	96	64	44	31	21
7.2	183	125	87	60	42	29	20	14
7.4	116	79	54	37	27	18	12	8.7
7.6	73	50	35	23	17	11	7.9	5.6
7.8	46	31	23	15	11	7.5	5.2	3.5
8.0	29	20	14	9.8	6.7	4.8	3.3	2.3
8.2	19	13	8.9	6.2	4.4	3.1	2.1	1.6
8.4	12	8.1	5.6	4.0	2.9	2.0	1.5	1.1
8.6	7.5	5.2	3.7	2.7	1.9	1.4	1.0	0.7
8.8	4.8	3.3	2.5	1.7	1.3	0.94	0.73	0.5
9.0	3.1	2.3	1.6	1.2	0.87	0.69	0.54	0.4
				Salinity = 30 g/kg				
7.0	312	208	148	102	71	48	33	23
7.2	196	135	94	64	44	31	21	15
7.4	125	85	58	40	27	19	13	9.4
7.6	79	54	37	25	21	12	8.5	6.0
7.8	50	33	23	16	11	7.9	5.4	3.7
8.0	31	21	15	10	7.3	5.0	3.5	2.5
8.2	20	14	9.6	6.7	4.6	3.3	2.3	1.7
8.4	12.7	8.7	6.0	4.2	2.9	2.1	1.6	1.1
8.6	8.1	5.6	4.0	2.7	2.0	1.4	1.1	0.8
8.8	5.2	3.5	2.5	1.8	1.3	1.0	0.75	0.5
9.0	3.3	2.3	1.7	1.2	0.94	0.71	0.56	0.4

ıter quality criteria for saltwater aquatic life based on total ammonia (mg/L)

Criteria Continuous Concentrations

pH	Temperature (°C) 0	5	10	15	20	25	30	35
				Salinity = 10 g/kg				
7.0	41	29	20	14	9.4	6.6	4.4	3.1
7.2	26	18	12	8.7	5.9	4.1	2.8	2.0
7.4	17	12	7.8	5.3	3.7	2.6	1.8	1.2
7.6	10	7.2	5.0	3.4	2.4	1.7	1.2	0.84
7.8	6.6	4.7	3.1	2.2	1.5	1.1	0.75	0.53
8.0	4.1	2.9	2.0	1.40	0.97	0.69	0.47	0.34
8.2	2.7	1.8	1.3	0.87	0.62	0.44	0.31	0.23
8.4	1.7	1.2	0.81	0.56	0.41	0.29	0.21	0.16
8.6	1.1	0.75	0.53	0.37	0.27	0.20	0.15	0.11
8.8	0.69	0.50	0.34	0.25	0.18	0.14	0.11	0.08
9.0	0.44	0.31	0.23	0.17	0.13	0.10	0.08	0.07
				Salinity = 20 g/kg				
7.0	44	30	21	14	9.7	6.6	4.7	3.1
7.2	27	19	13	9.0	6.2	4.4	3.0	2.1
7.4	18	12	8.1	5.6	4.1	2.7	1.9	1.3
7.6	11	7.5	5.3	3.4	2.5	1.7	1.2	0.84
7.8	6.9	4.7	3.4	2.3	1.6	1.1	0.78	0.53
8.0	4.4	3.0	2.1	1.5	1.0	0.72	0.50	0.34
8.2	2.8	1.9	1.3	0.94	0.66	0.47	0.31	0.24
8.4	1.8	1.2	0.84	0.59	0.44	0.30	0.22	0.16
8.6	1.1	0.78	0.56	0.41	0.28	0.20	0.15	0.12
8.8	0.72	0.50	0.37	0.26	0.19	0.14	0.11	0.08
9.0	0.47	0.34	0.24	0.18	0.13	0.10	0.08	0.07
				Salinity = 30 g/kg				
7.0	47	31	22	15	11	7.2	5.0	3.4
7.2	29	20	14	9.7	6.6	4.7	3.1	2.2
7.4	19	13	8.7	5.9	4.1	2.9	2.0	1.4
7.6	12	8.1	5.6	3.7	3.1	1.8	1.3	0.90
7.8	7.5	5.0	3.4	2.4	1.7	1.2	0.81	0.56
8.0	4.7	3.1	2.2	1.6	1.1	0.75	0.53	0.37
8.2	3.0	2.1	1.4	1.0	0.69	0.50	0.34	0.25
8.4	1.9	1.3	0.90	0.62	0.44	0.31	0.23	0.17
8.6	1.2	0.84	0.59	0.41	0.30	0.22	0.16	0.12
8.8	0.78	0.53	0.37	0.27	0.20	0.15	0.11	0.09
9.0	0.50	0.34	0.26	0.19	0.14	0.11	0.08	0.07

