DATE:	12/6/07	OUPY
TO:	Permit Section, WPC	Original in Mail cube
FROM:	Environmental Assistance Center- Knoxville, WPC	drawer #
SUBJECT:	Application* Draft to EAC-K Draft to Applicant Revised Draft to EAC-K Revised Draft To	
	VA - KINGSTON FOSSI	
COUNTY	ROANE.	
NPDES PERI	ROANE TN MIT NO. 0005452 STATE W.O. PERMIT NO	D.
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s this applica	tion for a <b>new</b> discharge? YesNo tion for <b>increased</b> existing discharge? YesNo_ er question, attach a Watershed Evaluation and Anti- ist I.	degradation

Instructions to EAC-K staff: (1) Write legibly in ink; (2) Be specific--include rationale and supporting data; (3) Initial and date.



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

December 3, 2007

Ms. Natalie Harris Knoxville Environmental Field Office Tennessee Department of Environment and Conservation 3711 Middlebrook Pike Knoxville, Tennessee 37921-5602

Dear Ms. Harris:

TENNESSEE VALLEY AUTHORITY (TVA) - KINGSTON FOSSIL PLANT (KIF) - NPDES PERMIT NO. TN0005452 - ADDITION OF FLUE GAS DESULFURIZATION (FGD) SYSTEM AND APPLICATION FOR RENEWAL

In accordance with Part II.B.1 of the subject permit, TVA is notifying you of planned changes affecting the NPDES permit as a result of the future operation of the KIF FGD system which is currently under construction. The FGD addition will employ wet limestone forced oxidation technology to reduce sulfur dioxide air emissions to meet requirements under the 1990 Clean Air Act Amendments. Commercial operation of the FGD system is currently scheduled to begin as early as October 2009 and pre-operational testing is scheduled to commence as early as October 2008. Since the NPDES permit renewal application is due in March 2008, TVA is also submitting the application for renewal at this time. Enclosed are an original and a double-sided copy of the packet consisting of EPA Form 1, a site map, Form 2C, Form 2D, a flow schematic, Form 2E, and a Permit Application Address form.

The information being provided is organized into two sections, I. FGD Operation, and II. NPDES Permit Renewal Information, below:

#### I. FGD Operation

The FGD system will consist of two pre-ground limestone silos and pneumatic transport system, two absorber modules, a gypsum disposal facility and detention basin, and potentially a gypsum dewatering/marketing facility. A limestone/water mixture or slurry is used to scrub the flue gas. Each absorber consists of a limestone slurry and flue gas contact area and mist eliminators. Flue gas will pass through slurry sprays, first co-current and then counter-current and then pass through mist eliminators before discharging through a wet stack. Air will be blown into the reacted slurry in the absorber, converting the dissolved calcium sulfite to calcium sulfate (gypsum). The gypsum will be extracted and pumped to either the gypsum rim ditch stacking area (for disposal) or the dewatering facility (for marketing the gypsum). While TVA intends to seek markets for gypsum whenever possible, the current wallboard market is not as robust as before due to the many scrubbers coming on line in the United States, and the volatility of the housing market.

The onsite gypsum disposal area encompasses approximately 135 acres on the Kingston peninsula and the marketing area (if developed) will encompass an estimated five acres. FGD wastes sent to the disposal facility will be treated by settling to allow particulate removal. The discharge from the disposal facility is numbered as an internal monitoring point (IMP) 009 on the application materials. The discharge from IMP 009 will be located where it will mix immediately with the flows from the condenser cooling water, upstream from the current monitoring location for DSN 002. Form 2D is provided for DSN 002 with the projected discharge concentrations for

Ms. Natalie Harris Page 2 December 3, 2007

multiple parameters once the FGD is in operation. While this is not a new type of discharge since other low volume wastes are discharged ultimately through DSN 002 and wet scrubber wastes are currently classified as low volume wastes, Form 2D is an expedient way to present the data that were evaluated for the addition of FGD wastes.

In addition to predicting metals and other parameter concentrations for the modified DSN 002 discharge, TVA conducted short-term chronic toxicity tests with fathead minnows (*Pimephales promelas*) and daphnids (*Ceriodaphnia dubia*) using scrubber pond effluent from TVA's Cumberland Fossil Plant (CUF) mixed with the KIF condenser cooling water (CCW) discharge. (The CUF effluent was chosen as a surrogate due to similarities of the proposed fuels and the scrubber configuration at the two facilities.) The estimated concentration of KIF's FGD wastewater as a percentage of its CCW discharge is <0.10%. The maximum allowable FGD effluent concentration with no impacts to toxicity limitations was found to be 6%, or 60 times the projected IMP 009 discharge flow rate portion, indicating this discharge would have no effect on effluent toxicity.

The existing cooling water intake structure will be utilized for FGD uses; the additional water usage for this purpose will be insignificant, compared to the CCW intake flows. TVA believes that operation of the KIF FGD system will not result in appreciably increased in-stream concentrations of metals, effluent toxicity, or exceedances of effluent limits. TVA is therefore requesting approval prior to our anticipated testing date of October 2008 to discharge FGD wastewater commingled with the existing CCW effluent.

TVA proposes that the monitoring location for federal effluent limitation guideline parameters found in 40 CFR Part 423 (i.e., total suspended solids, pH, and oil and grease) should be at the internal monitoring point, IMP 009. The effluent monitoring location for DSN 002 for pH and whole effluent toxicity monitoring is located at a barge cell along the left descending bank of the discharge channel. TVA requests that this monitoring location for DSN 002 be maintained.

II. NPDES Renewal Application

TVA requests consideration of the following in drafting the reissued NPDES permit.

## Outfall 001

- 1. KIF has connected their sanitary wastewater system (previously routed to their own onsite sewage treatment wetlands) to the publicly owned sewage treatment works. TVA has consequently removed the emergency overflow from the sewage wetlands from the renewal application.
- 2. TVA requests inclusion of authorization in the reissued permit to recycle water from the ash pond stilling pond to spray on roads and other plant areas for dust suppression. KIF has had difficulties maintaining dusting controls on roads this year due to the extreme drought conditions and also because of coal train delivery schedules to the plant which restricts water trucks access to existing water sources. If water from the stilling pond were to be used for dusting control, small amounts of runoff with this water could possibly be discharged via several storm drains; however, the effect on receiving waters would be negligible as this water was slated to be discharged anyway from Internal Monitoring Point 001. Also, since the water is being sprayed for dusting control (implying dry conditions), little runoff should occur.

Ms. Natalie Harris Page 3 December 3, 2007

3. The operation of the FGD will likely require flue gas conditioning at KIF to address SO<sub>3</sub> air emissions. Flue gas conditioning would consist of lime injection into the ductwork upstream of the FGD or upstream of the precipitators. The current plans are to inject the lime upstream of the FGD, and any unreacted lime or gypsum will become part of the FGD gypsum. However, if the lime is injected upstream of the precipitators, some unreacted lime or gypsum would end up in the ash pond where it would be treated. Lime has been addressed in previous NPDES permit applications because it has been used in the past to raise the pH of the ash pond to meet lower pH discharge limitations. TVA does not expect any appreciable impact on water quality as either lime or gypsum should settle out in the ash pond complex prior to discharging.

# Outfall 002

- 1. TVA requests continuation of the 316(a) thermal variance as found in the expiring permit. The enclosed report indicates that balanced, indigenous populations are being maintained in Watts Bar Reservoir with the thermal discharge variance in place.
- 2. TVA believes that the current toxicity testing requirements should be maintained. See the enclosed Reasonable Potential Determination.
- 3. TVA requests that a provision be included in the reissued permit that allows treatment of toxicity samples for *Pimephales promelas* (both effluent and intake samples) with UV radiation as allowed by letter from the Division of Water Pollution Control dated April 7, 2006. Enclosed is a copy of this authorization letter for your convenience. Suggested language is as follows:

The permittee is authorized to treat samples (both effluent and intake) for toxicity testing on *Pimephales promelas* with UV radiation in accordance with prior written approval granted by the division.

4. TVA is submitting this application for renewal prior to submitting the 316(b) biological monitoring data that have been collected. This information will be provided to you by January 8, 2008, consistent with the deadlines for the other major TVA facilities. Best professional judgment on best technology available to minimize adverse environmental impact has previously been made for KIF. No material changes are known to have occurred that would lead us to believe that this determination would change.

#### Internal Monitoring Point 004

A separate internal monitoring point is being identified for intake screen backwash discharges to eliminate confusion. The discharges from intake screen backwash were previously identified in Outfall 002. No monitoring occurred in this application for IMP 004 as this discharge is simply the return of water and debris to the discharge channel from the intake channel to which no pollutants have been added by the facility. TVA requests that IMP 004 be included in the reissued permit with no monitoring or reporting requirements.

Ms. Natalie Harris Page 4 December 3, 2007

### Internal Monitoring Point 005

- 1. Historical data only from IMP 005 are included since all of the required parameters were monitored at Internal Monitoring Point 001 and IMP 005 is internal to IMP 001. Historical data from 9/1/06 through 8/31/07 are included on the IMP005 pages.
- 2. KIF's NPDES permit currently requires that all discharges from the metal cleaning waste pond be monitored for flow, total copper, and total iron. TVA requests that monitoring requirements not apply to discharges of accumulated rainwater to which no process waters have been introduced since the previous complying discharge. TVA suggests the following wording which is consistent with the NPDES permit for Watts Bar Fossil Plant (TN0005461):

The permittee will be required to monitor discharges through IMP 005 only when metal cleaning operations or other processes generating wastewater occur.

#### IMP 006, 007, and 008

- 1. TVA requests that the current permit conditions be maintained for these three internal monitoring points. These IMPs discharge to the plant intake channel where they mix with an average plant intake flow of 1296 million gallons per day (MGD) through the plant.
- 2. TVA did not sample IMP 008 since predictable flow normally occurs only in response to a rainfall event. Historically, the drainage area of IMP 008 has received ash sluice water from occasional ruptured sluice lines. TVA believes that the effluent quality data from Outfall 001 would be conservatively representative of water discharge quality from IMP 008. In addition, this flow is normally pumped to the ash pond.

TVA appreciates your consideration of these items and your expeditious processing of this permit as testing for the FGD system begins in October 2008. If you have any questions or need additional information, please contact Lindy Printz Johnson at (423) 751-3361 in Chattanooga, or you may email her at lpjohnson@tva.gov.

Sincerely.

Gordon G. Park

Manager of Environmental Compliance

5D Lookout Place

Enclosures

cc (Enclosures):

Mr. Vojin Janjic Permit Section

Division of Water Pollution Control

Tennessee Department of Environment and Conservation

6th Floor, L&C Annex

401 Church Street

Nashville, Tennessee 37243

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EPA Form 3510	-1 (8-90)								CONT	IINUE C	N PAGE 2

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A. NAME  B. Is the name listed as Item VIII-A also the
TENNESSEE VALLEY AUTHORITY  SUPERIOR OF THE STREET OF THE
15 16 55 66
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)  D. PHONE (area code & no.)  F = FEDERAL M = PUBLIC (other than federal or state) (specify)
S = STATE $O = OTHER$ (specify)
P = PRIVATE   56   15   16 - 18   19 - 21   22 - 3   56   56   56   56   56   56   56
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X. EXISTING ENVIRONMENTAL PERMITS
A. NPDES (Discharges to Surface Water)  D. PSD (Air Emissions from Proposed Sources)  C T I I I I I I I C T I I I I I I I I I
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XI. MAP
Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal
facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions
for precise requirements.  XII. NATURE OF BUSINESS (provide a brief description)
Kingston Stream Plant is a fossil fueled, steam electric generating plant located near Kingston, Tennessee
on Watts Bar Reservoir at approximate Clinch River mile 2.5. The plant has nine coal fired units with a combined rated
generating capacity of 1,700 megawatts.
<u> </u>
XIII. CERTIFICATION (see instructions)
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the
information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of
fine and imprisonment.  A. NAME & OFFICIAL TITLE (type or print)  B. SIGNATURE  C. DATE SIGNED
Michael T. Beckham, Plant Manager  TVA Kingston Fossil Plant  Manager  TVA Kingston Fossil Plant
COMMENTS FOR OFFICIAL USE ONLY  C
C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
15 16 EPA Form 3510-1 (8-90)

# Attachment to Form 1 for Kingston Fossil Plant - Item X.E. (Other Permits)

# Solid Waste Permit

Permit Numbers are:

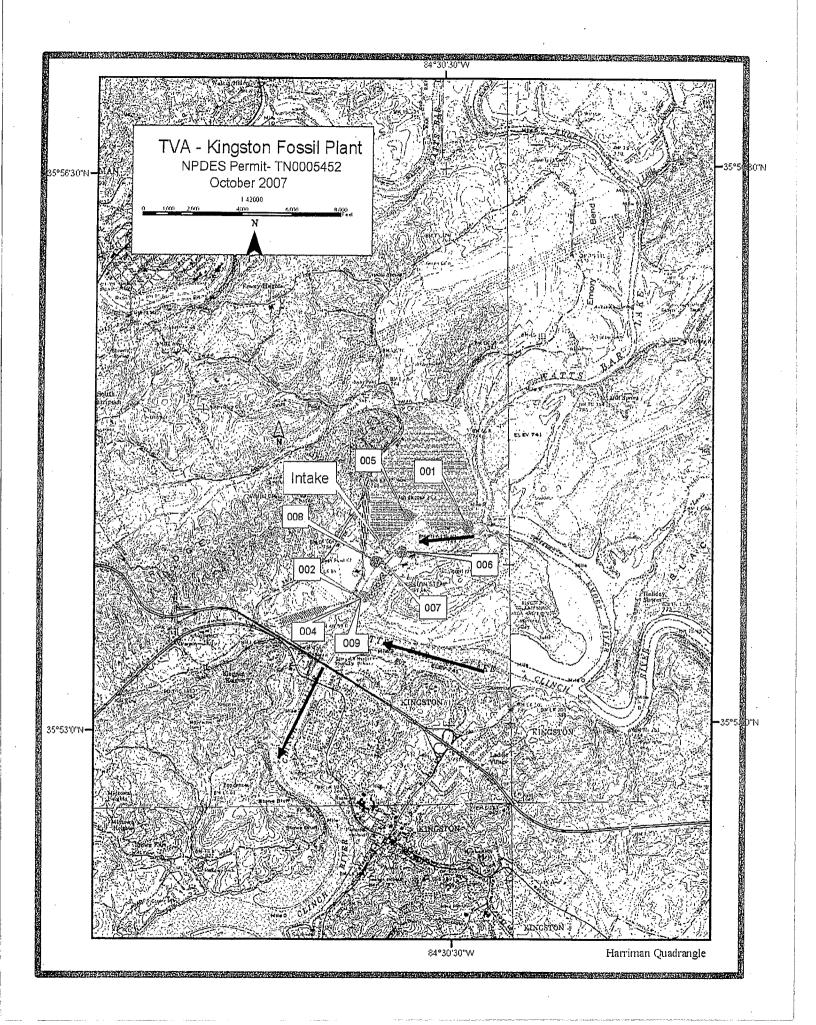
1. IDL 73-0094

Construction Storm Water Permit (TNR100000) for FGD Project

NOC number: TNR190588

Construction Storm Water Permit (TNR100000) for Ash Dredge Cell Restoration

NOC number: TNR190526



OMB No. 2040-0086 TN8640006682 Approval expires 5/31/92 Please print or type in the unshaded areas only U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER **FORM EPA** 2C EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS Consolidated Permits Program **NPDES** I. OUTFALL LOCATION For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water C, LONGITUDE D. RECEIVING WATER (name) A. OUTFALL B. LATITUDE NUMBER (list) 1. DEG. 2. MIN 3. SEC. 1. DEG. 2. MIN. 3. SEC. IMP 001 Plant Intake (to Watts Bar Reservoir) via DSN 002 35 54 15 84 30 15 **DSN 002** 35 53 45 31 84 15 Watts Bar Reservoir 35 IMP 004 53 45 84 31 15 Watts Bar Reservoir via DSN 002 IMP 005 35 15 54 84 31 0 Plant Intake (Watts Bar Res.) via IMP 001 IMP 007 35 54 31 0 Plant Intake (Watts Bar Resevoir) via DSN 002 0 84 IMP 008 35 54 Ó 84 31 n Plant Intake (Watts Bar Resevoir) via DSN 002 IMP 009 35 53 45 84 31 15 Watts Bar Reservoir via DSN 002 II. FLOWS, SOURCES, OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff, (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary 1. OUT-2. OPERATION(S) CONTRIBUTING FLOW 3. TREATMENT a. DESCRIPTION FALL NO b, AVERAGE FLOW b. LIST CODES FROM a. OPERATION (list) TABLE 2C-1 (list) (include units) IMP 001 Ash Pond 40.512 MGD Treatment occurs in a 118 acre settling pond. Ash and other solids settle out in the pond and are physically removed periodically. Treatment for 001 includes: H 1 (1) Settling (2) Neutralization 2 K Χ Х (3) pH Adjustment 4 Α IMP 001 receives flow from the (4) Discharge to surface water via Plant Intake following sources: Channel via DSN 002. 25.178 MGD (5) Reuse of treated effluent 4 С (1) Fly ash sluice water for cooling water 4 С 0.145 MGD (6) Reuse of stilling pond Coal yard runoff which includes:

OFFICIAL USE ONLY (effluent guidelines sub-categories)

(4) Less seepage from the ash pond

(3) Redwater wetlands

(b) Precipitation

(c) Evaporation

(a) Seepage

(a) Coal storage area drainage

(b) Utility building area drainage (c) Fire protection flushes

water for dust suppression

(roads, dikes, etc.)

Treatment occurs in a 4-acre

constructed wetlands system;

effluent is pumped to ash pond.

