MISC 1

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

January 12, 2005

Mr. Daniel J. Sajkowski
Whiting Unit Leader
BP Products North America Inc.
2815 Indianapolis Blvd.
P.O. Box 710
Whiting, Indiana 46394

Re: Water Treatment Additive Approval
NPDES Permit No. IN0000108
BP Product North America
Whiting Business Unit
Lake County

Dear Mr. Sajkowski:

The following water treatment additives have been reviewed and are approved for use at this facility: Nalco 3DT102, 3DT180, 3DT185, and 3DT199. These additives are approved at the dosages and locations indicated in the application submitted on November 22, 2004. These chemicals are used for corrosion control in the cooling tower system. Water from the cooling tower system is treated in the Lakefront WTP prior to discharge.

Questions may be addressed to Mr. Stan Rigney of my staff, at 317/232-8709.

Sincerely,

Steven K. Roush
Section Chief
Industrial NPDES Permit Section
Office of Water Quality

Corres

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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February 27, 2004

Mr. Dennis Seith
BP Products North America Inc.
Whiting Business Unit
P.O. Box 710
Whiting, IN 46394-0710

Lake Co.

Re: NPDES Permit No. IN0000108
Approval for Use of Water
Treatment Additive

Dear Mr. Seith:

Your request for approval to use a new water treatment additive in the condensate collection and distribution system which will discharge via Outfall 001 covered by NPDES Permit No. IN0000108 has been received and reviewed by the Office of Water Quality. Based on the information provided in your correspondence dated January 16, 2004, the following water treatment additive has been approved for use:

BPB 59430

This additive is approved only when its use is consistent with the information provided in your letter dated January 16, 2004. If you have any questions regarding this letter, please contact Christina Lowry of my staff at 317/232-8707.

Sincerely,

Steven K. Roush

Steven K. Roush
Section Chief
Industrial NPDES Permits Section
Office of Water Quality

CTL/ctl

bp

LAKE

BP Products North America Inc.
Whiting Business Unit
2815 Indianapolis Blvd.
PO Box 710
Whiting, IN 46394-0710

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

January 16, 2004

Mr. Steve Roush
Section Chief
Industrial NPDES Permits Section
Office of Water Quality
Indiana Department of Environmental Management
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

Re: BP Products North America Inc. - Whiting Business Unit

NPDES Permit - IN0000108
Request for approval of new water Treatment Additive BPB59430

Per this letter BP Products North America Inc. – Whiting Business Unit is hereby requesting approval to use a new water treatment additive for our steam system at the refinery. The required information for the approval is provided in the attached table (Attachment 1). The MSDS for the additive is also attached.

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 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.

If you have any questions or need any further information, please contact Ms. Rose Herrera, Environmental Engineer at (219) 473-3393.

Sincerely,

Dennis J. Seith
Whiting Business Unit Leader

Attachments

BP Products North America Inc. - Whiting Refinery
Approval to add Water Treatment Additive
Attachment 1

Additive Name	BPB59430
Supplier	Baker Petrolite
New or Replacement	New
Outfall Affected	Outfall 001
Point of Injection	SRU/VRU steam condensate system
Feed Rate	36,015 grams/day
Water Treatment Concentration	12 mg/l
Duration of Use (hrs/day)	24 hrs/day
Duration of Use (days/year)	365 days/year
Final Discharge Concentration	0.192 mg/l (worst case)
Determination of Discharge Concentration	Worse case is based upon 100% of additive remaining in the final discharge when the additive is used. Assume no removal at the activated sludge plant.
Control Description	Rates will be determined from condensate sample of PH and iron results.
Hardness of Discharge Water	216 mg/l
Chemical Composition	Alkyl Ether amine 30-60%
Treatment System Blowdown Rate	1.15 mgd
Outfall Flow Rate	19.9 mgd
Treatment System Temperature	50-110 deg F
Treatment System pH	7.0-9.0
Toxicity Data	
Fathead Minnow 96h/LC50	
Fathead Minnow 24h/LC50	
Cerodaphnia 48h/LC50	
Daphnia Magna 48h/LC 50	
Daphnia Magna 24h/EC50	
Daphnia Magna 24h/LC00	
Daphnia Magna 96h/LC00	
Rainbow Trout 96h/LC50	187 mg/l
Bluegill Sunfish 96h/LC50	
Lepomis macrochrius 48 hr/LC50	
Acartia tonsa 48h/LC50	
Pimephales promelas 48h/LC50	
Pimephales promelas 96h/LC50; 180 mg/l CaCO3	
Pimephales promelas 96h/LC50; 100 mg/l CaCO3	
Threespone stickleback 96h/LC50	
Threespone stickleback 96h/LC50 (aerated)	
Zebra-fish (Brachydanio rerio) 96h/LC50	
Flannelmouth sucker 96h/LC50	
Coho salmon 96 h/LC50	
Chinook salmon 96h/LC50	
Chinook salmon 24h/LC00	
Mosquito Fish 24h/LC50	
Scenedesmus subspicatus 72h/EC50	
Mallard Duck LD50	
Freshwater Invertebrates & Fish Acute EC50/LC50	
Freshwater Algae Static Acute EC50	
Freshwater Biodegradability 28 Day OECD 301D	
Freshwater Biodegradability 5 Day/2.0mg/l	
Freshwater Biodegradability 5 Day/3.8mg/l	
Relationship of toxicity to pH	
Relationship of toxicity to water hardness	
N Octanol-Water Partition Coefficient	