Florida Power
CORPORATION

October 27, 1989

Peter T. McGarry, P.E.
United States Environmental
Protection Agency
Florida Compliance
345 Courtland Street
Atlanta, GA 30365

Dear Mr. McGarry:

Re: Florida Power Corporation
DMR QA Study Number 009
NPDES Permit No. FL 0000159
Crystal River Units 1, 2, and 3

The following response addresses corrective actions being taken with regard to the oil and grease analysis which was given a "Not Acceptable" rating in the recent Q/A program:

1. The laboratory has reviewed the reported oil and grease.

2. At the time the errant analysis was performed, a 250 ml boiling flash was being used. We have since switched to a 125 ml flask.

3. EPA Q/A sample number 009 was analyzed, and a concentration of 22.8 mg/l was obtained. The published value for this sample was 19.8 mg/l. A copy of the analysis sheet is attached.

4. Additional Q/A samples will be requested and analyzed.

Sincerely,

W J Pardue /mw

W. J. Pardue, Supervisor
Water Programs

mwk/kdc

DATE 9-1-89				Collector [illegible]	
Oven Temp (°C) 104 Collected 0720 Run 1000				Analyst [illegible]	
Sample Size 200 mls Factor 1000 mls / Sample mls 5				Checked by	
	FILTER	CANAL	POND	FLASK	POND OIL & GREASE
1	WT after drying 2 hrs: MG			Wt: Flask & Residue	
2	WT after drying 1 hr: MG	118.1	117.5	Wt: Flask: Clean	
3	WT before Filtering: MG	114.3	113.9	Wt: Residue (gm)	
4	WT MG TSS (line 1-line 3)	3.8	3.6	Multiply line 3 by	1000
5	MG/L TSS (line 4 X Factor)	19	18	MG/L Oil & Grease	

DATE 9-27-89				Collector	
Oven Temp (°C) 104 Collected 0800 Run 1100				Analyst [illegible]	
Sample Size 200 mls Factor 1000 mls / Sample mls 5				Checked by	
	FILTER	CANAL	POND	FLASK	POND OIL & GREASE
1	WT after drying 2 hrs: MG			Wt: Flask & Residue	
2	WT after drying 1 hr: MG	119.1	116.8	Wt: Flask: Clean	
3	WT before Filtering: MG	115.8	113.2	Wt: Residue (gm)	
4	WT MG TSS (line 1-line 3)	3.3	3.6	Multipl. line 3 by	1000
5	MG/L TSS (line 4 X Factor)	17	18	MG/L Oil & G	

DATE 9-27-89 [illegible]				Collector	
Oven Temp (°C) 104				Analyst	
Sample Size 200 mls Factor 1000 mls / Sample mls 5				Checked by	
	FILTER	CANAL	POND	FLASK	POND OIL & GREASE
1	WT after drying 2 hrs: MG			Wt: Flask & Residue	
2	WT after drying 1 hr: MG	118.7	118.6	Wt: Flask: Clean	
3	WT before Filtering: MG	113.3	115.2	Wt: Residue (gm)	
4	WT MG TSS (line 1-line 3)	5.4	3.4	Multiply line 3 by	1000
5	MG/L TSS (line 4 X Factor)	27	17	MG/L Oil & Grease	