(0.110 MGD)

(0.035 MGD)

(0.000064 MGD)

0.171 MGD

(0.170 MGD)

(0.010 MGD)

-(0.009 MGD)

-0.170 MGD

Please print or type in the unshaded areas only

U.S.ENVIRONMENTAL PROTECTION AGENCY **FORM** APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER **EPA** 2CEXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS NPDES Consolidated Permits Program I. OUTFALL LOCATION For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water. A. OUTFALL B. LATITUDE C. LONGITUDE D. RECEIVING WATER (name) NUMBER (list) 1. DEG. 2. MIN 3. SEC. 1. DEG. 2. MIN. 3. SEC II. FLOWS, SOURCES, OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary. wastewater, cooling water, and storm water runoff. (2) The average flow contributed by each operation, and (3) The treatment received by the wastewater. Continue on additional sheets if necessary. 1. OUT-2. OPERATION(S) CONTRIBUTING FLOW 3. TREATMENT b. AVERAGE FLOW FALL NO a. DESCRIPTION b. LIST CODES FROM a. OPERATION (list) TABLE 2C-1 (list) (include units) IMP 001 (5) 0.007 MGD Treatment for 005 includes: Metal cleaning wastes (via IMP 005) (Con't.) which include: (1) Settling 1 U 2 K (a) Copper treatment pond discharge (2) Neutralization (3) pH Adjustment Х Χ (i) Chemical metal cleaning (0.001 MGD) and air preheater wastes (4) Chemical Precipitation (ii) Precipitation (0.002 MGD) (iii) Less evaporation (-0.001 MGD) (b) Iron treatment pond discharge (i) Chemical metal cleaning (ii) Non-chemical metal cleaning (0.002 MGD) (iii) Precipitation (0.011 MGD) (-0.008 MGD) (iv) Less evaporation (air preheater washes will Direct discharges of nonchemical negligible more commonly be sent to the metal cleaning wastes (7) Ammonia storage area runoff 0.002 MGD chemical treatment ponds) 6.814 MGD (8) Bottom ash sluicing (9) Ground water varies 0.267 MGD (10) Water treatment plant wastes via NLDF Sump, which includes: (0.239 MGD) (a) RO System Reject (0.028 MGD) (b) RO System Backwash 0.018 MGD (11) Drainage from sluice line trench includes: sluice line ruptures, precipitator

area drainage & fire protection flushes

OFFICIAL USE ONLY (effluent guidelines sub-categories)

Approval expires 5/31/92

FORM		APPLIC		DIMENTAL PROTECTION AGENCY IIT TO DISCHARGE WASTEW	ATER
2C	EPA	EXISTING MANUFACTI	JRING, COMMERC	CIAL, MINING AND SILVICULT	URAL OPERATIONS
NPDES				ated Permits Program	
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(IISI)	1. DEG.	2. MIN 3. SEC. 1. DEG.	2. MIN. 3. SEC.		And Allender State And Links
					. ,
II. FLOWS	S, SOURCES, OF P	OLLUTION, AND TREATMENT TE	CHNOLOGIES		
A. Attac efflue	h a line drawing sho ent, and treatment ur	wing the water flow through the faci hits labeled to correspond to the mo	lity. Indicate sources of	intake water, operations contributing winter B. Construct a water balance of	astewater to the
show	ing average flows be	etween intakes, operations, treatme	nt units, and outfalls. If	a water balance cannot be determined	(e.g., for certain
				irces of water and any collection or freat o the effluent, including process wastew	
waste	ewater, cooling water	r, and storm water runoff; (2) The av	rerage flow contributed:	o trie emuent, including process wastew by each operation, and (3) The treatmen	ater, sanitary nt received by the
waste	water. Continue on	additional sheets if necessary.			
1. OUT- FALL NO	2.	OPERATION(S) CONTRIBUTING OPERATION (list)	FLOW b. AVERAGE FLOW	3. TREATM a. DESCRIPTION	
(list)	a.	OF EXAMON (MSV)	(include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1
IMP 001	(12) Station sur	mp discharge which	7.712 MGD		
(Con't.)	includes:				
	(a) Ash sys	stem leakage and boiler	(4.155 MGD)		
	bottom ove	erflow and Units 5-9 ID fan			
	bearing cod		,		
		aneous equipment cooling	(3.438 MGD)		
	and lubrica		·		
		tection flushes	(0.000034 MGD)		
	<del></del>	lashing and other low	(0.025 MGD)		
	volume was			· · · · · · · · · · · · · · · · · · ·	
		ains and precipitator	(0.018 MGD)		
<del></del>	washdown				
		ater leakage	(0.061 MGD)		
		cal process wastewater	(0.005 MGD)		
		ent boiler blowdown tank	0		
<del> </del>	(start u	·	(0.040.NOD)		
	<del></del>	ple stations (powerhouse	(0.010 MGD)		
	and lab)			<u></u>	
	(12) Storm water	er runoff from FGD area	0.020 MGD	·	
		i fution for replatea	0.020 MGD		
	sump				
	(14) Loop water	from stilling pond for	negligible		
	(14) Less water dust suppre		negligible		
OFFICIALL	ISE ONLY (efflicent	guidelines sub-categories)			
OI I IOIAL C	JOE OHER (Gindelit	g-1-0-1110 000 34(0g9)100)			

Form Approved OMB No. 2040-0086

TN8640006682

FORM 2C NPDES	EDA		Ohrom dikkingtainin	entre instrumente L. L				VEXION -		
NPDES			APPLIC/	TION FO	S ENVIRO DR PERM	NMENTAL PR	HARGE WA	STEWA	TER	
	EPA	EXISTING MA	NUFACTU	RING, C	OMMERO	IAL, MININ	G AND SILV	/ICULTUI	RAL OPER	RATIONS
I. OUTF	ALL LOCATION				Consolida	ted Permits Pr	ogram			
	utfall, list the latitude	e and longitude of its lo . LATITUDE				the name of th				
NUMB	ER			LONGITUE			. D. REGEN	ING WATE	:R (name)	
(list)	1. DEG. 4	2. MIN 3. SEC.	1. DEG.	2. MIN.	3. SEC.			And The Tig	A Carlos de Carlos	
	7									
				<u> </u>			·			
								·		
									· ·	<del> </del>
I. FLOW	S SOURCES OF P	OLLUTION, AND TRE	ATMENT TEC	HNOLOGIE	<b>S</b> 1 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					
. Attac	ch a line drawing sho	owing the water flow thr	ough the facili	y. Indicate	sources of	ntake water, o	perations contr	ibuting was	ewater to the	
show	ing average flows b	nits labeled to correspo etween intakes, operati	ons, treatmen	units, and	outfalls. If a	water balance	cannot be det	ermined (e.	g., for certair	
minir . For e	<i>ng activities)</i> , provide ach outfall provide	e a pictorial description a description of: (1) All	of the nature	and amount atributing w	of any sou	ces of water a	nd any collection	n or treatm	ent measures er sanitary	
wast	ewater, cooling wate	er, and storm water rund additional sheets if ne	off; (2) The ave							1e
1. OUT-	.2.	OPERATION(S) CON	TRIBUTING P				3,			
FALL NO (list)	a.	OPERATION (list)			GE FLOW e units)	a.	DESCRIPTION	1		ODES FROM LE 2C-1
	(15) AAF area			0.012	MGD				Yas -	
Con't.)	precipitator   leakage	r wash and raw wa	ter			,				
	rearrage									
	(16) Precipitation	on		0.574	MGD		•••			
	(17) Less evap	oration		-n 238	MGD		· · · · · · · · · · · · · · · · · · ·			
	(17) Less evape	oration		-0,230	WGD		· · · · · · · · · · · · · · · · · · ·	······································		
									<u> </u>	
				<del></del>			<del></del>			<del> </del>
		······································								
		· · · · · · · · · · · · · · · · · · ·					-	:		
		· · · · · · · · · · · · · · · · · · ·	·							
				••			· · · · · · · · · · · · · · · · · · ·		<u> </u>	
				·		<u></u>				
FFICIALI	JSE ONLY (effluent	guidelines sub-categor	ies)	Star Speakers			2000 No. 12 (1997)	sidali katal	1	<u> </u>
BANKATO PERSO										

YES (complete the following its		4. FLOW RATE b. TOTAL	1 1000
1. OUTFALL 2. OPERATION(s) NUMBER CONTRIBUTING FLOW	PER WEEK PER YEAR (specify average) average)		vith units) (in days)  2. MAXIMUM DAILY
(list)	(Previously IMP 005 w	as listed in this section; however, t the U.S., but rather an internal mo	his is not a nitoring point.)
III. PRODUCTION  A. Does an effluent guideline limitation promulgated to the limitation promulgated to the limitations in the applicable effluent guideline.	ne expressed in terms of proc		NO (go to Section IV)
C. If you answered "yes" to Item III-B, list the quantity and units used in the applicable effluent guideline  1. AVEI  a. QUANTITY PER DAY  b. UNITS OF MEASURE	which represents an actual r and indicate the affected out RAGE DAILY PRODUCTION	neasurement of your level of production, e falls: N. PRODUCT MATERIAL ETC. (specify)	
IV. IMPROVEMENTS  A. Are you now required by any Federal, State or loc of wastewater treatment equipment or practices of application? This includes, but is not limited to prefer the stipulations, court orders, and grant or load.	or any other environmental pro permit conditions, administrati in conditions	ograms which may affect the discharges of ve or enforcement orders, enforcement co	escribed in this mpliance schedule
1: IDENTIFICATION OF CONDITION, AGREEMENT, ETC. a. NO	2 AFFECTED OUTFALLS	the following table)  3. BRIEF DESCRIPTION OF PRO.	NO (go to Item IV-B)  4. FINAL COM- PLIANCE DATE a.RE- D. PRO- QUIRED JECTED
B. OPTIONAL: You may attach additional sheets de may affect your discharges) you now have underwindicate your actual or planned schedules for const	ay or which you plan. Indicat ruction.	pollution control programs (or other environ e whether each program is now underway - ADDITIONAL CONTROL PROGRAMS IS ATTA	or planned, and

CONTINUED FROM PAGE 2	EPA LD NUMBER (copy from Item 1.c TN86400066	en else falle en commenten en e		
	ACTERISTICS proceeding - Complete one set of tables for an V-C are included on separate sheets			∋ provided.
D. Use the space below to list any of discharged or may be discharged and report any analytical data in y	of the pollutants listed in Table 2C-3 of the from any outfall. For every pollutant you livour possession:	instructions, which you know st, briefly describe the reasc	v or have reason to believe ons you believe it to be pres	is ent
1. POLLUTANT	2. SOURCE	1. POLLUTAN	T	SOURCE
/anadium pentoxide	Selective catalytic reduction (SCR) for NOx air emissions control uses this material as a catalyst.			
•			,	
oroduct or byproduct?	substance or a component of a substance v  YES (list all such pollutants below)	Michigan San Carlotte (1986) Children (1986) C	NO (go to Iter	
	•			
·				
			,	

on a receiving water in relation to your di	believe that any biological test for acute o		ade on any of your discharges or  NO (go to Section VIII)
	uires chronic toxicity biomonitoring omitted to the State as required by		for Outfall 002.
	.*		·
X YES (list the )	ON  n V performed by a contract laboratory or on the contract laboratory or on the contract laboratory or firm below)  B: ADDRESS		NO (go to Section IX)
Environmental Science Corporation	12065 Lebanon Road Mt. Juliet, TN 37122	(area code & no.) (615) 758-5858	All parameters except pH, total residual chlorine, temperature and flow.
who manage the system or those person	nel properly gather and evaluate the informa is directly responsible for gathering the info is complete. I am aware that there are signi	ation submitted. Based on m mation, the information subr ficant penalties for submitting	y inquiry of the person or persons nilted is sto the best of my graise information, including the
A. NAME & OFFICIAL TITLE (type or position)  Michael T. Beckham, F.  C. SIGNATURE  Makal	rint) Plant Manager	D. DATE SI	NO. (area code & no.) (865) 717-2500 GNED 07

PLEASE PRINT OR TY this information on sepa	/PE IN THE UN	PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages.	/. You may report ead of completing	some or all of these pages.	эт	EPATD: NUMBER (copy from tlem 1 of Form 1) TN8640006682	000 from Item 70 N86400066	of Form () 82				
V. INTAKE AND EFFL	UENT CHARA	V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)	from page 3 of Fo	m 2-C)							OUTF/	OUTFALL NO. 001
PART A - You must pro	vide the result	s of at least one analysis	for every pollutant	in this table. Comp	lete one table for	each outfall. See in	structions for addi	additional details.				
1. POLLUTANT	a. MAXI	1. POLLUTANT  a. MAXIMUM DAILY VALUE  b. MAXIMUM 30 DAY VALUE  c. LONG TERM AVRG. VALUE  d. NO.	b, MAXIMUN	2. EFFLUENT MUM:30 DAY VALUE (if available)	C LONG TE	TERM AVRG. VALUE	d NO OF	ypecil) 1 :S	3. UNITS (specify if blank)	4. INTAKE (	optional)	r N O O
	CONCENTRATION	TION (2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	ANALYSES	a. CONCEN. TRATION	b. MASS	CONCENTRATION	ASS	ANALYSES
a. Biochemical Oxygen Demand [BOD]	< 5.0							mg/L		< 5.0		
b. Chemical Οχygen Demand (COD)	< 20.0							mg/L		< 20.		_
c.Total Organic Carbon (TOC)	3.0							mg/L		3.4		
d. Total Suspended Solids (TSS)	29			·	12.7		13	mg/L		10		
e Ammonia (as N)	<0.10				< 0.06		23	mg/L		0.32		
l. Flow	VALUE	51.1	VALUE		VALUE	42.7	56	×	MGD	VALUE 1394.4	4	_
g. i emperature (winter)	VALUE	N/A	VALUE		VALUE			0	Ĉ	VALUE N/A	À	
h Temperature (summer)	VALUE	30.6	VALUE		VALUE			0	°C	VALUE 24.7	7	
l pH	MINIMUM 6.8	MAXIMUM 8.8	MINIMUM	MAXIMUM	$\setminus /$	$\left  \frac{\lambda}{\lambda} \right $	62	STANDA	STANDARD UNITS		$\left  \begin{array}{c} \\ \\ \end{array} \right $	
PAR I B≠ Mai eith pro	rk "X" in column er directly, or in vide quantitativ	Mark "X" in column 2-e for each politifant you know or have reason to believe is present. Mark "X" in column 2-b for each politiant you believe to be absent. If you mark column either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that politifant. For other politifants for which a provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements	ou know or have re an effluent limitation of their presence in	ason to believe is p ons guideline, you m n your discharge. °C	resent Mark "X" in ust provide the resonable one table	n column 2-b for ear sults of at least one for each outfall. Se	h pollutant you by analysis for that p e the instructions	elleve to be abso oflutant. For oth	ent. If you mark col er pollutants for wh talls and requirems	you believe to be absent. If you mark column 2a for any pollutant which is limited that pollutant. For other pollutants for which you mark column 2a you must closs for additional details and requirements.	tant which is limited 2a; you must	
1. POLLUT- a	Z. MARK 'X' a BE- b BE-	a. MAXIMUM DAILY VALUE	YVALUE	3. EFFLUENT b. MAXIMUM 30 DAY VALUE  (If available)	FLUENT AYVALUE	c. LONG TERM AVRG. VALUE	VRG. VALUE	NO OF	4. UNITS		5. INTAKE (optional) a LONG TERM	5
О. Ые)		CONCENTRATION	(2) MASS co	(1) CONCENTRATION	(2) MASS	CONCENTRATION	2) MASS		i yaa ir Nada	CONCE	(2) MASS	ANAL-
a. bromide (24959-67-9)	×									·		
total Residual		< 0.05						1 m	mg/L	< 0.05		2
c. Color		3.0						1 PC	PC Units	2.0		
d. Fecal Colliorm	×					· . ·						
e. Fluoride (16984-48-8)		0.18						<b>1</b>	mg/L	< 0.10		->
Nitrate (as //)	×	< 0.10						<b>1</b>	mg/L	0.13		

K. Hidelingth, Total (7440-32-6)	W. (III, 10tal (7440-31-5)	v. Manganese Total (7439-96-5)	u. morypaenum, Total (7439-98-7)	Total (7439-95-4)	(7439-89-6)	Total (7440-48-4)	Total (7440-42-8)	Total (7440-39-3)	Total (7429 90-5)	n. Surfactants	(as \$0 <sub>4</sub> ) (14265-45-3)	(as S)	(as SO <sub>4</sub> ) (14808-79-8)	(4) Kanium 226, Total	(3) Kadium, Total	(2) Beta, Total	(1) Alpha, Total	(as P) Total (7723-14-0) Radioactivity	n. Oli ano Grease	Total Organic (as N)	ANT AND CAS NO. (If available)	
×	×	×	×	×	×	×	×	×	×	×	×	×	×	7,3333				×	×	×	a: BE- LIEVED PRE- SENT	2. MA
														×	×	×	×				b. BE- LIEVED AB- SENT	RK X
0.018	0.042	0.016	0.043	13	0.12	<0.010	0.45	0.38	0.8	< 0.10	< 2.0	< 0.050	86					<0.10	<5.6	8.6	a MAXIMUM DAILY VALUE (1) (2) MA CONCENTRATION	
																					Y VALUE (2) MASS	
																					b. MAXIMUM 30 E (II availab (1) CONCENTRATION	
																					le) XX	3. EFFLUENT
		ć.							•												Š	T
																			< 5.1		CONCENTRATION (ALUE)	71. S. W. W
						į										·					VRG. VALUE ble) (2) MASS	1
	-		1	1		1	_	-			->		1				·		12	- <b>.</b>	d. NO: OF ANAL- YSES	
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L					mg/L	mg/L	mg/L	a CONCEN- TRATION	4. UNITS
														·							MASS	
<0.010	0.036	0.049	0.0060	-1	0.30	<0.010	<0.20	0.041	0.50	< 0.10	<2.0	<0.050	26				Company of the Compan	<0.10	<5.15	<0.50	AVERAGE VALUE  (1) (2) (2) (M)  CONCENTRATION	5. INT
			-																		ALUE (2) MASS	5. INTAKE (optional)
_		_	_		_	<u> </u>	ے			ند		_	`						>	>	b NO OF ANAL YSES	SA 100 A

Company   Comp	HO.	E 3 OF FORM 2-C		· E	PA I.D. NUMBER (o	opy from Iten 8640006	EPA I.D. NUMBER (copy.from./lem.j. of.Form.j.) OUTFALL NUMBER TN8640006682	OUTFALL N	UMBER 001			·		I
December   December	Y Y	a primary industry an NS fractions that app of GC/MS fractions), pollutant, you must p	d this outfall contains prod by to your industry and for mark "X" in column 2-b provide the results of at lea	ess wastewate ALL toxic metal or each pollutar	r. refer to Table 2c- s/cyanides, and tot it you know or have for that pollutant. I	2 in the instru al phenois It reason to be f you mark co	ictions to determine wi If you are not required lieve is present. Mark blumn 2b for any pollut	ich of the GC o mark colum "X" in column ant, you must	MS traction in 2-a (secon 2-c for each provide the	ns you must ndary indust th pollutant y results of at	test for. Ma ries, nonpro ou believe is teast one ar	irk "X" in column cess wastewater absent. If you n	2-a for all coutfalls, and nark column illutant if you	
Control   Cont		of at least one analy you must either sub	t will be discharged in co sis for each of these pollu mit at least one analysis of	ncentrations of lants which you or briefly descrit	10 ppb or greater. Know or have reasons the p	If you mark c on to believe sollutant is exp	column 2b for acrolein, that you discharge in o pected to be discharge	actylonitrile, 2 concentrations ad. Note that	2,4 dinitroph s of 100 ppb there are 7	enol, or 2-ma or greater. pages to this	ethyl-4, 6 dir Otherwise fo part, pleaso	nitrophenot, you n or pollutants for w e review each can	nust provide which you man refully.	왕사 국제 14
Companies   Comp	1. POLLUTANT	2. MARK 'X'	s) for each outlant. See in	structions for a	3. EFFLUE	requirements NT	S			4	JITS	7 X INT	AKE (ontions)	
	2000	ST-		100	b. NIAXIMUM 30 DA	YVALUE	c:LONG TERM AVR	G. VALUE			*	a. LONG	TERM DILOTION	
Concession   Con					(if available)		(if available)		0.00	a. CONCEN-	b. MASS	AVERAGE		
MINDE, AND TOTAL PREPORTS   CO.00022   CO.00010   CO.		RED SENT SENT		(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION		ANAL-	TRATION			SS	
A	METALS, CYANIDE, AND	TOTAL PHENOLS							i de	- 2		T. C.		
		× 	0.0022				-	,	_	mg/L				
		×	0.022							mg/L		< 0.0010		
X       40.00050       1 mg/L         X       0.012       1 mg/L         X       0.0026       1 mg/L         X       40.0010       1 mg/L         X       0.0020       1 mg/L         X       0.0083       1 mg/L         X       0.0084       1 mg/L         X       0.0018       1 mg/L         X       0.0018       1 mg/L         X       0.0050       1 mg/L         X       0.0050       1 mg/L         X       0.0018       1 mg/L         X       0.0050       1 mg/L         X       0.0050       1 mg/L	1-7)	×	<0.0010						_	mg/L		< 0.0010		- 1
X       0.012       1 mg/L       4 mg/L       4         X       0.0026       1 mg/L       4 mg/L       4         X       0.0026       1 mg/L       4		×	<0.00050						<u> </u>	mg/L		< 0.00050		1
X         0.0026         1         mg/L         4           X         <0.0010	3)	×	0.012							mg/L		< 0.0010	•	1
Total		×	0.0026		·				_	mg/L		0.0013		- 1
		×	<0.0010							mg/L				1
		×	< 0.00020		·					mg/L				l l
		×	0.0053							mg/L				I
		×	0.0084							mg/L				
Column	iotal	×	<0.00050					·		mg/L		< 0.00050		
Old		×	< 0.0010							mg/L		< 0.0010		
1 mg/L   <   1 m	otal	×	0.018						-7	mg/L		< 0.010		
X		×	<0.0050				;			mg/L				
ira: X 64:01:6) X	nois,		< 0.040							mg/L		< 0.040		
	DIOXIN 2,3,7,8-Tetra		_[]	S										35.2
	chlorodibenzo-P Dioxin (1764-01-6)	×	<u> </u>											

21V. Methyl Chloride (74-87-3)	Bromide (74-83-9)	(100-41-4)	propylene (542-75-6)	propane (78-87-5)	ethylene (75-35-4)	ethane (107-06-2)	14V 1,15Dichloro ethane (75-34-3)	13V. Dichloro- difluoromethane (75-71-8)	12V. Dichloro- bromomethane (75-27-4)	(67-66-3)	IUV: 2-Unioro- ethylvinyl Ether (110-75-8)	75-00-3)	av. Chlorog- bromomethane (124-48-1)	(108-90-7)	Tetrachloride (56-23-5)	5V. Bromoform (75-25-2)	4V. Bis (Chloro- methyl) Ether (542-88-1)	71-43-2)	2V. Acrylonitrile (107-13-1)	1V. Acrolein (107-02-8)	1 POLLUTANT 2 AND CAS a TEST- NUMBER ING (If available) QUIRED GCIMS FRACTION VOLATILE
×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	a. TEST- ING RE- QUIRED VOLATILE
																					B. BE- C. BE- LIEVED LIEVED PRE- AB- SENT SENT E. COMPOUNDS
^	^		٨			^	^	٨	٨				· A	٨			×				o
0.0010	0.0050	0.0010	0.0020	0.0010	: 0.0010	0.0010	: 0.0010	: 0.0050	0.0010	< 0.0050	< 0.050	< 0.0050	0.0010	< 0.0010	< 0.0010	< 0.0010		<0.0010	< 0.010	< 0.050	a. MAXIMUM DAILY VALUE  (1)  CONCENTRATION  (2) MA
																					(2) MASS
																					3. EFFLUENT b. MAXIMUM 30 DAY VALUE (If available) (1) (2) MAS CONCENTRATION
						:		·													NT WALUE
																					C. LONG TERM AVEC. VALUE (If available) (1) (2) MAS CONCENTRATION
																					(2) MASS
	_				>					1		>	-		->	->		_		>	d. NO. OF ANAL- YSES
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	a. CONCENTRATION
																					b. MASS
< 0.0010	< 0.0050	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0050	< 0.050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010		< 0.0010	< 0.010	< 0.050	a: LONG TERM. b. N. a: LONG TERM. b. N. AVERÁGE VALUE (1) CONCEN- (2) MASS TRATION
																					TAKE (option TERM VALUE (2) MASS
_	->		_	۲							_	_						_		_	h. NO: OF ANAL YSES

phenol (88-06-2)	(108-95-2)	phenol (87-86-5)	Cresol (59-50-7)	(100-02-7)	(88-75-5)	phenol (51-28-5)	Cresol (534-52-1)	phenol (105-67-9)	phenol (120-83-2)	(95-57-8)	GC/MS FRACTION - AC	Chlonde (75-01-4)	fluoromethane (75-69-4)	elhylene (79-01:6)	chloroethane (79-00-5)	chloroethane (71-55-6)	20V. 1,2-1 rains- Dichloroethylene (156-60-5)	(108-88-3)	ethylene (127-18-4)	23V 1,1,2,2-1 etra- chloroethane (79-34-5)	Chloride (75-09-2)	0	CONTINUED FROM PAGE V-4  NOT POLLUTANT   AND CAS   A TEST
×	×	×	×	×	×	×	×	×	×	×	D COMPOU	×	×	×	×	×	×	×	×	×	×	RE- PR QUIRED SE	
	ļ.										OUNDS											LIEVED LIEVED PRE- AB CONCE SENT SENT CONCE COMPOUNDS (continued)	MARK X
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						,					1,40%,000,000,000											(2) MASS	
																					•	(ff available)  (travailable)  (travailable)  (travailable)	PA I.D. NUMBER (copy from TN86400
		1																		·		(2) MASS	NT // NT
															·							CILONG TEXM ANG VALUE (If available) (1) (2) MAC CONCENTRATION	EPA ID NUMBER (copy from flem 1 of Form 1) TN8640006682
		·								,							·					(2) MASS	OUTEALL I
_	<u>.</u>	<u> </u>		1	1		1	1	1	-7		_	->	_1					1	1		d. NO. OF ANAL- YSES	UMBER 001
mg/L	mg/L	mg/L	mg/L ·	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	a. CONCENTRATION	OUTFAIL NUMBER 001
											39 C 28 34 1			,							-	b. MASS	
< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		< 0.0010	< 0.0050	0100.0 >	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0050	AVERAGE VALUE  (1) CONCEN (2) MASS:  TRATION	5; IN
																·						G TERM SE VALUE (2) MASS	TAKE (oplions
	<b>→</b> ,								۔۔				그	<b>-</b>		<b>.</b>	>	٦	٦		1	ANAL- YSES	10 min 10

benzene (541-73-1)	benzene (95-50-1)	Anthracene (53-70-3)	(218-01-9)	phenyl Phenyl Ether (7005-72-3)	naphthaiene (91-58-7)	Phinalate (85-68-7)	phenyl Phenyl Ether (101-55-3)	130. bis ( <i>zernyi-</i> <i>hexyl</i> ) Phthalate (117-81-7)	(102-60-1)	ethyl) Ether (111-44-4)	ethoxy) Methane (111-91-1)	Fluoranthene (207-08-9)	Perylene (191-24-2)	fluoranthene (205-99-2)	Pyrene (50-32-8)	Anthracene	48 Benziqine (92-87-5)	30. Ajilinacene (120-12-7)	28 Acenaphtysene (208-96-8)	16. Acenaphinene (83-32-9)	1. POLLUTANT a. AND.CAS a. NUMBER R. (If evallable) R. GCIMS FRACTION BA
×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	a. TEST- ING RE- QUIRED
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											·										Y VALUE (2) MASS
																					3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) MAS (1) CONCENTRATION
									-												ENT AY VALUE e) (2) MASS
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		·									·						·				RG. VALUE
			_	>	1	->	_	_	>	1	1		>	-	7			_	_		d. NO. OF ANAL: YSES
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	a. CON TRAT
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< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.010	< 0.0010	< 0.010	< 0.0010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.050	< 0.0010	< 0.0010	< 0.0010	5. INTAKE (optional)  a. LONG TERM b. NO. C.  AVERAGE VALUE (1) CONCEN (2) MASS YSES TRATION
			į																		AKE (Option TERM VALUE 2) MASS
						>	->	_	->		_		-	_	_			-	>		h. NO. OF ANAL YSES

(62-75-9)	418. N-Nitro- sodimethylamine	408. Nitrobenzene (98-95-3)	395: Naphthalene (91-20-3)	.385, isoprorone (78-59-1)	378 Indeno (1,2,3-cd) Pyrene (193-39-5)	ethane (67-72-1)	35B: Hexachloro- cyclopentadiene (77-47-4)	348: Hexa- chlorobutadiene (87-68-3)	338 Hexachlorobenzene (118-74-1)	(86-73-7)	318 Fluoranmene (206-44-0)	308-1,2-Diphenyl- hydrazine (as Azo- benzene) (122-66-7)	298. Di-N-Octyl Phthalate (117-84-0)	288-25-Dintro: toluene (606-20-2)	2/8; 2;4-Dinitro- toluene (121-14-2)	26B. DI-N-Butyl Phthalate (84-74-2)	258: Dimethyl Phthalate (131-11-3)	248. Diethyl Prithalate (84-66-2)	23B. 3,3-Dichloro- benzidine (91-94-1)		AND CAS TEST ING NUMBER ING (If available) RE OURED GOMS FRACTION - BASE/NEU	CONTINUED FROM PA
	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	a TEST b. BE c. BE ING LIEVED LIEVE RE- AB. GUIRED SENT SENT SENTOMPO	GE V-6
	< 0.050	< 0.010	< 0.0010	< 0.010	< 0.0010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	A JEST   b. BE   c. BE   a. MAXIMUM DAILY VALUE   NO.   LIEVED   LIEVED   LIEVED   A.   (2) MA   CUIRED   SENT   CONCENTRATION   CONCENTRATION	
																·	·			,	SS	EP
				·						•	·								1-		MAXIMUM 30 DAY VALUE  (If available)  (1)  (2) MAS  CONCENTRATION	AID NUMBER (copy from TN864)
														·							Y.VALUE (2) MASS	86400066
																	·				CONCENTRATION	EPAI.D:NUMBER (copy.from/liemgt.of.form/1) TN8640006682
																	·				ો 💝 🗀 ી.	OUTFALL N
		->	1	-1	<u> </u>	1				>		>							>		d NO OF ANAL- YSES	IUMBER
ا ا	ma/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	a. CONCEN- TRATION	A CINITE
																					MASS	
0.000	< 0.050	< 0.010	< 0.0010	< 0.010	< 0.0010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	a LONG TEM LONG TO THE LONG TEM LONG TE	T. T
										,										_	VALUE	Ke /octional
-	_	<u> </u>		_		_									_		_				b NO OF ANAL- YSES	

16P: Heplachlor (76-44-8)	15P. Endrin Aldehyde (7421-93-4)	14P Endrin (72-20-8)	13P: Endosulfan Sulfate (1031:07-8)	12P	11P.: a-Endosulfan (115-29-7)	10P. Dieldrin (60-57-1)	9P 4.4-DDD (72-54-8)	8P. 4,4-DDE (72-55-9)	7P. 4,4":DDT (50-29-3)	6P Chlordaine (57-74-9)	5P &-BHC (319-86-8)	4P y-BHC (58-89-9)	3P, β-BHC (319-85-7)	2P &_BHC (319-84-6)	1P. Aldrin (309-00-2)	(120-82-1) PESTICIDES	46B 124-Tri- chlorobenzene	458. Pyrene (129-00-0)	448. Phenanthrene (85-01-8)	43B. N-Nitro- sodiphenylamine (86-30-6)	AND CAS A TEST.  AND CAS A TEST.  NUMBER (If available) RE.  (If available) RE.  GCIMS FRACTION BASEINEU
																PESTICIDES	×	×	×	×	a TEST- b ING LING P RE- P QUIRED S
																					MARK'X' b BE C B LIEVED LIEV PRE- AB- SENT SEN RAL COMP
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									-							Control of the Southern States	< 0.010	< 0.0010	< 0.0010	< 0.010	A TEST   D. BE   C. BE   A MAXIMUM DAILY VALUE   ING   LIEVED   LI
																PU 100 800 800 800 800 800 800 800 800 800					Y VALUE (2) MASS
						·															3. EFFLUENT 5. WAXIMUM 30 DAY VALUE (If available) (2) MASS CONCENTRATION
																					AY VALUE
							,										·				C. LONG TERM AVEG. VALUE  (if available)  (2) MASS  CONCENTRATION
									,												3, VALUE
																		1	_		d NO OF ANAL YSES
															2000		mg/L	mg/L	mg/L	mg/L	a CONCEN- TRATION
																					ITS b MASS
																	< 0.010	< 0.0010	< 0.0010	< 0.010	5:INTAKE (optional) a: LONG-TERM b: AVERAGE VALUE (I) CONCEN: (2) MASS TRATION
																					AKE (optiona TERM VALUE (2) MASS
														_				->	٠ .	<b>y</b>	b NO OF ANALY

CONTINUED EROM DAGE V.S	DACE V-8		-		TN	TN8640006682	TN8640006682		001	001				
1. POLLUTANT	2. MARK X	X! **	Care Cayoffe Colored to promodel A	1.0 Sec. 25.	3. EFFLUENTS	NT	and and and a state of the state of	en jagen en om		4. UNITS	STIL	5.IN	5. INTAKE (optional)	nal)
AND CAS NUMBER	a TEST: b BE-	c. BE-	a. MAXIMUM DAILY VALUE	ALUE	b: MAXIMUM 30 DAY VALUE	VALUE	c LONG TERM AVRG	G VALUE	d NO OF		: TERM : VALUE	B. LONG TERM	a LONG TERM AVERAGE VALUE	b. NO. OF
(if available)	PRE-	AB- SENT	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENT	(2) MASS		000	b. MASS	(1) CONCEN-	(2) MASS	YSES
GCIMS FRACTION - PESTICIDES (continued)	PESTICIDES (con	tinued)	Н	\$50 BOOK 350					10,000,000	新型 (1) (1) (1) (1) (1)	2000 September 188		The state of the s	
17B. Heptachlor Epoxide	344800,00	×					· -							
18P. PCB-1242									1					$\dashv$
(53469-21-9)		X												
19P: PCB:1254 (11097-69-1)		×												
20P. PCB-1221 (11104:28-2)		×								-				
21P_PCB-1232 (11141-16-5)		×												<u> </u>
22P PCB-1248: (12672-29-6)		×												<u> </u>
23P_PCB-1260 (11096-82-5)		×						٠						
24P:PCB:1016 (12674-11-2)		×										·		
25P: Toxaphene (8001-35-2)		×												

FORM 2C NPDES		EPA		EXIS	TING MA		ATION FO	OR PERM OMMERO	DIMENTAL PROTECTION AGENCY IIT TO DISCHARGE WASTEWAT CIAL, MINING AND SILVICULTUI ated Permits Program		ATIONS
I. OUTFA For each ou	tfall, l		ude a						the name of the receiving water.		15/24(15/2)
A. OUTF			B. L	ATITUDI		C.	LONGITUE	)E	D. RECEIVING WATE	R (name)	
(list)	40 - 40 - 100	1. DEG		2. MIN	3. SEC.	1. DEG.	2. MIN.	3 SEC.		Naska.	e tadije
			_								
			+		<u> </u>		ļ				
			-+		<del> </del>		ļ				
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								-			
									_		
II. FLOWS	, SOL	JRCES, OF	F POI	LUTION	, AND TRE	ATMENT TE	CHNOLOGI	ES	fintake water, operations contributing was		
efflue show <i>minin</i>	nt, an ing av g activ	d treatmen erage flows vities) , prov	it unit s betv vide a	s labeled veen inta pictorial	to correspo kes, operat description	ond to the mor lons, treatmer of the nature	e detailed d it units, and and amoun	escriptions outfalls. If t of any soi	in Item B. Construct a water balance on a water balance cannot be determined for urces of water and any collection or treatment to the effluent, including process wastewal	he line drawin g., for certain ent measures	ng by
waste	water	, cooling w	ater,	and storn	n water run	off; (2) The av		contributed	by each operation; and (3) The treatment		ie
1. OUT-					sheets if ne	cessary. ITRIBUTING I	FLOW	7 7 7 7 7	3. TREATMEN	17.776 S	1911 1 2141 1966
FALL NO			a. C	PERATION	ON (list)		b. AVERA	GE FLOW	a. DESCRIPTION	b. LIST CO	ODES FROM
(list) DSN 002	Con			na wate		n <u>a</u>		e units) 64 MGD	Discharge to surface water	4	_E 2C-1
D014 002					ves flow f		1237.00	00 IN CD	Discharge to surface water	<del>                                     </del>	
										<b>†</b>	
·	(1)	Once-thi	roug	h conde	enser cod	oling	1,296.6	27 MGD			
		water, in	rclud	ing flow	vs from IN	/IP 001.					
	(2)	3rd Floo	r Bo	iler blov	vdown		0.014	MGD			
	(0)	D' I				t	0.040	1405			
		¥			erflow po tion flush		0.010	MGD		<del> </del>	
		<u>`</u>		<del></del>	and runo		<u> </u>			<del>                                     </del>	
					former a					<u> </u>	
		switchya		ar a care	olollilor di						
									-		
·	(4)	Intake so	cree	n backv	vash from	)	0.252	MGD			
		IMP 004	and	FGD s	trainers						
	(5) l				nd (IMP (		0.961	MGD	Treatment will occur in a 6.87		
		(Futu	re -	Also S	ee Form	2D)			acre storm water pond, providing		U
									Settling Neutralization	1 2	K
						<u> </u>			Discharge to Surface water	4	A
									Discharge to Surface water	<del>                                     </del>	
OFFICIAL U	JSE O	NLY (efflu	ent gi	uidelines	sub-catego	ries)					

PLEASE PRINT OR TO this information on sep SEE INSTRUCTIONS.	∕PE IN arate sh	THE UNSH, neets (use th	\DED AREAS ONLY ne same format) inst	PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.	EPA I.D. NUMBER (copy from them 1; of Form 1) TN8640006682	copy from Item 1.ofFc TN8640006682	of Form 1).			
V. INTAKE AND EFFL	UENT C	CHARACTE	RISTICS (continued	V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-G)					OUTFALL NO. 002	ALL NO. 002
PART A - You must pro	vide th	e results of	at least one analysis	for every pollutant in this table. Comp	PART A - You must provide the results of at least one analysis for every pollutant in this table: Complete one table for each outfall. See instructions for	ctions for add	additional details.			
1. POLLUTANT		a. MAXIMUN	a. MAXIMUM DAILY VALUE	MAXIMUM 30 DAY VALUE  b. MAXIMUM 30 DAY VALUE  (if available)	c:LONG TERM AVRG. VALUE	a NO OF	cify if	ank)	4. INTAKE (optional) a LONG TERM AVERAGE VALUE	b NO OF
		CONCENTRATION	(2) MASS	(1) (2) MASS CONCENTRATION	(1) (2) MASS CONCENTRATION	ANALYSES	a, CONCEN- TRATION	b MASS	MASS	ANALYSES
a. Biochemical Oxygen Demand		<5.0				>	mg/Ľ			
b. Chemical Oxygen Demand (COD)	*****	<20					mg/L			
c. Total Organic Carbon (TOC)		3.4					mg/L			
d. Total Suspended Solids (7SS)	20-25000000	9.8					mg/L			
e: Ammonia (as N)		<0.10					mg/L		,	
f. Flow	VALUE		1395	VALUE	VALUE 1359	365	MGD		VALUE	
g. Temperature (winter)	VALUE		29.2	VALUE	VALUE 18	182	၁°	<u> </u>	VALUE	
h Temperature (summer)	VALUE		32.1	VALUE	VALUE 28.4	183	၁့	<	VALUE	
l.pH	MINIM	MINIMUM 6.7	MAXIMUM 8.2	MINIMUM MAXIMUM		62	STANDARD UNITS	STINU		
PART B. Ma eitl pro	ark "X" in her dire	n column 2-a clly, or indire antitative da	i for each pollutant y cily but expressly, in ita or an explanation	ou know or have reason to believe is p an effluent limitations guideline you m of their presence in your discharge. O	Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant y either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for t provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instruction	pollutant you balysis for that phe instructions	ou believe to be absent. If you'mark column that pollutant. For other pollutants for which the state of additional details and requirements.	If you mark coluctions for which and requirements for which and requirements for the coluctions of the	ı 2a for any p ou mark col	
1. POLLUT. ANT AND LE CAS NO.	a. BE- LIEVED	b. BE- LIEVED	a. MAXIMUM DAIL	Y VALUE b. MAXIMUM 30 DA (I)	AYVALUE c. LONG TERM AVRG.  (a) (i) (ii) (iii) (iii) (2) (2) (2) MASS (1) (1) (1)	G. VALUE	d. NO. OF a. CONCEN- ANAL- TRATION	N- b. MASS	AVERAGE VALUE  (1)  ALING TERM  AVERAGE VALUE  (2) MASS	ANAL- OF
b Chlorine; Total Residual		×	< 0.05				1 mg/L			
c. Color		×	3				1 PC Unit	iť		
d: Fecal Colliorm		×								
e. Fluoride (16984-48-8)		×	< 0.10				1 mg/L			
f. Nitrate- Nitrite (as //)	×		0.19				1 mg/L			

x. Titanium. Total [7440-32-6]	w. Tin; Total (7440-31-5)	v. Mänganese Total (7439-96-5)	u. Molybdenum, Total (7439-98-7)	t. Magnesium, Total (7439-95-4)	s. Iron, Fotal (7439-89-6)	r Cobalt Total (7440-48-4)	q. Boron, Tolal (7440-42-8)	p. Barium, Tolal (7440-39-3)	o Aluminum; Total (7429-90-5)	n, Surfactants	m Suffile (as SO <sub>4</sub> ) (14265-45-3)	(as S)	k, Sulfate (as SO <sub>4</sub> ) (14808-79-8)	(4) Radium 226, Total	(3) Radium; Total	(2) Beta Total	(1) Alpha Total	. Radioactivity	l Phosphorus (as P), Total	h. Oil and Grease	g. Nitrogen, Total Organic (as N)	e · D.	1 POLLUT
	×	×	×	×	×			×	×			×											2. MA
×						×	×			×	×		×	×	×	×	×	900 Sec.	×	×	×	LIEVED AB- SENT	R.X.
<0.010	0.037	0.052	0.0075	11.0	0.36	<0.010	<0.20	0.051	0.55	< 0.1	<2.0		28					All the state of t	<0.10	< 5.5	<0.50	(1) (2) MAS	IIAO WI IMIXAM &
														,				2000 SEE SEE SEE SEE SEE SEE SEE SEE SEE				(2) MASS	VVALLIE
				i														Physica 1964 (1979)				CONCENTRATION	3. EFFLUENT
							1															(2) MASS	FFLUENT
			-			·												** Cart State (1988)   14   15   15   15   15   15   15   15				(1):: (2) MASS	
											-	·									-	bie) (2) MASS	O WILLIAM
	ے ا	د.		>				1	_		_	_							_			d. NO. OF ANAL- YSES	
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		·				mg/L	mg/L	mg/L	a: CONCEN- TRATION	4. UNITS
														·				X				b. MASS	SIII
											·											CONCE	
																						LONG TERM RAGE VALUE	5: INTAKE (optional)
														-								. 1 11 121.1	1994
																						b NO. OF ANAL- YSES	