DATE 9-28-89				Collector	
Oven Temp (°C) 104 Collected 0800 Run 1000				Analyst	
Sample Size 200 mls Factor 1000 mls / Sample mls 5				Checked by	
	FILTER	CANAL	POND	FLASK	POND OIL & GREASE
1	WT after drying 2 hrs: MG			[illegible]	13 [illegible]
2	WT after drying 1 hr: MG	126.0	126.6	Wt: Flask: Clean	63.1927
3	WT before Filtering: MG	121.2	122.6	Wt: Residue (gm)	.0228
4	WT MG TSS (line 1-line 3)	4.8	4.0	Multiply line 3 by	1000
5	MG/L TSS (line 4 X Factor)	24	20	MG/L Oil & Grease	228

[illegible] TEST SAMPLE #9

Florida Power
CORPORATION

July 3, 1990

Robert K. Vanderslice
Supervisor, Industrial Waste Permitting
Florida Department of Environmental
Regulation
Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610

Dear Mr. Vanderslice:

Re: Crystal River South, IT09-154804, Hydrazine Modification

Florida Power Corporation (FPC) has reviewed your letter of June 8, 1990. The following responses to your specific comments are provided in accordance with your letter.

Comment: Your response to Question #1 regarding a bioassay (status) for acute toxicity using the species Mysidopsis bahia and Menidia beryllina have not been submitted to date. Be advised that this bioassay is an important issue and part of the evaluation for your permit modification.

Response: It should be evident that a bioassay cannot be conducted without an approved Quality Assurance (QA) Plan (see comment 2 below). Once the QA Plan is approved, the bioassay will be conducted.

Comment: On May 25, 1990, the Department received from the Quality Assurance Section the review of your Quality Assurance Project Plan submitted on March 28, 1990. Attached you will find a copy of the review comments for your convenience. The QAPP shall be re-submitted and approved prior to the initiation of sampling and analyses of this project.

Response: The review comments provided by the DER Quality Assurance Section have been forwarded to FPC's contractor, Mote Marine Laboratory. FPC will submit a revised QA Plan to the DER once a final plan is received from Mote Marine Laboratory.

In the interim, please contact me at (813) 866-4387 if you have any questions.

Sincerely,

W. Jeffrey Pardue
Supervisor
Air & Water Programs

[illegible]WJP7 Vanderslice Ltr

cc: C. Kaplan (EPA-Atlanta)
R. Drew (DER-Tallahassee)

Florida Power
CORPORATION

Certified

August 31, 1990

Mr. Greer C. Tidwell
Regional Administrator
U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, GA 30365

Dear Mr. Tidwell:

Re: Crystal River Unit 1 - 3, NPDES FL0000159

On July 20, 1989 Florida Power Corporation (FPC) requested a modification to the compliance schedule set forth in NPDES FL0000159 issued on September 1, 1988 and modified on March 16, 1989. The basis for the request, as described in detail in FPC's July 20, 1989 letter, was the uncertainty regarding the timely issuance of permits required to construct the helper cooling towers and fish hatchery. Specifically the test method to be used to determine compliance with particulate emissions (salt drift) from the proposed helper cooling towers presented a potentially significant delay in issuance of the Prevention of Significant Deterioration permit. Florida Power Corporation requested that milestone compliance dates be tied to issuance of all permits necessary to perform the work rather than specific compliance dates.

The Environmental Protection Agency (EPA) did not take specific action to grant or deny FPC's request. Rather, the EPA issued Administrative Order 90-016 on January 25, 1990. The order required FPC to submit information regarding cooling tower design and plans for conducting drift testing. In addition, FPC was ordered to report progress on the NPDES projects monthly. Florida Power Corporation has submitted progress reports as required under the terms of the NPDES permit and has submitted additional progress reports as required under the terms of the Administrative Order.

On August 29, 1990, the Florida Department of Environmental Regulation (FDER) issued a final Prevention of Significant Deterioration (PSD) permit to FPC. Issuance of this permit completes the major permitting activities necessary to begin construction on the NPDES projects. The EPA still has not acted on FPC's request to modify the NPDES permit to allow the north ash pond (OSN 009) to receive dewatering wastewater during cooling tower construction and to receive floor drain wastes from the electrical service building, water treatment building, cooling tower switchgear buildings, and analyzer buildings. This modification must be received soon or construction will have to be suspended soon after beginning.

Based on the assumption that the final NPDES permit modification is forthcoming, FPC requests that the NPDES Schedule of Compliance (Page I-11-13) be modified as indicated an Attachment 1.

This schedule has been discussed in general with EPA staff and management. If necessary, we would be pleased to meet with you or your designee(s) to discuss the proposed compliance schedule.

Sincerely,

Patsy Yeates Baynard, Director
Environmental & Licensing Affairs

[illegible]

cc: Richard Garrity, FDER - Tampa
Enclosures

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

a. Effluent Flow Reduction (001 and 002)

1.	Progress report	03/01/91
2.	Progress report	09/01/91
3.	Installation complete	03/01/92

b. Hatchery (Part III.K)

1.	Submit necessary permit applications	02/28/89
2.	Start construction	03/01/91
3.	Initial plan & budget	06/01/91
4.	Progress report	07/01/91
5.	Implement operation	10/01/91
6.	Subsequent annual plan & budget	11/01/xx
7.	First annual report	04/01/93
8.	Subsequent annual reports	04/01/xx

c. Helper Cooling Towers (001, 002, 005, and Part III.L)

1.	Submit complete PSD application	05/31/89
2.	Start construction/Progress report	02/01/91
3.	Progress report	08/01/91
4.	Progress report	02/01/92
5.	Progress report	08/01/92
6.	Progress report	02/01/93
7.	Implement operation	04/01/93

d.	Condenser Cooling Water Flow Verification (Part III.M)		
	1.	Report	10/01/93
e.	Discharge Temperature Monitoring (Part III.N)		
	1.	Start field surveys	04/01/93
	2.	Report	10/01/93
	3.	Implement changes, existing equipment (if required)	02/01/94
	4.	Implement changes, new equipment	10/01/94
f.	Seagrass Monitoring and Planting (Part III.O)		
	1.	Biological survey	Fall 1993
	2.	Biological survey	Fall 1995
	3.	Report	12/01/95

ITEMS 4/23 ARE APPLICABLE ONLY IF NEEDED, BASED ON RESULTS OF THE ABOVE REPORT AND MAY BE TERMINATED ON PERMITTING AUTHORITY APPROVAL IF/WHEN SUBSEQUENT DATE INDICATES THAT NO FURTHER ACTION IS REQUIRED.

4.	Sprig planting	04/01/96
5.	Biological survey	Fall 1997
6.	Submit annual report	12/01/97
7.	Biological survey	Fall 1998
8.	Submit final report	12/01/98
9.	Start plot planting	04/01/99
10.	Biological survey	Fall 1999
11.	Report	12/01/99
12.	Start plot planting	04/01/00
13.	Biological survey	Fall 2000

B. SCHEDULE OF COMPLIANCE (continued)

14.	Report	12/01/00
15.	Start plot planting	04/01/01
16.	Biological survey	Fall 2001
17.	Report	12/01/01
18.	Start plot planting	04/01/02
19.	Biological survey	Fall 2002
20.	Report	12/01/02
21.	Start plot planting	04/01/03
22.	Biological survey	Fall 2003
23.	Report	12/01/03

g. BMP Plan

1.	Develop plan	03/31/89
2.	Implement plan	03/31/90

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress, or, in the case of specified actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and probability of meeting the next scheduled requirement.

NOTE -

Compliance dates identifed herein anticipate timely application by the permittee for required permits and timely issuance of permits by the State and/or Federal regulatory agencies. Should circumstances beyond the control of the permittee occur, the permittee can request a modification to this schedule.