EPA I.D. NUMBER (copy from item f. of Form 1). QUITFALL NI TN8640006682	
OUTFALL NUMBER 002	

23 7.8-Tetra- chlorodibenzo-P Dioxin (1764-01-6)	DIOXIN	15M. Phenols, Total	14M. Cyanide, Total (57-12-5)	13M: Zinc, Total (7440-66-6)	12M. Thallium, Total (7440-26-0)	11M: Silver, Total (7440-22-4)	10M. Sēļenium, Total (7782-49-2)	9M. Nickel, Total (7440-02-0)	8M. Mercury, Total (7439-97-6)	7M. Lead, Total (7439-92-1)	6M.:Copper, lotal (7440-50-8)	5M. Chromjum. Total (7440-47-3)	4M. Cadmium, Total (7440-43-9)	3M. Beryllium. Total. (7440-41-7)	2M. Arsenic, Total (7440-38-2)	1M. Antimony, Total (7440-36-0)	METALS, CYANIDE,	(if available)	AND CAS NUMBER	1. POLLUTANT	the colu	800 700 2a f	PARTC - If yo	CONTINUED FROM PAGE 3 OF FORM 2-0
		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		RE- QUIRED	a. TEST-		results of a imn 2b, you nplete one i	n GC/MS in required Gillor any pollu	u are a prii	2 0 0 0 0 0 0 0 0
			<u> </u>				<u> </u>										AND TOTAL PHENOLS	PRE-	a TEST- b BE- c BE-	2. MARK	t least one I must eith table (all 7	actions the C/MS fract stant; you it and the control of the contro	mary indus	Na Cu U U
×																	NOLS	SENT	C. BE.	×	analysis fer submit	at apply to tions), ma must provi	try and the	3
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		:		,													÷	(2) MASS	AY VALÜE :	ENT	son to believ pollutant is e	otal phenols. re reason to l If you mark	2 in the inst	1864000
	-					1												(I) CONCENTRATION	c. LONG TERM AVRG. VALUE (If available)	78. 778m - 446	the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise for pollutants which you may column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part please review each carefully.  Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.	such GC/Ms fractions that apply to your industry and for ALL toxic metals; oyanides; and total phenois. If you are not required to mark column?-a (secondary industries; nonprocess wastewater outfalls, and nonrequired GC/Ms fractions), mark !X' in column 2-b for each pollutant your believe is absent. If you mark column 2-b for each pollutant your believe is absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant you must provide the results of at least one analysis for that pollutant if you mark you must provide the results of at least one analysis for that pollutant if you mark column 2-b for any pollutant you must provide the results of at least one analysis for that pollutant if you mark you must provide the results of a least one analysis for that pollutant you mark yo	It you are a primary industry and this outfall contains process wastewater, refer to Table 262 in the instructions to determine which of the GCMS.	TN8640006682
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21V Methyl Chloride (74-87-3)	20V. Methyl Bromide (74-83-9)	19V. Ethylbenzene (100-41-4)	propylene (542-75-6)	17V -1,2-Dichloro propane (78-87-5)	16V.1.1-Dichloro- ethylene (75-35-4)	15V. 1.2-Dichloro- ethane (107-06-2)	14V:1 1-Dichloro ethane (75-34-3)	difluoromethane (75-71-8)	12v. Dichloro- bromomethane (75-27-4)	(67-66-3)	10v. 2-Cnioro- ethylvinyl Ether (110-75-8)	9V. Chloroethane (75-00-3)	bromomethane (124-48-1)	(108-90-7)	6V Carbon Tetrachloride (56-23-5)	5V. Bromotorm (75-25-2)	4V. Bis (Chloro- methyl) Ether (542-88-1)	3V. Белгепе (71-43-2)	2V. Acrylonitrile (107-13-1)	1 V. Acrolein (107-02-8)	1. POLLUTANT 2. MARK X. AND CAS a. TEST   b. BE.   c. BE. NUMBER   ING
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218. 1.3-Dichloro- benzene (541-73-1)	208. 1;2-Dichloro- benzene (95-50-1)	198. Dibenzo (a h) Anthracene (53-70-3)	188: Chrysene (218-01-9)	Ether (7005-72-3)	naphthalene (91-58-7)	Phihalate (85-68-7)	148: 4-Bromo- phenyl Phenyl Ether (101-55-3)	138: Bis (2-Ethyl- hexyl) Phthalate (117-81-7)	(102-60-1)	(116, bls/ <i>2-cmloro-ethyl</i> ) Ether	ethoxy) Methane (111-91-1)	Fluoranthene (207-08-9)	ob belizo ( <i>giii)</i> Perylene (191-24-2)	fluoranthene (205-99-2)	Pyrene (50-32-8)	SB. Benzo (a) Anthracene (56-55-3)	48 :Benzidine (92-87-5)	(120-12-7)	20 Acenaphylene (208-96-8)	(83-32-9)	AND CAS a TEST b AND CAS a TEST b NUMBER ING LI (If available) RE P QUIRED S GCIMS FRACTION - BASEINEUT
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Propylamine (621-64-7)	sodimethylamine (62-75-9)	(98.95.3)	(91-20-3)	(78-59-1)	(1,2,3-cd) Pyrene (193-39-5)	ethane (67-72-1)	cyclopentadiene (77-47-4) 36B Hexachloro	chlorobutadiene (87-68-3)	(418-74-1)	(86-73-7)	(206-44-0)	hydrazine (as Azo- benzene) (122-66-7)	Phihalate (117-84-0)	toluene (606-20-2)	toluene (121-14-2) 28B: 2,6-Dinitro-	Phinalate (64-74-2) 278: 24-Dinitro	258: Dimethyl Phthalate (131-11-3)	245 Derny Philialate (84-66-2)	benzidine (91-94-1)	benzene (106-46-7)	AND CAS  AND CAS  NUMBER  (if available)  GCIMS FRACTION - BASE/NEU  228 1 4 Dichoro	CONTINUED FROM PA
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16P: Heplachlor (76-44-8)	15P Endrin Aldehyde (7421-93-4)	14H Endrin (72:20-8)	13P Endosulfan Sulfate (1031-07-8)	12P	11P. a-Endosulfan (115-29-7)	10P. Dieldrin (60-57-1)	9P. 4,4*-DDD (72-54:8)	8P. 4,4::DDE (72-55-9)	7P: 4.4-DDT (50-29-3)	6P: Chlordane (57-74-9)	5P & BHC (319-86-8)	4P. <sub>Y-</sub> BHC (58-89-9)	3P_B-BHC (319-85-7)	2P. a. BHC (319-84-6)	1P Aldrin (309-00-2)	GC/MS FRACTION PESTICIDES	46B. 1.2.4 – Tri- chlorobenzene (120-82-1)	45B: Pyrene (129-00-0)	448: Phenanthrene (85-01-8)	435: N-INITO- sodiphenylamine (86-30-6)	GCIMS:FRACTION BASEINEUTRAL COMPOUNDS (continued)	AND CAS a TEST NUMBER ING (If available) RE-
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(8001-35-2)	(12674-11-2)	(11096-82-5)	22P PCB-1248 (12672-29-6)	21P. PCB-1232 (11141-16-5)	20P. PCB-1221 (11104-28-2)	19P. PCB-1254 (11097-69-1)	18P_PCB-1242 (53469-21-9)	178. Heptachlor Epoxide (1024-57-3)	GC/MS FRACTION - PESTICIDES (continued)	(if available)	AND CAS NUMBER	1. POLLUTANT	CONTINUED FROM PAGE V-8
									PESTICIDES	RE- PRE-	$\mathbb{Z}^{T}$		PAGE V-8
×	×	×	×	×	×	×	×	×	(continued)	PRE- AB- SENT SENT	b. BE-   c. BE- LIEVED   LIEVED	MARK X	
										(1) CONCENTRATION	a. MAXIMUM DAILY VALUE	the second secon	
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									(10)	(1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE	3. EFFLUENT	EPA I.D. NUMBER (copy from Item 1 of Form 1) TN8640006682
								**:	A CAR SHOP	(2) MASS	YVALUE	Z	R (copy from Item 1 of TN8640006682
										CONCENTRATION	c. LONG TERM AVRG. V	The state of the s	n 1 of Form 1) 682
										(2) MASS	ALUE		OUTFALL NUMBER 002
											a. NO		UMBER 002
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							٠			b. MASS	TERM	T <sub>S</sub>	
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										YSES	b NO OF	200	

Please print (	or type in the unshaded area	as only		TN8640006682		040-0086 (pires 5/31/92	
FORM 2C NPDES	EPA	EXISTING MAI		ATION FOR PERI RING, COMMER	ONMENTAL PROTECTION AGENCY MIT TO DISCHARGE WASTEWA CIAL, MINING AND SILVICULTU lated Permits Program		ATIONS
	LL LOCATION						
or each or A. OUTF NUMBE (list)	ALL B.LA IR	TITUDE	ation to the r C. 1. DEG.	LONGITUDE	d the name of the receiving water.  D. RECEIVING WAT		
							·
	SOURCES, OF POLL						
For e waste	ach outfall, provide a de water, cooling water, an water. Continue on add	scription of: (1) All one storm water runof ditional sheets if neo	perations co ff; (2) The avecessary.	ntributing wastewater erage flow contributed	urces of water and any collection or treath to the effluent, including process wastewa by each operation, and (3) The treatment	ter, sanitary received by th	
FALL NO (list)		ERATION (list)		b. AVERAGE FLOW (include units)		b, LIST C	ODES FROM E 2C-1
MP 005	Metal cleaning was	stewater from iro	n	0.007 MGD	Chemical metal cleaning		
	and copper treatme	ent ponds. Was	te		and non-chemical (water only)		
	water treated by ba	atch and dischar	aed	<u> </u>	metal cleaning wastes are	1	
	to surface water via		×	:	treated in 2.4 and 22 acre-feet		
					ponds. Treatment includes:		
					1. pH adjustment	X	Х
					2. Mixing	1	0
		***************************************			3. Aeration	X	X
		······································			4. Chemical precipitation	2	Ĉ
.	······································	· · · · · · · · · · · · · · · · · · ·			5. Settling	1	Ū
					6. Neutralization in ash pond	2	K
					7. Discharge to surface water	4	A
					via IMP 001	T	/ \
					710 1101		
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OFFICIAL USE ONLY (effluent guidelines sub-categories)

Page V-1

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of

EPA Form 3510-2C (8-90)

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	CN	ANAL- YSES																					
	E (optional)	LUE (2) MASS																					
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Q.E.I.	~ ~~	b. MASS																					
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	C. LONG TERM AVIRG. VALUE	(if available) (1) CONCENTRATION		<del>  .</del>							for required paremeters		,					1.02					
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ELIGNT	Y VALUE	(2) MASS.				·					001 for rec		ζ										
3 2	b. MAXIMUM 30 DA	(if available) (1) (2) MASS CONCENTRATION)									See IMP 00												
	1	(2) MASS			0 400 cm one cons						<u></u>												
	a. MAXIMUM DAILY VALUE	(1) (2) MASS CONCENTRATION																2.1					
, <u>,</u> ,	BE-	LEVED AB- SENT						-															
2 MAR	a. BE-	LIEVED LIEVED PRE: AB- SENT SENT				:														25-72	district a second	1110 118 200	80.00
		ANT AND CAS NO (if available)	h. Oil and Grease	I. Phosphorus (as P), Total	Radioactivity	) Alpha, otal	(2) Beta, Total	(3) Radium, Total	(4) Radium 226, Total	k. Sulfate (as SO <sub>4</sub> ) (14808-79-8)	l, Suifide (as S)	m Sulfite (as SO <sub>4</sub> ) (14265-45-3)	n, Surfaclants	o. Aluminum, Total (7429-90-5)	p. Barium, Total (7440-39-3)	q, Boron, Total (7440-42-8)	r, Cobalt, Total (7440-48-4):	s. Iron Total (7439-89-6)	t: Magnesium, Total (7439-95-4)	u.:Molybdenum. Total (7439:98:7)	v. Manganese, Total (7439-96-5)	v. Tin Total 7440-31-5)	x Titanium, Total (7440-92-6)

ITEM V-B CONTINUED FROM PAGE V-1

Page V-2

CONTINUE ON PAGE V-3

CONTINUED FROM PAGE 3 OF FORM 2-C	FORM 2-C				1100400000082	282		300 YMI.					
- C-	industry and ins that apply		wastewater, toxic metals,	refer to Table 2c-2 cyanides, and tota	2 in the instruction of the second of the se	ctions to determine w	which of the GC to mark colum	JMS fraction In 2-a (seco	s you must I	est for. Mar	k "X" in columi	12-a for all er ouffalls, an	
nonrequired GC/N/S 2a for any pollutant,	S fractions), 1 you must pro	nomequired GCMAS factions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you must provide the results of at least one analysis for that pollutant if you.	ach pollutant ne analysis fo	you know or have or that pollutant. If	reason to bel f you mark co	for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you beleve is absent. If you mark column ast one analysis for that pollutant. If you mark column to for any pollutant, you must provide the results of at least one analysis for that pollutant if you	k "X" in columr itant; you must	12-c for each provide the	ch pollutant y	ou believe is least one an	absent. If you alysis for that	mark column	
know or have reaso the results of at lead	on to believe il st one analysi	know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. It you mark column 2b for acrolein, acrylonitrile, 2.4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise for pollutants for which you mark	of rations of 10 which you k	) ppb or greater. I now or have reasc	If you mark con to believe t	olumn 2b for acrolein hat you discharge in	, acrylonitrile, 2 concentrations	2,4 dinitrophs of 100 ppt	enol, or 2-me or greater.	sthyf4, 6 dini Otherwise fo	trophènol, you r pollutants for	must provide which you ma	
	(all 7 pages)	Commit 20, you must such a teas, the areas one areas one areas one areas one areas one are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.	eny describe tions for add	the reasons the pilional details and	ollutant is exp requirements	sected to be discharg	jed. Note that	there are 7	pages to this	part; please	review each o	arefully.	
1. POLLUTANT 2. MARK 'X'	ARK 'X'	The Toward of September 1995		3. EFFLUENT	NT				4. UNITS	ITS	5. IN	5. INTAKE (optional)	(/6
	b. BE- c. BE- LIEVEO LIEVED	a. MAXIMUM DAILY VALUE	0.80	b. Maximum 3o Day VALUE	r VALUE	c. LONG TERM AVRG. VALUE		- CN	, CASO		a LONG TERM	STERM	b. NO. OF
(if available) RE- PR		(t)	(2) MASS	(i)	(2) MASS	(1)	(2) MASS		TRATION	(miles	(1) CONCEN- (2) MA	(Z) MASS	ANAL- YSES
METALS, CYANIDE, AND TOTAL PHENOLS:	PHENOLS	CONCENTRATION	S	CONCENTRATION		CONCENTRATION		YSES			TRATION		
IM. Aritimony, Total (7440-36-0)										744			
ZM. Arsenic, Total (7440-38-2)													
3M. Beryllium. Total, (7440-41-7)													
4M. Cadmium, Total (7440-43-9)			S.	See IMP 001	for requir	for required paremeters	اي						
5M. Chromium, Total (7440:47.3)							·	ļ.					
6M: Copper: Total (7440-50-8)		0.215				0.107		8	mg/L				
77M: Lead: Total (7439-92-1)									-				
8M: Mercury, Total (7439-97-6)													
9M; Nickel, Tolal (7440-02-0)													
10M. Selenium, Total (7782.49-2)													
11tM; Silver, Total: (7440-22-4)										·			
12M Thallium: Total (7440:28:0)													
13M: Zinc, Total* (7440-66:9)													
14M. Cyanide; Total. (57±12-5)													
15M. Phenois; Total						,							
NIXOIO								\$150 Sec. 5	100000000000000000000000000000000000000				
2,3,7,8-1 etra- chlorodibenzo-P Dioxin (1764-01-6)		DESCRIBE RESULTS									-		

| EPA I.D. NUMBER (GODY from 10 eight of Form 1) eight | OUTFALL NUMBER | IMP 005 | IMP 005

	(optional) b, NO, OF	UE ANAL-				-																		_
1171	a. LONG TERM	(1) CONCENT (2) MASS	TION																					
1110	CITAL STATE	b. MASS																			-			
1 INITE		a CONCENTRATION												·										
		d NO. OF	YSES					1																
	RG. VALUE	e) (2) MASS																						
	c. LONG TERM AVRG. VALUE	(if available) (1)	CONCENTRATION				-														.)			
NT	Y VALUE	(2) MASS																						
3. EFFLUENT	b. MAXIMUM 30 DAY	(1)	CONCENTRATION															,						
	Y VALUE	(2) MASS	400																					
	a, MAXIMUM DAILY VALUE	(1)	NO LOUIS AND																					
×	c. BE- LIEVED	AB	SONDO																					1
2. MARK	a, TEST- b, BE- c. ING LIEVED LIE	RE- PRE- AB-	OLATILE COMPO		8223/544	2.550 Sec. 44					3399990000000													
1. POLLUTANT	AND CAS	(if available)	일	200 200 200 200 200	2V. Acryloritrile (107-13-1)	3V. Benzene (71-43-2)	4V. Bis ( <i>Chloro-methyl</i> ) Ether (542-88-1)	5V: Bromoform (75-25-2)	5V. Carbon Tetrachloride 56-23-5)	7V. Chlorobenzene (108-90-7)	8V. Chlorodi- bromomethane (124-48-1)	9V. Chloroethane (75-00-3)	10V. 2-Chloro- ethylvinyl Ether (110-75-8)	11V. Chloroform (67-66-3);	12V Dichloro- bromomethane (75-27-4)	13V Dichloro- difluoromethane 75-71-8)	14V. 1, 1-Dichloro- ethane (75-34-3)	15V. 1.2:Dichloro ethane (107:06-2)	16V -1;1-Dichloro- ethylene (75-35-4)	177. 1.2-Dichloro- propane (78-87-5)	18V -1,3-Dichloro- propylene (542-75-6)	19V. Ethylberzene (100-41-4)	20V::Methyl Bromide (74-83-9)	21V Methyl