Florida Power
CORPORATION

October 18, 1990

Sam Sahebzamani, P.E.
Manager, Industrial Waste Program
Florida Department of Environmental Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33610

Dear Mr. Sahebzamani:

Re: Crystal River Units 1,2,3 - Permit Modification IT09-154804

This is in response to your letter of October 15, 1990 concerning the status of the QA plan for the proposed hydrazine bioassay. Florida Power Corporation's (FPC) contractor Mote Marine Laboratory (MML) experienced unexpected turnover of staff working on the FPC bioassay. This resulted in significant delay in responding to the Department of Environmental Regulation's (DER) most recent comments.

A revised QA plan has been received from MML. However, since the Environmental Protection Agency (EPA) is requesting a different protocol from that currently described in the QA plan, FPC proposes to further modify the QA plan to reflect the new bioassay protocol. Attached is a copy of EPA's preliminary draft NPDES permit modification which includes the hydrazine bioassay. The EPA also requires a QA plan. FPC requests that the DER and EPA agree on a single protocol and therefore, a single QA plan.

FPC is proceeding to revise the bioassay protocol to be consistent with EPA's protocol. Please advise if this approach is acceptable to the DER. This matter was discussed by telephone with Mr. Robert Vanderslice during the week of October 8, 1990. If you have any questions, please contact me at (813) 866-4387.

Sincerely,

W. Jeffrey, Supervisor
Air & Water Programs

wrj/WJPS.Sahebzamani.ltr
Encs.
cc: Robert Vanderslice
Charles Kaplan - EPA/Atlanta
Richard Drew - DER/Tallahassee
Phillip M. Coram - DER/Tallahassee

Florida Power
CORPORATION

November 2, 1990

Mr. Charles H. Kaplan, P.E.
National Expert, Steam Electric
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, GA 30365

Dear Mr. Kaplan:

Re: Crystal River Units 1, 2, 3 - NPDES FL0000159, Preliminary Draft Permit

This letter is a follow-up to our telephone conference of October 16, 1990 regarding Florida Power Corporation's (FPC) comments on the preliminary draft NPDES permit. A copy of FPC's October 11, 1989 permit modification request to the Florida Department of Environmental Regulation (FDER) is enclosed. This request includes the current operating scenarios regarding release of hydrazine and associated chemicals, and supersedes the J.A. Hancock letter of June 20, 1989. Specific comments are as follows:

- Part I, Page I-2. In A.2. delete "of" at the end of the first sentence.

- Part I, Page I-6. Delete hydroquinone from the effluent characteristic. Hydroquinone is an organic catalyst in the hydrazine, present at a maximum concentration of 0.3% of the hydrazine. When the steam generators are layed up with hydrazine, hydroquinone would be present at a maximum concentration of 2 mg/l. Normally, this lay-up water is diluted by a factor of four in SDT-1, however this dilution cannot be guaranteed. The bioassays will be conducted at the maximum concentration of 2 mg/l. It is recommended that FPC be permitted to calculate the concentration of hydroquinone at C[illegible] condensate system. This can be readily done because complete records are kept of each chemical addition.

- Part I, Page I-7. In footnote 2 the last sentence should be rewritten as follows: "A grab sample shall be taken at OSN-007 or the condensate system prior to discharging to OSN-006 wastewater which potentially contains hydrazine in excess of [illegible] and shall be analyzed for hydrazine, ammonia, and morpholine." The concentration of hydroquinone discharged can be calculated. Change the reference document from J.A. Hancock's letter to FPC's permit modification request to the FDER.

- Part I, Page I-11. In A.10.a and A.10.b., the reference to similar hatchery wastes and discharge of water from the hatchery rearing operation is confusing. FPC suggests deleting "hatchery" from the phrase "similar hatchery wastes", since the intent of A.10.A. is to prohibit the discharge of chemical wastes through OSN015.

- Part I, Page I-13. In B.1.a., please note that flow reduction could also involve OSN 003.

- Part V, Page V-1 and V-1 Alternate. Change the hydroquinone concentration to 2 mg/l, the morpholine concentration to 10 mg/l, and change the percentage of synthetic waste to 6%. Delete the reference to "four" pollutants since hydroquinone should not be included. There appears to be some minor word differences between the "Toxicity Testing Program" and the "Toxicity Testing Program, Alternate." FPC requests that the toxicity test protocol require only to demonstrate a successful test in order to have approval to discharge.

Please contact me at (813) 866-4387 if you have any questions.

Sincerely,

W. Jeffrey Pardue, Supervisor
Air & Water Programs

mry/WJP9.Kaplan.ltr
Encs.

Florida Power
CORPORATION

April 12, 1991

Mr. Greer Tidwell
Regional Administrator
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, GA 30365

Dear Mr. Tidwell:

Re: Crystal River Units 1, 2, 3 - NPDES FL0000159

Florida Power Corporation (FPC) requests permission to dispose of sodium hydroxide (NaOH) rinsewater from the CR-3 Reactor Building Spray System.

The CR-3 Reactor Building Spray System is a safety system that will suppress building pressure and radioactive iodine release in the event of an accidental loss of coolant. NaOH is used to adjust th pH of the water and aid in iodine removal. The spray system must be maintained, periodically tested and rinsed. The NaOH is recycled, however, rinsewater is stored for disposal. This diluted rinsewater accumulates at a rate of 5 to 10 barrels per year. Presently, FPC has accumulated 19,000 gallons of NaOH rinsewater.

For disposal FPC proposes to add the NaOH rinsewater to SDT-1 with discharge to OSN-006. Secondary plant releases of approximately 500,000 gallons are made once or twice weekly during normal operations from the Turbine Building sump which collects water from steam leaks, system bleeds, pump leaks, etc. The sump water is pumped to SDT-1 and eventually discharged to OSN-006. Initially, FPC will add 800-1000 gallons of the NaOH rinsewater to SDT-1 once or twice weekly for a period of approximately six months to dispose of the backlog of material. Subsequently, approximately 150-200 gallons of NaOH rinsewater will be added to SDT-1 (via the turbine building sump) quarterly and eventually discharged to OSN-006. Every five years the spray system must be completely drained for testing of which time about 3,000 gallons of NaOH rinsewater will be generated. The NaOH rinsewater will be neutralized as needed in the sump using available acids.

You review and approval of this request will be appreciated. If you have any questions or need additional information, please contact Manitia Moultrie at (813) 866-4667.

Sincerely,

W. Jeffrey Pardue, Manager
Environmental Programs

cc: Charles H. Kaplan - EPA

Florida Power
CORPORATION

June 20, 1991

Mr. Robert Vanderslice
Florida Department of Environmental
Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33670-7347

Dear Mr. Vanderslice:

Re: Florida Power Corporation
Crystal River Units 1, 2, & 3
Discharge of Hydrazine

Pursuant to the FPC Crystal River 1, 2, & 3 Permit No. IT09-154804A, please find enclosed 3 copies of the Plan of Study for Conducting Flow-Through Toxicity Tests with FPC Crystal River Unit 3 Simulated Wastewater.

FPC plans to discharge wastewater containing hydrazine (and associated compounds) in August or September. Pursuant to Specific Condition Nos. 27 and 35 of the above referenced permit, a toxicity test will be performed to determine if hydrazine (and associated compounds) can be discharged without exceeding acute toxicity limits.

Pursuant to your conversation with Ms. Manitia Moultrie, the contractor, CH2M Hill, has submitted a Comprehensive Quality Assurance Plan to the Quality Assurance Section for review.

Your expedient review of the Plan of Study is appreciated. If you have any questions or need additional information, please contact Ms. Manitia Moultrie at (813) 866-4667.

Sincerely,

W. Jeffrey Pardue, Manager
Environmental Programs

cc: Sylvia Labie, FDER - Tallahassee
Charles Kaplan, EPA - Atlanta

mry/MLM2.Vanderslice