CONTINUED FROM PAGE V-4  1. POLLUTANT	AND CAS NUMBER (if available)	Chloride (75-09-2)	23V. 1,1,2.2-Tetra- chloroethane (79-34-5)	24V. Tetrachloro- ethylene (127-18-4)	25V. Toluene (108-88-3)	26V. 1,2-Trans- Dictiloroethylene (156-60-5)	27.V.1.1,1.Tri- chloroethane (71-55-6)	28V. 1:1;2-Tri- chloroethane (79-00-5)	29V. Trichloro- elhylene (79-01-6)	30V. Trichloro- fluoromethane (75-69-4)	31V. Vinyl Chloride (75-01-4)	GCIMS FRACTION - ACID COMPOUNDS : 1A: 2-Chlorothenol : (95-57-8)	2A. 2,4-Dichloro- phenol (120-83-2)	34. 2.4:Dimethyl. phenol (105-67-9).	4A. 4;6-Dinitro-O- Cresol (534-52-1)	5A: 2,4-Dinitro phenol (51-28-5)	6A, 2-Nitrophenol (88-75;5)	7A: 4-Nitrophenol (100-02-7)	84. P-Chloro-M Cresol (59-50-7)	9A. Pentachloro. phenol (87-86-5)	10A. Phenol (108-95-2)	11A, 2,4(6-Trichloro- phenol (88-06-2)
age v-4 2. MARK	AND CAS	CATIEF COM						***********				COMPOUNDS					a obest 4.	. a Vlastiča				3333000
×	c. BE- LIEVED AB- SENT	AUS (conti															,					
:	a. MAXIMUM DAILY VALUE (1) (2) MA	nedj																				
	LY VALUE (2) MASS																,					
TN8640006682	b. MAXIMUM 30 AY VALUE  (If available)  (1):  (2) MAS  CONCENTRATION																					
N864000(	AY VALUE																					
3682	c. LONG TERM AVR (if available (1)	Soldings Contraction																				
	c. LONG TERM AVRG. VALUE  (f. available)  (1)  CONCENTRATION  CONCENTRATION																					
IMP 005	d. NO. OF SS ANAL- YSES					-						100 miles										
	4. UNI																					ना
	TS b. MASS	Metal persion																				
	5. INTAKE. (options a. LONG TERM A. LONG TERM AVERAGE VALUE (1) CONCEN (2) MASS																					
	b. NO. OF ANAL YSES																					

3. EFFLUENT 4. UNITS	TO MASS: (1) WALUE C. LONG TERM AVRG. VALUE (1) WASS (1) OF B. CONCEN. D. MASS	(2) MASS ANAL TRATION (2) MASS ANAL TRATION (2) CONCENTRATION (2) TRATION (3) (4) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7																					
1. POLLUTANT 2. MARK 'X' AND CAS 2 TEST. IN RE. 12 RE	NUMBER ING LIEVED LIEVED (I available) RE- AR- AR-	GCIMS-FRACTION: BASE/NEUTRAL COMPOUNDS	1B: Acenaphthene (83-32-9)	2B: Aceriaphtylene: (203-96-8)	36: Anthracene (120-12-7)	48. Benzidine (92:87:5),	5B; Befrzo (a). Anthraceme (56:55:3).	68. Beirzo ( <i>a</i> ). Pyrene (50-32-8).	7B:3.4-Benzo- fluoranthere (205-99-2)	8B Be <i>irzo (gfi)</i> Perylere (191-2 <i>4-</i> 2).	9B. Benzo/rk/)₂ Fluoranthene (207≟08-9)	10B: Bis (2-Chloro: ethoxy): Wethane (111:-91:1):	118 Bis/2-Chioro- ethyl) Ether (111-44-4).	12B Bis (2-Chloro: Isopropyl) Ether (102-60-1)	138 Bis (2:Ethyl: //exy/), Phihalate (1/17-81-77)	148 4-Bromo- phenyl Phenyl Ether (101-55-3)	15B Bittyl Be <i>hzyl</i> Phthalate (85-58-7)	168.2-Chloro- naphthalene (91:58.7)	17.8.4-Chlato- phenyl Phenyl Ether (7005-72:3)	188 Cirrysene (218-01:9)	198 Diberzo( <i>a.h</i> ) Anthracene (53:70:3)	Zub. 1/Z-Dicharon- Benzene (95-50-1)	218. 1,3-Dichloro- berzene (541-73-1)

	2- A - A													
AND CAS	Z. MAKK X TEST- b. BE- c.	H.	a. MAXIMUM DAILY	VALUE	B MAXIMIM 30 DAY VALUE	ENT	TO LOSIC TECHNO	201 1011		4. UNITS		5. [N]	ι co	
NUMBER	G LIEVED L	EVED			(if available)	a) WALUE	C. LONG IEKM AVRG. VALUE	RG VALUE	NO OF	NHONO.	0048	a.LONG		b. NO. OF
(1) AB- (1) (1) OUIRED SENT: SENT: CONCENTRATION	E- PRE- A JIRED SENT S	ENT	(1) CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	ANAL-	TRATION		(1) CONCEN- (2) MASS		ANAL- YSES
C/MS FRACTION - BAS B: 1,4-Dichloro-	E/NEUTRAL CON	APOUNDS (	continued)	X (2000)				200	3			KAIION		
benzene (106-46-7)		<u> </u>												
238. 3.3"-Dichloro- benzidine														
(91-94-1) 24B. Diethyl							-							
Phthalate (84-66-2)														
25B. Dimethyl. Phthalate		<u> </u>												
(131-11-3)														
zob, Ul-N-Bütyi Phthalate														
(84-74-2) 27B: 2,4-Dinitro-														
uene (121-14-2).														!
28B. 2,6-Dinitro- toluene (606-20-2)														
29B. Di-N-Octyl		-					Į.							
Phthalate (117-84-0)		<del>,</del>												
30B. 1.2-Diphenyl- hydrazine (as Azo-														
benzene) (122-66-7)		$\frac{1}{1}$							,					
(205-44-0)				-										
328. Fluorene (86-73-7)														
33B. Hexachlorobanzene				-										
(118-74-1)		-												
chlorobutadiene (87-68-3)														
35B. Hexachloro- cyclopentadiene														
368, Hexachloro- ethane (67,77-1)														
200 200														
3/B. Indello (1,2,3-cd) Pyrene (193-39-5)														
8. Isophorone 1:59:1)												\ \		
39B: Naphthalene (91-20-3)														
40B. Nitrobenzene (98-95-3)														
41B. N-Nitro- sodimethylamine														
(62-75-9) 42B. N-Nitrosodi-		+												
Propylamine 7														

OUTFALL NUMBER

TETA I.D. INUMBER (COPY FROM 116M 1 OF FORM 1)
TN8640006682

EPA Form 3510-2C (8-90)

		b. NO. OF	YSES	100 O									
	5 INTAKE (notional)		ြ										
	NI S	a LONG TERM	(1) CONCEN-	LEATION	A. C. W. C.								
	4. UNITS	a LONG TERM	S.										
10	4. U		a CONCEN- b MAS	20152									
OUTFALL NUMBER IMP 005		d. NO. OF	ANAL	2									
OUTFALL		RG. VALUE	(2) MASS										
1 of Form 1) 82		c. LONG TERM AVRG. VALUE (if available)	(1) CONCENTRATION:									·	
py trom Item 16400066	L	VALUE	(2) MASS										
EPA I.U. NUMBEK (copy from 11em 1 of Form 1) TN8640006682	3. EFFLUENT	b. MAXIMUM 30 DAY VALUE (if available)	(1) CONCENTRATION	_									·
П		VALUE	(2) MASS	CONTRACTOR OF THE PARTY OF THE	·								
		a. MAXIMUM DAILY VALUE	(1) CONCENTRATION	The State of the S									
	.x.	c. BE- LIEVED	AB- SENT	ntinued)									
3E V-8	2. MARK 'X	a Test- b. Be- c. Be- ING LIEVED LIEVED	- PRE-	STICIDES (cc									
CONTINUED FROM PAGE V-8	1. POLLUTANT	500,50	(if available) RE	GC/MS FRACTION - PESTICIDES (continued)	178 : Heptachlor Epoxide (1024-57-3)	18P. PCB-:1242 (53469-21-9)	19P: PCB-1254 (11097-69:1)	20P. PCB=1221 (11104-28-2)	21P: PCB:1232 (11141:16-5):	22P. PCB-1248 (12672-29-6)	23P. PCB-1260 (11096-82-5)	24P. PCB:1016 (12674-11:2)	25P. Toxaphene (8001-35-2)

Approval expires 5/31/92

FORM 2C NPDES	UL LO	EPA			NUFACTU	TION FO	R PERMI DMMERC Consolida	IT TO DISCHA IAL, MINING led Permits Progr		WATER LTURAL OPE	RATIONS
For each or	utfall, li	st the latitude	and longitu LATITUDE	de of its loc	ation to the n	earest 15 se LONGITUD	econds and	the name of the	eceiving water. D. RECEIVING V	VATER (name)	
NUMBE	ER [					2. MIN.	3. SEC.				
(list)	. 141.DR	1. DEG.	2. MIN	3. SEC.	1. DEG.	Z. WIIN.		A CARRELL AND A MANAGER AND A CARRELL SERVICE AND A CARRELL SERVIC	enegacio estalga tibulo ciunti di Vilunio - 1000000	e en	
<del> </del>											
		· ,									
									<del> </del>		<u></u> .
II. FLOWS	<u>s, sou</u>	JRCES, OF PO	DLLUTION,	AND TRE	ATMENT TEC	HNOLOGIE	is ,		rations contributing		
efflue show	ent, and ving av	d treatment un erage flows be	its labeled tween intal	to correspo kes, operati	nd to the mor	e detailed de it units, and	escriptions outfalls. If	in Item B. Consti a water balance o	rations contributing uct a water balanc annot be determin	e on the line drav ed <i>(e.g., for certa</i>	ving by iin
minin	ng activ	<i>rities</i> ), provide	a pictorial	description	of the nature	and amount	t of any sou	rces of water and	any collection or to uding process was	reatment measur	ës.
waste	ewater	, cooling water	, and storm	n water rund	off; (2) The av	erage flow o	ontributed i	oy each operation	and (3) The treat	ment received by	the
1. OUT-	28,330	Continue on 2.	OPERATIO	ON(S) CON			n 181, 1981 (1). <u>Pari 19</u> 11 (1)			TMENT	
FALL NO (list)			OPERATIO				GE FLOW e units)		ESCRIPTION		CODES FROM BLE 2C-1
		h Parking A		·····			MGD		surface water	4	A
	Abar	ndoned Ash	Pond Ar	ea Seepa	age						
					<del> </del>						
									<u></u>		
	<del> </del>					<del>                                     </del>					
									,		
	<del> </del>		• • • • • • • • • • • • • • • • • • • •								
<del></del>	<u> </u>								<del></del>		
			<del></del>			<u> </u>				<u> </u>	
	-										
										·	
				,		<u> </u>					
ı											
OFFICIAL I	ÚSE O	NLY (effluent	guidelines .	sub-categoi	ries)						

Page V-1

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.	PE IN THE UN irate sheets (u	VSHADED AREAS ON se the same format) i	NLY. You may rep nstead of completi	ort some or all of ng these pages.		EPATIO: NUMBER (copy from Item; 1 of Form 1) : TN8640006682	py from Item 1 o N86400066	f Form 1)				1
V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)	JENT CHARA	CTERISTICS (continu	ed from page 3 of	Form 2-C)							OUTFALL NO. IMP 007	9.6
PART.A - You must pro	vide the result	s of at least one analy	sis for every pollut	ant in this table. Cor	mplete one table for	able. Complete one table for each outfall. See instructions for additional details.	ructions for addit	ional details.				
2. EFFLUENT 1. POLLUTANT 8. MAXIMUM DAILY.VALUE B. MAXIMUM 30 DAY VALUE	a. MAXI	MUM DAILY VALUE	b. MAXIM	2. EFFLUENT	THE CONTRACTOR	6 I ONG TERM AVEC VALUE		3. UNITS	TS.	4. INTAKE (optional)	E (optional)	
	Ð	SW (C)		(if available)		(if available)	HO, ON .b	= 1	narik)	a LONG TERM AVERAGE VALUE	E b. NO. OF	). OF
	CONCENTRATION	TION (z) MASS	(1) CONCENTRATION	ION (Z) MASS	(1) CONCENTRATION	(2) MASS	ANALYSES	a. CONCEN- TRATION	b. MASS.	(1) (2) CONCENTRATION	MASS	YSES
a: Biochemical Oxygen: Demand (800)	\ \ \	* * * *					Ψ-	mg/L				
b Chemical Oxygen Demand	<20						\	mg/L				
c. Total Organic Carbon (700)	1.9						-	mg/L				
d. Total Suspended Solids (TSS)	28						-	mg/L				
e: Ammonia (as:N)	0.23						_	mg/L				
f:Elow	VALUE	3.75	VALUE		VALÜE		-	MGD		VALUE		
g. Temperature (winter)	VALUE	N/A	VALUE	,	VALUE			ာ့		VALUE		
h.Temperature (summer)	VALUE	26.7	VALUE		VALUE		-	၁့		VALUE		
	MINIMUM 7.0	MAXIMUM 7.1	MINIMUM	MAXIMUM			4	STANDARD UNITS	UNITS			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
PART B - Mark eithe	k "X" in column er directly, or in ide quantitativ	1.2-a for each pollutant directly but expressly, e data or an explanation	you know or have in an effluent limits on of their presence	reason to believe is ations guideline, you e in your discharge.	present. Mark "X" ir must provide the res Complete one table	column 2-b for each sults of at least one arr for each outfall. See	pollutant you be nalysis for that pot the instructions f	leve to be absent.  Ilutant. For other por additional details	If you mark col	Mark "X" in column 2:a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.	vhich is limited /ou must	
	2. MARK 'X' BE-   b. BE-	2. MARK X.C.   C.	VILY VALUE	b. MAXIMUM 30	FFLUENT DAY.VALUE	C. LONG TERM AVRG: VALUE	G. VALUE	7	. UNITS	5. INTAKE (optional	KE (optional)	
	LIEVED LIEVED. PRE: AB.	(1)	(2) MASS	(if available)	iable) (2) MASS	(if available)	e) d	d. NO. OF a. CONCEN- ANAL- TRATION	N- b.MASS			b. NO. OF
( <i>If available</i> ) a. Bromide (24959-67-9)	×	CONCENTRATION		ATION	38	CONCENTRATION	93	YSES		CONCENTRATION		1 00
b. Chlorine, Total Residual	×	< 0.05						1 mg/L				
c. Color	×	2.0						1 PC Units	l s			
d. Fecal Coliform	×											
e- 3-8)	×	0.26						1 mg/L				
f. Nitrate Nitrite (as:N)	×	< 0.10						1 mg/L				

	∴ 2. MAR	.х. ж	1.3	. 52	3. E	FFLUENT	300			4 UNITS		ENI SERVICE AND AND AND	TAKE (ontions)	
1. POLLUT- ANT AND	a, BE- b, BE- LIEVED LIEVED	b BE- LIEVED	a. MAXIMUM DAILY VALUE.	Ken	b. MAXIMUM 30 DAY-VALUE (if available)	DAY-VALUE		RG. VALUE (e)	d NO. OF	a. CONCEN-	b. MASS	a. LONG TI AVERAGE V	ERM	b. NO. OF
(if available)	SENT	SENT	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS		(Z) MASS	ANAL	TRATION		CONCENTRATION (2) MASS	(2) MASS	
g. Nitrogen, Total Organic (as.N)	×		< 0.50	,				·····	_	mg/L				
n. Oil and Grease	×		< 5.8				-		-	mg/L				
I. Phosphorus (as P), Total (7723-14-0)	×		< 0.10						-	mg/L				
j. Radioactivity		40,000,000							\$50,000,000,000 \$10,000,000,000,000,000,000,000,000,000,		Sample Court			0.0000000000000000000000000000000000000
(1) Alpha Total		×												
(2) Beta, Total		×												
(3) Radium; Total		×												
(4) Radium 226, Total		×												
k.:Sulfate (as SO <sub>4</sub> ) (14808-79-8)	×		230						-	mg/L				
t. Sulfide (as S)	×		< 0.050						-	mg/L				
m Suffile (as SO <sub>4</sub> ) (14265-45-3)	×		< 2.0						1	mg/L				
n: Surfaciants	×		< 0.10						-	mg/L				
o. Aluminum, Total (7429-90-5)	×		0.28		·				1	mg/I				
p.:Barium, Total (7440-39-3)	×		0.076						-	l/gm				
q: Baron, Total (7440-42-8)	×		0.89	`					7-	mg/l				
r. Coball, Total (7440-48-4)	×		< 0.010						<del>-</del>	mg/l				
s. Iron, I otal (7439-89-6)	×		15		••				-	l/ɓш				
t. Magnesium, Total (7439-95-4)	×		19			-			7	mg/L				
u: Molybdenum; Total (7439-98-7)	×		0.082		,				<b>~</b>	l/gm				
v. Manganese. Total (7439-96-5)	×		7					, s. Mrc.	1	mg/l				
w Tin, Total (7440-31-5)	×		090.0						<b>←</b> ,	mg/l				
x . I ifanium, Total (7440-32-6)	×		< 0.010		,				~	mg/l				·

	MS fractions ed GC/MS fr Pollutant, y	t that apply ractions), rou must pro to believe it one analysis	such GCMNS fractions that apply to your industry and for ALL (pxic inetals, oyanides, and total phenois. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and norrequired CCMNS fractions). The column 2-b for each pollutaint you believe is absent. If you mark column 2-a for any pollutaint, you must provide the results of at least one analysis for that pollutaint. If you mark column 2b for any pollutaint, you must provide the results of at least one analysis for that pollutaint. If you mark column 2b for any pollutaint, you must provide the results of at least one analysis for that pollutaint. If you mark column 2b for any pollutaint, you must provide the results of at least one analysis for that pollutaint if you mark column 2b for acrolein, acytonitrie, 24 dinitrophenol, or 2 methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutaints which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise for pollutaints for which you mark	ALL toxic me for each pollu ast one analy oncentrations	tals, cyanides, and to tant you know or hav sis for that pollutant. of 10 ppb or greater	ital phenols. I e reason to br	If you are not require	d to mark colur	nn 2-a (sec in 2-c for ea t provide th	ondary industach pollutant y	fries, nonproc ou believe is a least one and	ess wastewate absent. If you alysis for that p	r outfalls, and	
nonrequin  2a for any Know or In  the results  cotum 22	ave reason s of at least s, you must	either subm	It at least one analysis (	itants which y	the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise for pollutants for which you could be the submit at least one analysis of priefly describe the reasons the notificant is expected to be discovered. Note that there are 3 more to this not a large and the priefly describe the reasons the notified by a discovered to be discovered.	If you mark of you mark of you mark of son to believe	olumn 25 for any pol column 25 for acrolei that you discharge it	Illutant, you mus in; acrytonitrile, n concentration	2.4 dinitrop s of 100 pp	henol, or 2-m b or greater.	ethyl-4, 6 dinit Otherwise for	pollutants for	ollutant if you must provide which you ma	
Complete 1. POLLUTANT	te one table (all 7 pa	III 7 pages)	Complete one (able (all 7 pages) for each outfall. See instructions for additional details and requirements:  ANT	structions for	additional details and requ	d requirement	55			Pages to this part	pour, piedase	Teview edul C	wiew edul Calejuity. 5. INTAKE /onforto	
2011	a.TEST. 6: BE ING. LIEVED.	c. 8E. ED. LIEVED	а, МАХІМИМ DA	ILY VALUE	b. MAXIMUM 30 DAY VALUE (if available)	۹۲ VALUE ور	G. LONG TERM AVRG. VALUE. (ii available)	VRG. VALUE	d. NO. OF	a, CONCEN-	AASS	a LONG TERM AVERAGE VALUE	TERM	b, NO, OF
(if available) RE	RE. PRE. QUIRED SENT	AB- SENT	(1) CONCENTRATION	(Z) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(Z) MASS	ANAL- YSES	TRATION		(1) CONCEN- TRATION	(2) MASS	YSES
METALS, CYANIDE, AND TOTAL PHENOLS.  1M. Antimony.  Total (7440-36-0).	D TOTAL P	HENOILS	< 0.0010							1/200				
2M. Arsenic, Total (7440-38-2)	×		0.036							mg/l				
3M. Berylfum. Total: (7440-41-7)	×		< 0.0010						-	l/gm				
4M: Cadmium, Total (7440-43-9)	×		< 0.00050						7-	l/gm				
5M. Ctromium, Total (7440-47.3)	×		< 0.0010						-	l/gm				
6M. Copper, Total (7440-50-8)	×		< 0.0010						-	l/gm				
7M. Lead, Total (7439-92-1)	×		< 0.0010						<b>~</b>	l/gm				
8M. Mercury, Total (7439-97-6)	×		< 0.00020						-	mg/l				
9M: Nickel, Total (7440-02-0)	×		0.0045						-	mg/l				
10M. Selentim; Total (7782-49-2)	×		< 0.0010						-	l/gm				
11M Silver, Total (7440-22-4)	×		< 0.00050				The state of the s		~	mg/l				
12M. Thalfium, Total (7440-28-0)	×		< 0.0010						-	mg/l	1			
13M. Zinc, Total (7440-66-6)	×		0.012						-	mg/l				
14M. Cyanide, Total (57-12-5).	×		< 0.0050						_	l/gm				
(5M. Phenols, Total	×		< 0.040						_	l/gm				
DIOXIN														
2,3,7,8-1,etra- chlorodiberizo-P		>	DESCRIBE RESULTS	S										

1. POLLUTANT AND CAS	a. TEST- b. BE-	ζ.Χ. c. BE-	a. MAXIMUM DAILY VALU		3. EFFLUENT b. MAXIMUM 30 DAY VALUE	NT Y VALUE	G. LONG TERM AVRG. VALUE	G. VALUE		4. UNITS		5. INTAKE (oplic	TERM	a/) b. NO. OF
nomber (ff.available)	RE- PRE- QUIRED SENT	CIEVED CIEVED PRE. AB. D. SENT SENT	(1) CONCENTRATION	(Z) MASS	(1) CONCENTRATION	(z) MASS	(# available (1) CONCENTRATION	(2) MASS	ANAL.	TRATION	D. MIASS	(1) CONCEN- TRATION	VALUE (2) MASS	ANAL- YSES
GC/MS FRACTION - VC	-VOLATILE COMF	SONDO				1000			SASSESSES	\$7030000000				
(107-02-8)	×		< 0.050						_	mg/l				
ZV, Actylonitrile (107:13:1)	×		< 0.010						-	l/gm				
3V. Benzene (71-43-2)	×		<0.0010						-	- I/BW				
4V. Bis.(Chloro- methyl) Ether (542-88:1)		×												
5V. Bromoform (75-25-2)	×		< 0.0010						-	l/gm	!			
6V. Carbon Tetrachloride (56-23-5)	×	:	< 0.0010						1	mg/l				
7V. Chlorobenzene (108-90-7)	×		< 0.0010		•				1	l/gm				
8V: Chlorodi- bromomethane (124-48-1)	×		< 0.0010		·				1	l/gm				
9V. Chloroethane (75-00-3)	×		< 0.0050						1	l/gm				
10V: 2-Chioro- ethylvinyl Ether (110-75-8)	×		< 0.050			-			1	.l/gm				
11V. Chloroform (67-56-3)	×		< 0.0050						1	l/gm				
12V. Dichloro- bromomethane (75-27-4)	×		< 0.0010				i i		-	mg/l				
13V. Dichloro- difluoromethane (75-71-8)	×		< 0.0050						<b>-</b>	mg/l				
14V 1.1-Dichloro- ethane (75-34-3)	×		< 0.0010						-	mg/l		,		
15V, 1,2-Dichloro- ethane (107-06-2)	×		< 0.0010						<b>—</b>	mg/l				
16V. 1,1-Dichloro- ethylene (75-35-4)	×		< 0.0010						1	mg/l				
17V, 1,2-Dichloro: propane (78-87-5).	×		< 0.0010						1	mg/l				
18V 1,3-Dichlaro- propylene (542:75-6)	×		< 0.0020				-		-	mg/l				
19V: Ethylbertzene (100-41-4)	×		< 0.0010			٠, ٠			1	mg/l				
20V. Methyl Bromide (74-83-9)	×		< 0.0050					·	-	mg/l				
21V. Methyl Chloride (74-87-3)	×		< 0.0010						-	l/gm				

X: c. BE- LIEVED	K.X; a. MAXIMINI, DAILY VALUE:  10. ILEVED		c. LONG. TERM AVR( (if available)	g	8 O E	4. UNITS ONCEN- b. MASS AATION	5. INTAKE (optional) a. LONG TERM AVERAGE MALUE (1) CONCENT (2) MASS	b. NO. OF ANAL- YSES
CONCENTRATION		CONCENTRATION	CONCENTRATION				TRATION	3
< 0.0010					1 mg/l	//		
< 0.0010					1 mg/l	//		
< 0.0010					1 mg/l	1/		
< 0.050					1 mg/l	W		
< 0.0010					1 mg/l	1/		
< 0.0010				·	1 mg/l	l l		
< 0.0010					1 mg/l	l.		
< 0.0010					1 mg/l	l/		
< 0.0010					1 mg/l	l.		
< 0.010					1 mg/l	1/		
< 0.010					1 mg/l			
< 0.010					1 mg/l	l.		
< 0.0010					1 mg/l			
< 0.010					1 mg/l	V		
< 0.0010					1 mg/l	"		
< 0.010					1 mg/l	I/		
< 0.010					1 mg/l	II.		
< 0.0010					1 mg/l			
< 0.0010					1 mg/l	1/		
< 0.0010					1 mg/l	l/		
< 0.0010					1 mg/l	1/		

E. a. MAX	GIMUM DAI	in in	EPA I.D. NUMBER (copy from liem 1 of Form 1) TN8640006682 3. EFFLUENT b. MAXIMUM 30 DAY VALUE	36400668 1000668 10000688	RM AVR	OUTFALL NUMBER IMP 007	IMP 007	4. U	
NUMBER ING LIEVED LIEVED  (if available) RE PRE AB (1)  QUIRED SENT SENT CONCENTATION  GCIMS FRACTION - BASEINEUTRAL COMPOUNDS (continued)	MASS.	7] 《紹耀第	(if available) (1) (CONCENTRATION	2) MASS	(if evailable) (1) CONCENTRATION	(2) MASS	d. NO. OF ANAL- YSES	a concent b Mass Tration	(1) CON TRATIC
		I					-	l/gm	
< 0.010							<b>~</b>	mg/l	
< 0.0010							1	mg/l	,
< 0.0010		-					-	l/gm	
< 0.0010							-	mg/I	
< 0.010							-	l/gm	
< 0.010				,			-	l/gm	
< 0.0010							-	mg/l	
< 0.010							-	l/gm	
< 0.0010							~	l/gm	,
< 0.0010							-	mg/I	
< 0.010							~	l/bm	
< 0.010				`			<b>—</b>	mg/I	
< 0.010							-	mg/l	
< 0.010							-	l/gm	
< 0.0010							-	l/bm	
< 0.010							-	l/gm	
< 0.0010							<b>←</b>	mg/I	
< 0.010							-	l/gm	
< 0.050							-	l/gm	
< 0.010							1	mg/l	

1. POLLUTANT	1 2. MAR	X.X.		1.0	3. EFFLUE	LN				STINIT P	SLI	TIMI A	AKE (options	
AND CAS	a. IESI- b. BE ING LIEVE	o. BE-	a. MAXIMUM DAILY VALUE	/ VALUE	b. MAXIMUM 30 DAY VALUE (if available)	r VALUE	c. LONG TERM AVRG. VALUE	(G. VALUE	d. NO. OF	S CON	MASS	a LONG	a LONG TERM AVERAGE VALUE	b, NO. OF
(if available)	RE- PRE-	AB. SENT	RE PRE AB- (1) QUIRED SENT CONCENTRATION:	(Z) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	ANAL	TRATION		(1) CONCEN- (2) MAS	(2) MASS	YSES
GC/MS FRACTION - B/ 43B; N-Nitro-	ASE/NEUTRAE	COMPOUN			N. Bakkilla and M. A. Bryandella and		A STATE OF THE STA	e ja geografia		remember of the	**************************************			
sodiphenylämine (86-30-6)	×		< 0.010						~	l/gm				
44B. Phenanthrene (85-01-8)	×		< 0.0010						-	l/gm				
45B: Pyrene (129-00-0)	×		< 0.0010						-	l/gm				
46B. 12.4 - Tri- chloroberizene X	×		< 0.010						-	l/gm				
GC/MS FRACTION : PI	ESTICIDES			\$ 100 mg					(4) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1		47 P.			200
1P. Aldrin (309-00-2)		×												
2P. a-BHC (319-84-6)		×												
3P_B-BHC (319-85-7)		×												
4P: y-BHC (58-89-9)		×												
5P. & BHC (319-86-8)		×												
6P. Chlordane (57-74-9)		×												
7P. 44:DDT (50-29-3)		×												
8P. 4,4:DDE (72-55-9)		×												
9P-4.4-DDB (72-54-8)		×												
10P. Dieldrin. (60-57-1)		×												
11P.: α-Endosulfan (115-29-7)		×		·										
12P. B-Endosulfan (115-29-7)		×												
13P. Endosulfan Sulfate (1031-07-8)		×												
14P. Endrin (72-20-8)		×												
15P. Endrin Aldehyde (7421-93-4)		×												
16P: Heptachlor (76-44-8)		×		·										
														1

OV TO ACI MOCOTION TIME TO CO.				<u></u>	EPA I.D. NÜMBER (copy from Item 1 of Form 1) TN8640006682	R (copy from Item 1 of TN8640006682		OUTFALL NUMBER IMP 00	IUMBER IMP 007				
1. POLLUTANT	2. MARK 'X'	i×			3 FFFI LIENT					0.1111			
AND CAS NUMBER	b. BE- LIEVED	c. BE- LIEVED	a. MAXIMUM DAILY VALUE	VALUE	b. MAXIMUM 30 DAY VALUE	ALUE	c. LONG TERM AVRG. VALUE			a LONG TERM	is s	potion	a/) b, NO. OF
(if avaitable)	PRE-	AB-	(1)	(2) MASS	_	(2) MASS	(ii available)	(2) MASS	ANAL-	AVERAGE VALUE  a. CONCEN-   b. MASS	SS (1) CO	AVERAGE VALUE	ANAL-
GC/MS FRACTION - PESTICIDES (continued)	PESTICIDES (con	(juned)	CONCENTRATION		CONCENTRATION		CONCENTRATION	200 Company (S)		TRATION			}
17B. Heptachlor Epoxide (1024-57-3)	a princes	×											
18P: PCB::1242 (53469-21-9)	3883380-20-	×											
19P. PCB:1254 (11097-69-1)	g postpono m	×											
20P. PCB-1221 (11104-28-2)		×	•				-						
21P, PCB-1232 (1:1141-16-5)		×											
22P. PCB-1248 (12672-29-6)	Signizore	×											
23P: PCB-1260 (11096-82-5)	uran para sa	×											
24P. PCB-1016 (12674-11-2)		×											
25P   loxaphene (8001-35-2);	200000000000000000000000000000000000000	×					2						

(0.032 MGD)

(-0.016 MGD)

Direct Precipitation

Less Evaporation

C Except for storm runoff, leaks, or spills, seasonal?  Yes (complete the following Outfall Number	ng (table)  1. Frequency  a. Days  Per Week  (specify  (specify  (specify)	cribed in Item III-A be intermitted  (go to item IV)  Months a Maximum Daily Flow Rate (in mgd)	2. Flow  b. Maximum  Total Volume  (specify  with units)	c. Duration (In days)
Number:	(specify (sp	pecify Rate	(specify	(in days)
		·	`	
IV. Production				
If there is an applicable production-based effluent guidelin actual production level, not design), expressed in the term first 3 years of operation. If production is likely to vary, you a Quantity Per b. Units of Pay Measure	ms and units used in the applicable ou may also submit alternative estin	effluent guideline or NSPS, for ea	ich of the	
N/A				

CONTINUED FROM THE FRONT	PA ID Number (copy from Item 1 of Form 1)	Outfall Number	
		•	
	TN 8640006682	002	

#### V. Effluent Characteristics

A, and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary

#### General Instructions (See table 2D-2 for Pollutants)

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

The state of the s			
1. Pollutant	2. Maximum Dally Valué (include units)	3 Average Daily Value (include units)	4. Source (see instructions)
Biochemical oxygen demand	<5.0 mg/L	<5.0 mg/L	4 (Form 2C -KIF 002)
Chemical oxygen demand	<20 mg/L	<20 mg/L	4 (Form 2C -KIF 002)
Total organic carbon	3.4 mg/L	3.4 mg/L	4 (Form 2C -KIF 002)
Total suspended solids	9.8 mg/L	9.8 mg/L	4 (Form 2C -KIF 002)
Flow	1395 MGD	1297.864 MGD	4 (Form 2C and flow schematic - KIF 002)
Ammonia as nitrogen	<0.10 mg/L	< 0.10 mg/L	4 (Form 2C -KIF 002)
Temperature (winter)	29.2 degrees C	18 degrees C	4 (Form 2C - reflects historical data -KIF 002)
Temperature (summer)	32.1 degrees C	28.4 degrees C	4 (Form 2C - reflects historical data -KIF 002)
рН	range 6.7 - 8.2 s.u.	N/A	4 (Form 2C - reflects historical data -KIF 002)
Fluoride	2.4 mg/L	2.35 mg/L	3 (Monitoring data for Cumberland Fossil Plant(CUF.))
Nitrate-Nitrite (as N)	0.19 mg/L	0.19 mg/L	4 (Form 2C -KIF 002)
Oil & Grease	<5.5 mg/L	< 5.5 mg/L	4 (Form 2C -KIF 002)
Phosphorus (as P), Total	<0.10 mg/L	<0.10 mg/L	4 (Form 2C -KIF 002)
Sulfate (as SO <sub>4</sub> )	28 mg/L	28 mg/L	4 (Form 2C -KIF 002)
Sulfide (as S)	< 0.02 mg/L	< 0.02 mg/L	3 (Form 2C for CUF)
Iron, Total	0.30 mg/L	0.30 mg/L	4 (CUF rim ditch & KIF CCW data)
Nickel, Total	0.0023 mg/L	0.0023 mg/L	4 (CUF rim ditch & KIF CCW data)
Color	3 PC Units	3 PC Units	4 (Form 2C -KIF 002)
Aluminum, Total	0.55 mg/L	0.55 mg/L	4 (CUF rim ditch & KIF CCW data)
Barium, Total	0.051mg/L	0.051 mg/L	4 (Form 2C -KIF 002)
Boron, Total	<0.2 mg/L	<0.2 mg/L	4 (CUF rim ditch & KIF CCW data)
Magnesium, Total	11.5 mg/L	11.5 mg/L	4 (CUF rim ditch & KIF CCW data)
Molybdenum, Total	0.0075 mg/L	0.0075 mg/L	4 (Form 2C -KIF 002)
Manganese, Total	0.053 mg/L	0.053 mg/L	4 (CUF rim ditch & KIF CCW data)

CONTINUED FROM THE FRONT	EPA ID Number (copy from Item 1 of Form 1)	Outfall Number	
	TN 8640006682	002	
			e minimum management

A, and B. These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

#### General Instructions (See table 2D-2 for Pollutants)

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

	Tarana and a same		
1. Pollutant	2: Maximum Dally Value (include units)	3 Average Daily Value (include units)	4. Source (see instructions)
Antimony, Total	<0.001 mg/L	<0.001 mg/L	4 (Form 2C -KIF 002)
Arsenic, Total	0.001 mg/L	0.001 mg/L	4 (CUF rim ditch & KIF CCW data)
Cadmium, Total	<0.0005 mg/L	<0.0005 mg/L	4 (CUF rim ditch & KIF CCW data)
Chromium, Total	0.007 mg/L	0.007 mg/L	4 (CUF rim ditch & KIF CCW data)
Mercury, Total	<0.00005 mg/L	< 0.00005 mg/L	4 (CUF rim ditch & KIF CCW data)
Lead, Total	<0.001 mg/L	<0.001 mg/L	4 (CUF rim ditch & KIF CCW data)
Selenium, Total	<0.0010 mg/L	<0.0010 mg/L	4 (CUF rim ditch & KIF CCW data)
Copper, Total	<0.001 mg/L	<0.001 mg/L	4 (CUF rim ditch & KIF CCW data)
Silver, Total	<0.0005 mg/L	<0.0005 mg/L	4 (CUF rim ditch & KIF CCW data)
Zinc, Total	<0.01 mg/L	<0.01 mg/L	4 (CUF rim ditch & KIF CCW data)
,			
			·
		·	

CONTINUED FROM THE FRONT	EPA ID Number (copy from Item 1 of Form 1)		
	TN 8640006682		
C Use the space below to list any of the	e pollutants listed in Table 2D-3 of the instructions w	yhich you know or have.	
reason to believe will be discharged	from any outfall. For every pollutant you list, briefly		
believe it will be present.	The Control of State		
1. Pollutant	2. Reason for Discharge		
Managhina nantasida		(0.0.0)	
Vanadium pentoxide	Present in catalyst used in the selective catalytic reduction	on (SCR) equipment used to	
	control NOx air emissions.		.
	•		
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		**************************************	
•		enalt of	i
•	·		
		· ·	
	·	ar.	
		•	
			,
VI. Engineering Report on Wastewater Treatme			
If there is any technical evaluation co pilot plant studies, check the appropri	ncerning your wastewater treatment; including engir	neering reports or	
Report Avail			
B. Provide the name and location of any	existing plant(s) which, to the best of your knowledge	ge: resembles this	
	duction processes, wastewater constituents, or wast		
Name	Location		
Cumberland Fossil Plant	   815 Cumberland City Road, Cumberland City, Tennesse	9	
	·		

á	V	(1.30	Ot	her	n	fo	rn	nat	ìo	n	0	ptie	onal

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

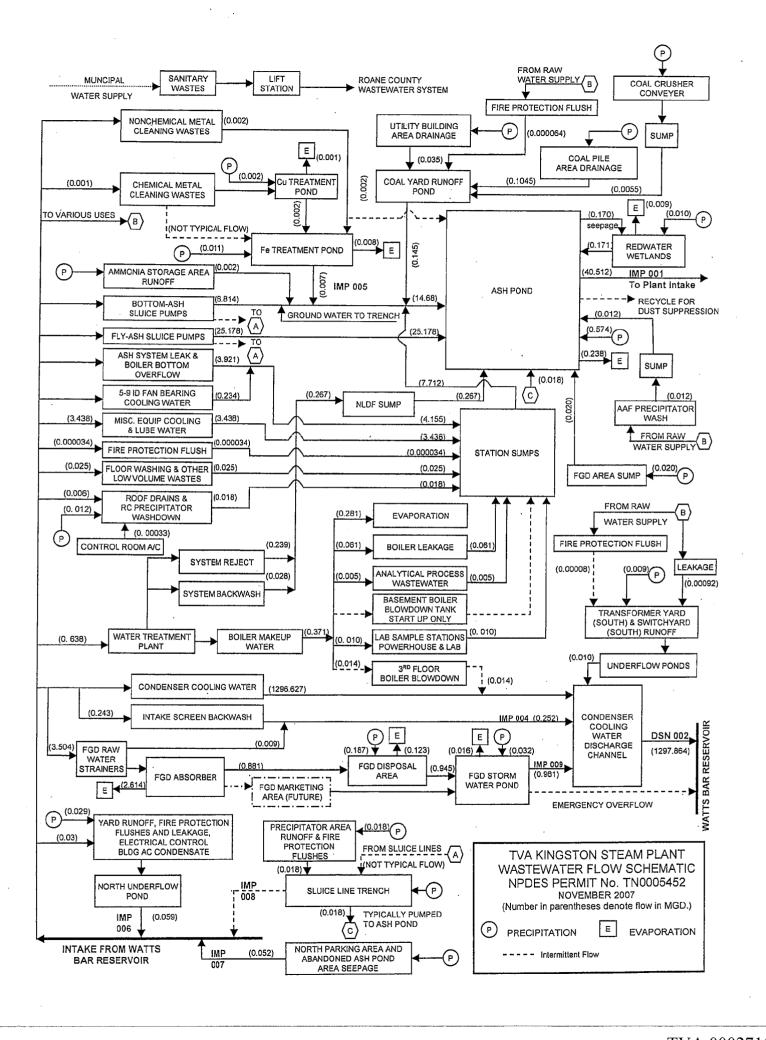
FGD wastewater is a low volume waste source per 40 CFR Part 423. Other low volume waste sources are currently treated in the ash pond (IMP 001) which is discharged via DSN 002.

KIF's FGD system is not expected to cause appreciable effluent toxicity, exceedances of current permit limitations, or significantly increase instream concentrations of metals.

I. Ce		

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Official Title (type or print)	B. Phone No.
Michael T. Beckham, Plant Manager	(865) 717-2500
C. Signature	D. Date signed
Mill T. Bulk	11/30/07



N/A

30.1

°C

°C

\*If noncontact cooling water is discharged

Page 1 of 2

Temperature (Winter)

Temperature (Summer)

VI. Treatment System (Describe bitely any treatment system(s) used or to be used)  NONE  All Other Information (Octorish)  Use the speeds believe aspeared upon any of the above questions or to bring to the information of the reviewer any other information you feel should be considered it shallfalling permit limitation. Again additional sheets, if a cossessory  I certification	V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?	
All. Other Information (Optional Leader Lead	If yes, briefly describe the frequency of flow and duration.	Yes X No
All. Other Information (Optional Leader Lead		
All. Other Information (Optional Leader Lead		
All. Other Information (Optional Leader Lead		
All. Other Information (Optional Leader Lead		
All. Other Information (Optional Leader Lead		
All. Other Information (Optional Leader Lead		
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Alli. Certification  I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gether and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am evuer that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.  Name & Official Title  Michael T. Beckham, Plant Manager  D. Date Signed	Use the space below to expand upon any of the above questions or to bring to the attention of the	e reviewer any other information you feel
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EPA Form 3510-2E (9-86)

Page 2 of 2



# Tennessee Department of Environment and Conservation Division of Water Pollution Control 401 Church Street, 6<sup>th</sup> Floor L & C Annex Nashville, TN 37243-1534 Phone: (615)532-0625

PERMIT CONTACT INFORMATION

Please complete all section	ns. If one person serves multiple functions, please	o voncot this informati	on in each postic			
i lease complete an section	us. If one person serves multiple functions, please	e repeat this informati	on in each sectio	n.		
PERMIT NUMBER:	TN0005452	DATE:	November 2	007		
PERMITTED FACILITY	: Tennessee Valley AuthorityKingston Fossil Pla	nt COUNTY:	Roane			
OFFICIAL PERMIT CO	NTACT:					
(The permit signatory author	rity, e.g. responsible corporate officer, principle executi	ve officer or ranking elec	eted official)			***************************************
Official Contact:	Michael T. Beckham	Title or Position:	F	Plant Manage:	r	
Mailing Address:	714 Swan Pond Road	City: Har	riman	State: TN	Zip: 377	748
Phone number(s):	(865) 717-2500	E-mail:	mtbecl	kha@tva.gov		· ·
PERMIT BILLING ADD	RESS (where invoices should be sent):					
Billing Contact:	Gordon G. Park	Title or Position:	ManagerEr	nvironmental	Complian	ce
Mailing Address:	1101 Market Street, LP 5D	City: Chatt	anooga	State: TN	Zip: 374	102
Phone number(s):	(423) 751-2806	E-mail:	ggpai	rk@tva.gov	,	
FACILITY LOCATION	actual location of permit site and local contact fo	r site activity):				
Facility Location Contact:	Cynthia W McCowan	Title or Position: P	rogram Adm	inistrator (Er	vironment	tal)
Facility Location (physical	street address): 714 Swan Pond Road	City: Har	riman	State: TN	Zip: 377	48
Phone number(s):	(865) 717-2180	E-mail:	cowel	ob@tva.gov		
Alternate Contact (if desire	ed):	Title or Position:				
Mailing Address:		City:		State:	Zip:	
Phone number(s):		E-mail:				
FACILITY REPORTING	(Discharge Monitoring Report (DMR) or other i	reporting):				
Cognizant Official authorize	ed for permit reporting: Plant Manager (By Title)	Title or Position:	Plant Manag	ger (currently Beckham)	Michael T	`
Facility Location (physical		City: Harr	riman	State: TN	Zip: 377	48
Phone number(s):	(865) 717-2500	E-mail:	mtbeck	ha@tva.gov		
Fax number for reporting:	(865) 717-2505	Does the facility ha electronic Di	ve interest in start MR reporting?*	ing Y	es 🛭 N	lo*
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RDAs 2352 AND 2366

# Results of Biological Monitoring in the Vicinity of Kingston Fossil Plant During Autumn 2001, 2003, and 2005 in Support of a Continued 316(a) Thermal Variance

#### Introduction

Section 316(a) of the Clean Water Act allows point-source discharges of heated water to exceed State water quality thermal criteria based on demonstrating maintenance of "Balanced Indigenous Populations" (BIP) of aquatic life. Kingston Fossil Plant (KIF) is operating under a 316(a) thermal variance that has been administratively continued with each permit renewal based on studies conducted in the mid 1970s and additional monitoring results. The requirement for conducting 316(a) studies in Tennessee comes from EPA Region IV guidance to the States requiring future variance requests be granted on new data generated to show aquatic communities meet the BIP standard. In a letter from TVA Fossil Power Group to the Tennessee Department of Environment and Conservation (TDEC) dated May 9, 2001, TVA proposed reservoir fish assemblage index (RFAI) studies for continuance of thermal variances. Tennessee approved the RFAI studies on September 17, 2001. Based on that agreement RFAI samples are taken once every two years to demonstrate that KIF operation is not impacting BIP. The purpose of this document is to summarize results from monitoring conducted in 2001, 2003, and 2005.

TVA initiated a Valley-wide reservoir Vital Signs (VS) monitoring program in 1990 to evaluate ecological conditions in major reservoirs. At the core of this monitoring effort is a multi-metric approach to data evaluation. Five environmental indicators are used: dissolved oxygen, chlorophyll, sediment quality, benthic macroinvertebrate community, and the fish community. In the beginning, specific evaluation techniques had to be developed for each indicator. The outcome of this effort was development of multi-metric evaluation techniques for the fish assemblage (Reservoir Fish Assemblage Index - RFAI), as described below. These multi-metric evaluation techniques have proven successful in TVA's monitoring efforts as well as other Federal and State monitoring programs and form the basis of evaluating these monitoring results.

#### Methods

#### Sampling Locations

Two sample locations, one upstream and one downstream of the plant discharge, were selected in upper Watts Bar Reservoir. The KIF discharge enters the Watts Bar Reservoir at approximate Clinch River Mile (CRM) 2.5. For the fish community, the upstream sample site was centered at CRM 4.4, and the downstream site was centered at CRM 1.5.

TVA's VS program has four sample sites on Watts Bar Reservoir (Forebay TRM 531.0, Transition TRM 560.8, Tennessee River Inflow TRM 601, Clinch River Inflow CRM 22.0), one of which (Transition) is relatively close to KIF. The VS reservoir inflow sample site in the Tennessee River is near Fort Loudoun Dam, while the Clinch River inflow sample site is near Melton Hill Dam (MHD).

#### Fish Community

Fish samples for upstream and downstream locations in upper Watts Bar Reservoir consisted of fifteen 300-meter electrofishing runs (approximately 10 minutes duration) and ten experimental gill net sets (five 6.1 meter panels with mesh sizes of 2.5, 5.1, 7.6, 10.2, and 12.7 cm) per site. Attained values for each of the 12 metrics were compared to reference conditions for transition zones of lower mainstream Tennessee River reservoirs and assigned scores based upon three categories hypothesized to represent relative degrees of degradation: least degraded --5; intermediate --3; and most degraded --1. These categories are based on "expected" fish community characteristics in the absence of human-induced impacts other than impoundment. Individual metric scores for a site are summed to obtain the RFAI score. Comparison of the attained RFAI score from the potential impact zone to a predetermined criterion has been suggested as a method useful in identifying presence of normal community structure and function and hence existence of BIP. For multi-metric indices, two criteria have been suggested to ensure a conservative screening of BIP. First, if an RFAI score reaches 70% of the highest attainable score (adjusted upward to include sample variability), and second, if fewer than half of RFAI metrics potentially influenced by thermal discharge receive a low (1) or moderate (3) score, then normal community structure and function would be present indicating that BIP existed, and, hence, the heated discharge would meet screening criteria and no further evaluation would be needed. The range of RFAI scores possible is from 12 to 60. As discussed in detail below, the average variance for RFAI scores in TVA reservoirs is 6 (± 3). Therefore, any location that attains an RFAI score of 45 (42 + our upward sample variance of 3) or higher would be considered to have BIP. It must be stressed that scores below this endpoint do not necessarily reflect an adversely impacted fish community. The endpoint is used to serve as a conservative screening level, i.e., any fish community that meets these criteria is obviously not adversely impacted. RFAI scores below this level would require a more in-depth look to determine if BIP exist. An inspection of individual RFAI metric results would be an initial step to help identify if KIF operation is a contributing factor. This approach is appropriate if a validated multi-metric index is being used and scoring criteria applicable to the zone of study are available.

Upstream/downstream stations can be used to identify if KIF operation is adversely impacting the downstream fish community. A similar or higher RFAI score at the downstream site compared

to the upstream (control) site is used as one basis for determining presence/absence of KIF operational impacts on the resident fish community. Definition of "similar" is integral to accepting the validity of these interpretations. The Quality Assurance (QA) component of VS monitoring deals with how well the RFAI scores can be repeated and is accomplished by collecting a second set of samples at 15-20% of the sites each year. Experience to date with the QA component of VS shows that comparison of RFAI index scores from 54 paired sample sets collected over the past seven years range from 0 to 18 points, the 75<sup>th</sup> percentile is 6, the 90<sup>th</sup> percentile is 12. The mean difference between these 54 paired scores is 4.6 points with 95% confidence limits of 3.4 and 5.8. Based on these results, a difference of 6 points or less is the value selected for defining "similar" scores between upstream and downstream fish communities. That is, if the downstream RFAI score is within 6 points of the upstream score, the communities will be considered similar and it will be concluded that KIF has had no effect. It is important to bear in mind that differences greater than 6 points can be expected simply due to method variation (25% of the OA paired sample sets exceeded that value). When such occurs, a metric by metric examination will be conducted to determine what caused the difference in scores and the potential for the difference to be thermally related.

This report incorporates recent (December 2002) modifications of RFAI metrics, following the collection of 2002 data. These refinements should make the index even more reflective of reservoir conditions. Current and historical RFAI values presented in this report are based on the refined metrics.

#### Results

#### Fish Community

RFAI 2001 results from the site downstream of KIF were close, but did not exceed the 70% BIP criteria, adjusted upward to include sample variability (i.e., RFAI score ≥45), indicating that the resident fish community below the KIF discharge was slightly below the screening level in autumn 2001. Table 1 provides individual metric scores and the overall RFAI score for upstream and downstream stations. These values (42 for downstream and 45 for upstream) were within the 6 point acceptable variation. Resident fish communities at these locations reached 70.0 and 75.0 percent of their potential, respectively. Therefore, it can be concluded that the KIF heated effluent is not adversely impacting the resident fish community in the Watts Bar Reservoir in the vicinity of the plant discharge. Electrofishing and gill netting catch rates for individual species from both sites in 2001 are listed in Table 4. No State or Federal protected fish species were collected or are known to occur in the vicinity of KIF.

As in 2001, RFAI results from both sampling sites near KIF were close, but failed to exceed the 70% BIP criteria in 2003. However, RFAI scores of 44 and 42 for downstream and upstream sites, respectively, indicated good fish communities at both sites (Table 2). Resident fish communities at these locations reached 73.3 and 70.0 percent of their potential, respectively. Since the RFAI scores were within the 6 point acceptable variation, it can be concluded that the KIF heated effluent is not adversely impacting the resident fish community in the Watts Bar Reservoir in the vicinity of the plant discharge. Electrofishing and gill netting catch rates for individual species from both sites in 2003 are listed in Table 5.

RFAI results in 2005, as in 2003, were close, but again failed to meet the 70% BIP criteria, showing the resident fish community in the vicinity of the KIF discharge was slightly below the screening level. However, RFAI scores of 43 and 44 for downstream and upstream samples, respectively, still indicated good fish communities at both sites (Table 3). Because RFAI scores were within the 6 point acceptable variation, it can be concluded that the KIF heated effluent is not adversely impacting the resident fish community in the Watts Bar Reservoir in the vicinity of the plant discharge. Resident fish communities at these locations reached 71.1 and 73.3 percent of their potential for downstream and upstream sites, respectively. Electrofishing and gill netting catch rates for individual species from both sites in 2005 are listed in Table 6.

RFAI scores obtained from VS monitoring sites located upstream and downstream of the KIF discharge, though not in the immediate vicinity, over the past several years revealed similar fish community results (Table 7). The nearer VS downstream site was approximately 10 river miles below the KIF discharge and the VS site on the Clinch River was 21 river miles upstream from KIF. Since 1993, the average RFAI score for the upstream site on the Clinch River was 41.7 and the upstream site on the Tennessee River was 45.1 (69.5 and 75.2% of the maximum score, respectively). Averages for two downstream sites were 45.4 and 42.6 (75.7 and 71.0 % of the maximum score, respectively). All the score averages for the Tennessee River stations indicate good fish communities, and the nearest downstream Watts Bar Reservoir average met the adjusted 70% criteria for designation as BIP. The Clinch River inflow station rated slightly (0.5%) below that criteria. These data indicate that the plant discharge is not adversely impacting the broader fish community of upper Watts Bar Reservoir.

Table 1. Individual metric scores and the overall Reservoir Fish Assemblage Index (RFAI) scores for upstream and downstream sites of Watts Bar Reservoir in the vicinity of the Kingston Fossil Plant discharge, fall, 2001.

		Down	Downstream		stream
			M 1.5	CRM 4.4	
Metric	Sample Gear	Obs	Score	Obs	Score
A. Species richness and composition					
1. Number of species	•	33	5.0	33	5.0
2. Number of centrarchid species		8	5.0	8	5.0
3. Number of benthic invertivores		3	1.0	5	3.0
4. Number of intolerant species		5	5.0	6	5.0
5. Percent tolerant individuals	Electrofishing	83.52	0.5	81.49	0.5
	Gill Netting	27.71	1.5	22.54	1.5
6. Percent dominance by 1 species	Electrofishing	44.92	0.5	51.95	0.5
	Gill Netting	16.88	1.5	16.90	1.5
7. Percent non-native species	Electrofishing	1.88	2.5	4.33	1.5
	Gill Netting	7.36	1.5	4.69	2.5
8. Number of top carnivore species		11	5.0	10	5.0
B. Trophic composition					
9. Percent top carnivores	Electrofishing	10.85	1.5	12.34	2.5
	Gill Netting	41.99	1.5	44.13	1.5
10. Percent omnivores	Electrofishing	25.11	1.5	15.15	2.5
	Gill Netting	45.02	1.5	45.07	• 1.5
C. Fish abundance and health					
l 1. Average number per run	Electrofishing	78.07	0.5	61.60	0.5
	Gill Netting	23.10	1.5	21.30	1.5
12. Percent anomalies	Electrofishing	1.02	2.5	1.41	2.5
	Gill Netting	1.73	2.5	2.35	1.5
RFAI		· · · · · · · · · · · · · · · · · · ·	42		45
			Good		Good

Scored with transition criteria

Table 2. Individual metric scores and the overall Reservoir Fish Assemblage Index (RFAI) scores for upstream and downstream sites of Watts Bar Reservoir in the vicinity of the Kingston Fossil Plant discharge, fall, 2003.

			stream	Ups	stream
	- p		M 1.5	CRM 4.4	
Metric	Sample Gear	Obs	Score	Obs	Score
A. Species richness and composition					
1. Number of species		33	5	34	, 5
2. Number of centrarchid species		7	5	7	5
3. Number of benthic invertivores		4	3	5	. 3
4. Number of intolerant species		6	5	7	5
5. Percent tolerant individuals	Electrofishing	75.8	0.5	72.1	0.5
	Gill Netting	24.5	1.5	33.3	0.5
6. Percent dominance by 1 species	Electrofishing	43.8	0.5	32.8	1.5
	Gill Netting	14.7	1.5	26.4	1.5
7. Percent non-native species	Electrofishing	2.3	2.5	1.8	2.5
·	Gill Netting	9.8	0.5	12.0	0.5
8. Number of top carnivore species		12	5 .	· 12	5
B. Trophic composition					
9. Percent top carnivores	Electrofishing	6.7	1.5	10.0	1.5
	Gill Netting	52.4	2.5	39.4	1.5
10. Percent omnivores	Electrofishing	27.3	1.5	30.4	1.5
	Gill Netting	37.1	1.5	51.9	0.5
C. Fish abundance and health	<b>V</b>			-	
11. Average number per run	Electrofishing	54.9	0.5	60.0	0.5
•	Gill Netting	14.3	1.5	21.6	1.5
12. Percent anomalies	Electrofishing	0.1	2.5	0.2	2.5
	Gill Netting	0.0	2.5	0.0	2.5
RFAI			44		42
		•	Good		Good

Scored with transition criteria

Table 3. Individual metric scores and the overall Reservoir Fish Assemblage Index (RFAI) scores for upstream and downstream sites of Watts Bar Reservoir in the vicinity of Kingston Fossil Plant discharge, fall, 2005.

	,	Down	stream	Ups	tream
			M 1.5	CR	M 4.4
Metric	Sample Gear	Obs	Score	CRI Obs  32 6 7 7 77 22.9 36.1 11 2 16.5 10  11.1 42.2 39 33.9 71 10.9	Score
A. Species richness and composition					
1. Number of species		32	5	32	5
2. Number of centrarchid species		6	5	6	5
3. Number of benthic invertivores		4	3	7	3
4. Number of intolerant species		7	5	7	5
5. Percent tolerant individuals	Electrofishing	74.7	0.5	77	0.5
	Gill Netting	25.7	1.5	22.9	1.5
6. Percent dominance by one species	Electrofishing	34	1.5	36.1	1.5
	Gill Netting	19.2	1.5	11	2.5
7. Number non-native species	Electrofishing	1.8	2.5	2	2.5
	Gill Netting	13.8	0.5	16.5	0.5
8. Number of top carnivore species		11	5.	10	, <b>5</b>
B. Trophic composition			•		
9. Percent top carnivores	Electrofishing	5.4	0.5	11.1	2.5
	Gill Netting	48.5	1.5	42.2	1.5
10. Percent omnivores	Electrofishing	32.2	1.5	39	1.5
	Gill Netting	35.3	1.5	33.9	1.5
C. Fish abundance and health					
11. Average number per run	Electrofishing	64.7	0.5	71	0.5
	Gill Netting	16.7	1.5	10.9	0.5
12. Percent anomalies	Electrofishing	0.3	2.5	1.2	2.5
	Gill Netting	1.8	2.5	2.8	1.5
RFAI			43		44
	<del></del>		Good		Good

Scored with transition criteria

Table 4. Species collected and catch per effort during autumn electrofishing (catch per 300-m run and per hour) and gill netting (catch per net-night) at the upstream and downstream stations of Kingston Fossil Plant, Watts Bar Reservoir, fall 2001.

	Dov	wnstream CF	RM 1.5	Upstream CRM 4.4				
	Electr	ofishing	Gill Netting	Electro		Gill Netting		
Common Name	Catch Per	Catch Per	Catch Per	Catch Per	Catch Per	Catch Per		
	Run	Hour	Net Night	Run	Hour	Net Night		
Paddlefish	•	•	0.10	•	•	•		
.Spotted gar	0.13	0.67		•	•			
Skipjack herring	•		2.10	•		2.00		
Gizzard shad	16.87	85.19	3.90	5.80	27.27	3.50		
Threadfin shad	0.07	0.34	0.20	0.13	0.63			
Common carp	1.27	6.40	0.10	2.33	10.97	. 0.80		
Golden shiner	0.60	3.03		0.07	0.31			
Emerald shiner	2.93	14.81		0.73	3.45	•		
Spotfin shiner	3.60	18.18		3.67	17.24			
Bluntnose minnow	0.13	0.67	•	0.13	0.63			
River carpsucker	0.07	0.34						
Smallmouth buffalo	0.53	2.69	1.20	0.47	2.19	•		
Black buffalo			0.30	0.07	0.31	0.20		
Spotted sucker	0.73	3.70	0.30	0.53	2.51	0.90		
Black redhorse	31, 3	3.,0	0.50	0.07	0.31			
Golden redhorse	•	•	•	0.07	0.51	0.10		
Blue catfish	•	•	3.20	•	•	3.50		
Channel catfish	0.13	0.67	1.70	0.47	2.19	1.60		
Flathead catfish	0.13	0.67	0.40	0.47	0.31	0.30		
White bass	0.15	0.07	0.50	0.07	0.63	1.50		
Yellow bass	•	•	1.90	0.13	0.63	3.60		
Striped bass	•	•	1.40	0.15	0.03			
hybrid striped bass	•	•	0.20	•	•	0.20		
Warmouth	0.13	0.67	0.20	0.07	0.31	•		
Green sunfish	0.73	3.70	•	0.07	1.25	•		
Bluegill	35.07	177.10	1.40	32.00	1.23	0.20		
Longear sunfish	0.73	3.70	0.10	0.93		0.30		
Redbreast sunfish	0.73	1.68	0.10		4.39	•		
Redear sunfish	3.73		. 0.20	0.20	0.94			
	3./3	18.86	0.30	4.53	21.32	0.50		
hybrid sunfish			•	0.07	0.31	•		
Smallmouth bass	0.40	2.02		0.40	1.88			
Spotted bass	1.20	6.06	0.70	1.00	4.70	0.40		
Largemouth bass	6.40	32.32	0.40	5.73	26.96	0.10		
White crappie	0.13	0.67	0.60			0.10		
Black crappie	0.07	0.34	1.10	0.13	0.63	0.30		
Snubnose darter			•	0.07	0.31	•		
Yellow perch	0.20	1.01	•	0.33	1.57	•		
Logperch	0.33	1.68	•	0.07	0.31			
Sauger		•	0.40	•	•	0.90		
Freshwater drum	0.27	1.35	0.60	0.07	0.31	0.50		
Brook silverside	1.13	5.72	•	0.93	4.39	<u></u>		
Totals	78.04	394.24	23.1	61.60	289.63	21.3		
Number Samples	15		10	15		10		
Number Fish Collected	1171		231	924		213		
Total Species Collected	28		24	31		20		

Table 5. Species collected and catch per effort during autumn electrofishing (catch per 300-m run and per hour) and gill netting (catch per net-night) at the upstream and downstream stations of Kingston Fossil Plant, Watts Bar Reservoir, fall 2003.

		wnstream CF	RM 1.5	Upstream CRM 4.4				
	Electr	ofishing	Gill Netting	Electro	fishing	Gill Netting		
Common Name	Catch Per	Catch Per	Catch Per	Catch Per	Catch Per	Catch Per		
	Run	Hour	Net Night	Run	Hour	_Net Night		
Paddlefish	•	•	*	•	•			
Spotted gar	•		0.10	0.33	1.97	. ,		
Longnose gar			0.20			0.10		
Skipjack herring		•	2.10	0.13	0.79	1.60		
Gizzard shad	11.67	70.00	2.10	14.87	87.80	5.70		
Threadfin shad	0.07	0.40	•	0.07	0.39	0.10		
Mooneye	•	•	0.10	•		0.10		
Common carp	1.07	6.40	0.50	0.93	5.51	0.80		
Golden shiner	0.33	2.00		0.60	3.54			
Emerald shiner	0.87	5.20				•		
Spotfin shiner	1.47	8.80		2.73	16.14	•		
Bluntnose minnow	0.33	2.00	-	0.13	0.79	•		
Quillback		_,_,	•	0.15	0.75	0.10		
Smallmouth buffalo	0.73	4.40	0.50	1.20	7.09	1.10		
Black buffalo			0.50	0.20	1.18			
Spotted sucker	0.60	3.60	0.20	3.87	22.83	0.60		
Black redhorse	0.00	3.00	0.20	5.67	22.03	0.00		
Golden redhorse	0.07	0.40	• •	0.13	0.79			
Blue catfish	0.07	0.70	1.50	0.13	0.79	2.60		
Channel catfish	0.87	5.20	0.70	0.33	1.97			
Flathead catfish	0.47	2.80	0.70	0.07	0.39	0.90		
White bass	0.07	0.40	0.50	0.07	0.39	0.10		
Yellow bass	0.07	0.40	2.10	0.13	0.79	0.60		
Striped bass	0.07	0.40	0.90	0.13		3.00		
Warmouth	•	•	0.90	0.20	1 10	1.80		
Redbreast sunfish	0.07	0.40	. •	0.20	1.18	•		
Green sunfish	0.07	1.60	• .			•		
Bluegill	24.07		0.40	0.20	1.18			
Longear sunfish		144.40	0.40	19.67	116.14	0.30		
Redear sunfish	1.07	6.40		1.67	9.84			
	3.33	20.00	0.10	3.20	18.90	0.20		
Smallmouth bass	0.13	0.80		0.27	1.57			
Spotted bass	0.47	2.80	0.10	0.80	4.72	0.60		
Largemouth bass	2.27	13.60	0.30	4.13	24.41	0.20		
White crappie	0.13	0.80	•			0.10		
Black crappie	0.07	0.40	•	0.13	0.79	•		
Yellow perch	0.20	1.20	•	0.13	0.79	•		
Logperch	0.40	2.40		0.13	0.79	·		
Sauger			0.40			0.40		
Freshwater drum	1.53	9.20	0.70	0.80	4.72	0.50		
Brook silverside	2.27	13.60	<u> </u>	2.93	17.32	•		
Totals	54.97	329.60	14.3	59.98	354.32	21.6		
Number Samples	15		10	15	•	10		
Number Fish Collected	824		143	900		216		
Total Species Collected	28		20	28		23		

Table 6. Species collected and catch per effort during autumn electrofishing (catch per 300-m run and per hour) and gill netting (catch per net-night) at the upstream and downstream stations of Kingston Fossil Plant, Watts Bar Reservoir, fall 2005.

		wnstream Cl	RM 1.5	Upstream CRM 4.4				
	Electr	ofishing	Gill Netting		fishing	Gill Netting		
Common Name		Catch Per	Catch Per	Catch Per	Catch Per	Catch Per		
	Run	Hour	Net Night	Run	Hour	Net Night		
Spotted gar	0.20	1.01	0.10			•		
Longnose gar	•	•	0.10	•				
Skipjack herring	•		2.20			1.20		
Gizzard shad	19.00	96.28	3.20	25.60	130.17	1.20		
Threadfin shad	0.20	1.01			•	•		
Mooneye		•	0.40					
Common carp	1.13	5.74	0.50	1.33	6.78	0.70		
Emerald shiner	•			0.60	3.05			
Spotfin shiner	1.53	7.77	•	2.20	11.19			
Steelcolor shiner	0.07	0.34						
Bluntnose minnow	0.20	1.01						
River carpsucker						0.10		
Northern hog sucker	0.20	1.01	0.10		•	0.10		
Smallmouth buffalo	•	•	0.30	0.20	1.02	0.60		
Black buffalo	0.13	0.68		0.20	1.02			
Spotted sucker	0.60	3.04	0.90	4.20	21.36	1.00		
Silver redhorse		•		0.07	0.34			
River redhorse				0.07	0.5 1	0.10		
Black redhorse			·	0.13	0.68	0.10		
Golden redhorse			•	0.07	0.34	0.40		
Blue catfish			1.40	0.07	0.54	0.40		
Channel catfish	0.33	1.69	0.50	0.33	1.69	0.50		
Flathead catfish	0.20	1.01	0.40	0.07	0.34	0.10		
White bass			0.60	0.07	0.54	0.10		
Yellow bass		•	1.40	0.07	0.34	0.20		
Striped bass		•	1.80	0.07	0.54	1.00		
Hybrid striped x white bass		•	1.00	•	•	0.10		
Redbreast sunfish	0.40	2.03	•	•	. •	0.10		
Green sunfish	2.40	12.16	•	0.93	4.75	•		
Bluegill	22.00	111.49	•	19.20	97.63	•		
Longear sunfish	3.47	17.57	•	0.87	4.41			
Redear sunfish	2.40	12.16	0.40	4.27	21.69	0.30		
Smallmouth bass	0.60	3.04	0.40	1.40	7.12	0.30		
Spotted bass	0.80	4.05	0.20	0.73	3.73	0.10		
Largemouth bass	1.67	8.45	0.30	5.27	26.78	0.10		
White crappie	1.07	0.43	0.20	0.13	0.68	0.40		
Black crappie	•	· •	0.20	0.13	1.02	0.10		
Yellow perch	•	•	•	0.20	0.34	•		
Logperch	0.13	0.68	•	0.07	1.36	•		
Sauger	0.15	0.00	0.80		1.30	0.60		
Freshwater drum	•	•	0.80	0.27	1.36	0.80		
Brook silverside	0.33	1.69	0.50	1.20		0.00		
nland silverside	6.67	33.78	•	0.67	6.10	•		
Fotals		· · · · · · · · · · · · · · · · · · ·	167		3.39	100		
<del></del>	64.66	327.69	16.7	70.55	358.68	10.9		
Number Samples	15	250 (0	10	15		10		
Number Collected	970.00	358.68	167	358.98		109		
Species Collected	23		21	27	·	21		

Table 7. Recent (1993-2005) RFAI scores collected as part of the Vital Signs monitoring program upstream and downstream of Kingston Fossil Plant, Watts Bar Reservoir.

							Year					
Site	Location	1993	1994	1996	1998	1999	2000	2001	2002	2004	2005	Ave.
Upstream	CRM 22	38	46	46	36		44		42	40		41.7
	TRM 601	38	50	44	48		46		46	44		45.1
Downstream	TRM 560.8	50	49	44	44		46		39	46		45.4
	TRM 531	43	48	44	41	38	44	39	39	43	47	42.6

# TENNESSEE VALLEY AUTHORITY (TVA) – KINGSTON FOSSIL PLANT (KIF) - NPDES PERMIT NO. TN0005452 - APPLICATION FOR RENEWAL

#### **Current Whole Effluent Toxicity (WET) Requirements:**

Outfall 002 -

7-day or 3-brood  $IC_{25} > 100\%$  [IWC = 100% effluent (1.0 TUc)] Compliance for fathead minnows based on results from UV-treated samples.

Monitoring Frequency = Annual (1 per year)

#### **Proposed WET Requirements:**

Outfall 002 =

Same as current

#### Outfall 002:

In accordance with EPA's recommendation (Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001), Outfall 002 should retain WET limits due to insufficient receiving stream flow for mixing with the discharge to meet the CMC and CCC criteria of 0.3 TUa and 1.0 TUc, respectively (See calculations page).

In a letter from Christopher Moran of TDEC dated April 7, 2006, TVA received approval to allow UV treatment of effluent samples from Outfall 002 for use in toxicity tests with fathead minnows (*Pimephales promelas*). Previous to this approval and dating back to February 2002, fathead minnow tests were conducted with and without UV-treated samples in parallel. Samples used in toxicity tests with *Ceriodaphnia dubia* have not been UV-treated. No toxicity has been observed with either species since 2001.

# KIF Documentation

# Summary of Outfall 002 WET Biomonitoring Results:

		Acute R (96-h Sı			
Test Date	Test Species	% Survival in Undiluted Sample	Study Toxicity Units (TUa)	Study Toxicity Units (TUc)	
IC <sub>25</sub> , NOEC					
1. Aug. 23-30, 1995	Ceriodaphnia dubia	100	< 1.0	< 1.0	
	Pimephales promelas	100	1.0	1.0	
2. Mar. 19-26, 1996	Ceriodaphnia dubia	100	< 1.0	< 1.0	
	Pimephales promelas	100	1.0	11.0	
3. Aug. 20-27, 1996	Ceriodaphnia dubia	100	< 1.0	< 1.0	
	Pimephales promelas	100	1.0	1.0	
4. Jan. 28-Feb. 4, 1997	Ceriodaphnia dubia	100	< 1.0	< 1.0	
	Pimephales promelas	100			
5. Jul. 29-Aug 4, 1997	Ceriodaphnia dubia	100	< 1.0	< 1.0	
Aug. 7-14, 1997	Pimephales promelas	100	1,0	1.0	
6. Feb. 19-26, 1998	Ceriodaphnia dubia	100	< 1.0 <sup></sup>	< 1.0	
	Pimephales promelas	100			
7. Sept. 15-22, 1998	Ceriodaphnia dubia	.100	< 1.0	< 1.0	
	Pimephales promelas	100			
8. Mar. 30-Apr. 6, 1999	Ceriodaphnia dubia	100	< 1.0		
	Pimephales promelas	88		1.3	
9. Apr. 27-May 4, 1999	Ceriodaphnia dubia	*	*	*	
	Pimephales promelas	100	< 1.0	< 1.0	
10. October 14-21, 1999	Ceriodaphnia dubia	100			
	Pimephales promelas	100	< 1.0	< 1.0	
11. April 13-20, 2000	Ceriodaphnia dubia	100	< 1.0		
	Pimephales promelas	92		2.4	
12. May 2-9, 2000	Ceriodaphnia dubia	* .	*	*	
	Pimephales promelas	100	< 1.0	< 1.0	
13. October 3-10, 2000	Ceriodaphnia dubia	100	< 1.0	< 1.0	
	Pimephales promelas	100			
14. May 20-27, 2001	Ceriodaphnia dubia	90	< 1.0		
May 19-26, 2001	Pimephales promelas	68		6.0	

## KIF Documentation

## Summary of Outfall 002 WET Biomonitoring Results, cont'd:

15. June 12-19, 2001	Ceriodaphnia dubia	*	*	*
	Pimephales promelas	100	< 1.0	< 1.0
16. Feb. 13-20, 2002	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
17. Nov. 5-12, 2002	Ceriodaphnia dubia	100	< 1.0	< 1.0
o .	Pimephales promelas <sup>†</sup>	100		
18. August 12-19, 2003	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
19. November 11-18, 2003	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
20. October 12-19, 2004	Ceriodaphnia dubia	100	< 1.0	< 1:0
	Pimephales promelas <sup>†</sup>	100		
21. August 9-16, 2005	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
22. June 6-13, 2006	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
23. February 16-23, 2007	Ceriodaphnia dubia	100	< 1.0	< 1.0
	Pimephales promelas <sup>†</sup>	100		
n		43	23	23
Maximum		100	< 1.0	6.0
Minimum		68	< 1.0	< 1.0
Mean		98.6	< 1.0	1.3

<sup>\*</sup> Single species re-test

 $<sup>^{\</sup>mbox{\scriptsize $\frac{1}{2}$}}\mbox{UV}$  fathead minnow test conducted parallel with regular compliance test.

Shaded area includes data collected under the current permit.

#### **Dilution and Instream Waste Concentration Calculations**

#### Outfall 002:

Average Discharge = 1297.873 MGD (2007 permit renewal application flow schematic)

Clinch River Low Flow 1Q10 = 155.8 MGD (from Appendix 1, page R-16 of the current permit, effective October 1, 2003)

Dilution Factor (DF): 
$$DF = \frac{Qs}{Qw} = \frac{155.8}{1297.873} = 0.12$$

Instream Wastewater Concentration (IWC): 
$$IWC = \frac{Qw}{Qs} = \frac{1297.873}{155.8} \times 100 = 100\%$$

Insufficient dilution is available for demonstrating no reasonable potential for exceeding the acute instream WET criterion (CMC = 0.3 TUa). The dilution factor would need to be greater than 3.0 in order to conduct that demonstration for acute toxicity.

Insufficient dilution is available for demonstrating no reasonable potential for exceeding the chronic instream WET criterion (CCC = 1.0 TUc). The dilution factor would need to be greater than 1.0 in order to conduct that demonstration for chronic toxicity.



#### STATE OF TENNESSEE

#### DEPARTMENT OF ENVIRONMENT AND CONSERVATION DIVISION OF WATER POLLUTION CONTROL **401 CHURCH STREET** L&C ANNEX 6th FLOOR NASHVILLE, TN 37243-1534

April 7, 2006

CERTIFIED MAIL RETURN RECEIPT REQUESTED RECEIPT # 7004 2510 0002 4678 0347

Gordon Park Manager of Environmental Affairs Tennessee Valley Authority 1101 Market Street, LP-5D Chattanooga, Tennessee 37402

RE:

TVA-Watts Bar Nuclear Plant, Cumberland Fossil, and Kingston Fossil Plants

NPDES Permit # TN0020168, TN0005789, and TN0005452

Rhea, Stewart, and Roane Counties, Tennessee

Dear Mr. Park:

This responds to the request made on behalf of TVA, dated February 7, 2006, for written division approval to allow effluent samples from outfall 112 at Watts Bar, outfall 002 at Cumberland, and outfall 002 at Kingston to be treated, for toxicity testing on Pimephales promelas, with UV radiation.

The division has reviewed the request and hereby approves the use of UV radiation at the above referenced facilities as proposed in your letter.

If you have any questions regarding this correspondence please feel free to contact me at 615-532-0672.

Sincerely,

Christopher S. Moran

Manager, Enforcement and Compliance Section

cc:

OGC

WPC-Permits-PRM

WPC-EFO-CH-RDU, WMK WPC-EFO-N-Joey Holland, DJE

WPC-EFO-K-Jeff Horton

Lindy Johnson-TVA

xc: S. E. Barnes, LP 5D-C

L. F. Campbell, KFP 1A-KST

T. J. Czubakowski, CUF 1A-CCT

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J. L. Phillips, MOB IT-WBN

D. E. Pittman, BR 4T-C

C. Russell, CTR 2L-M

R. M. Sherrard, PSC 1X-C

M. B. Stiefel, LP 5D-C

B. B. Walton, ET 11A-K

W. B. Wells, LP 5D-C

J. R. Wright, Jr., WT 9B-K

EDM, WT CA-K

APR 1 1 2006

ENVIRONMENTAL