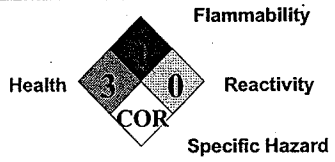
BAKER HUGHES
Baker Petrolite

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product Name	**BPB 59430**	**Code**	BPB59430
Supplier	Baker Petrolite A Baker Hughes Company 12645 W. Airport Blvd. (77478) P.O. Box 5050 Sugar Land, TX 77487-5050 For Product Information/MSDSs Call: 800-231-3606 (8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400	**Version**	1.0
Material Uses	Boiler water treatment.	**Effective Date**	**7/26/2001**
24 Hour Emergency Numbers	CHEMTREC 800-424-9300 (U.S. 24 hour) Baker Petrolite 800-231-3606 (North America 24 hour) CANUTEC 613-996-6666 (Canada 24 hours) CHEMTREC Int'l 01-703-527-3887 (Latin America 24 hour)	**Print Date**	7/26/2001

National Fire Protection Association (U.S.A.)



Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight	Exposure Limits
1) Alkyl ether amine	Trade secret	30-60	Not available.

Section 3. Hazards Identification

Physical State and Appearance	State: Clear. Liquid., Color: Colorless., Odor: Strong Amine like.
CERCLA Reportable Quantity	Not applicable.
Hazard Summary	DANGER. May cause chronic effects. May be corrosive to eyes, skin and respiratory tract. May be toxic by skin absorption.
Routes of Exposure	Skin (Permeator), Skin (Contact), Eyes, Inhalation.
Potential Acute Health Effects	*Eyes* May be corrosive to the eyes. May cause eye burns and permanent eye injury. *Skin* May be corrosive. Skin contact may produce burns. May be toxic if absorbed through the skin. *Inhalation* May be corrosive to lungs. May cause burns. *Ingestion* Not considered a likely route of exposure, however, may be corrosive if swallowed.
Medical Conditions aggravated by Exposure	Exposure to this product may aggravate medical conditions involving the following: gastrointestinal tract, respiratory tract, skin/epithelium, eyes.
See Toxicological Information (section 11)	
Additional Hazard Identification Remarks	Not available.

Continued on Next Page

Section 4. First Aid Measures

Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.
Skin Contact	Remove contaminated clothing and shoes immediately. Wash affected area with soap and mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.
Inhalation	Remove to fresh air. Oxygen may be administered if breathing is difficult. If not breathing, administer artificial respiration and seek medical attention. Get medical attention if symptoms appear.
Ingestion	Get medical attention immediately. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Wash out mouth with water if person is conscious. Never induce vomiting or give anything by mouth to a victim who is unconscious or having convulsions.
Notes to Physician	Not available.
Additional First Aid Remarks	Not available.

Section 5. Fire Fighting Measures

Flammability of the Product	Not regulated as flammable or combustible.
OSHA Flammability Class	IIIB
Autoignition temperature	Not available.
Flash Points	CLOSED CUP: Higher than 93.3°C (200°F). (PMCC)
Flammable Limits	L.E.L. Not available. U.E.L. Not available.
Products of Combustion	These products are carbon oxides (CO, CO2) nitrogen oxides (NO, NO2...).
Fire Hazards in Presence o Various Substances	Open Flames/Sparks/Static. Heat.
Fire Fighting Media and Instructions	In case of fire, use foam, dry chemicals, or CO2 fire extinguishers. Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and public water ways.
Protective Clothing (Fire)	Do not enter fire area without proper personal protective equipment, including NIOSH/MSHA approved self-contained breathing apparatus.
Special Remarks on Fire Hazards	Not available.

Section 6. Accidental Release Measures

Spill	Put on appropriate personal protective equipment. Keep personnel removed and upwind of spill. Shut off all ignition sources; no flares, smoking, or flames in hazard area. Approach release from upwind. Shut off leak if it can be done safely. Contain spilled material. Keep out of waterways. Dike large spills and use a non-sparking or explosion proof means to transfer material to an appropriate container for disposal. For small spills add absorbent (soil may be used in absence of other suitable materials scoop up material and place in a sealed, liquid-proof container. Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Other Statements	Not applicable.
Additional Accidental Release Measures Remarks	Not available.

Continued on Next Page

Section 7. Handling and Storage

Handling and Storage	Put on appropriate personal protective equipment. Avoid contact with eyes, skin and clothing. Avoid breathing vapors or spray mists. Use only with adequate ventilation. Protect from ignition. Store in a dry, cool and well ventilated area. Keep away from incompatibles. Keep container tightly closed and dry.
Additional Handling and Storage Remarks	Not available.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Personal Protective Equipment recommendations are based on anticipated known manufacturing and use conditions. These conditions are expected to result in only incidental exposure. A thorough review of the job tasks and conditions by a safety professional is recommended, however, to determine the level of personal protective equipment appropriate for these job tasks and conditions.

Eyes Chemical safety goggles. Use full face shield if splashes could occur.

Body Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact.

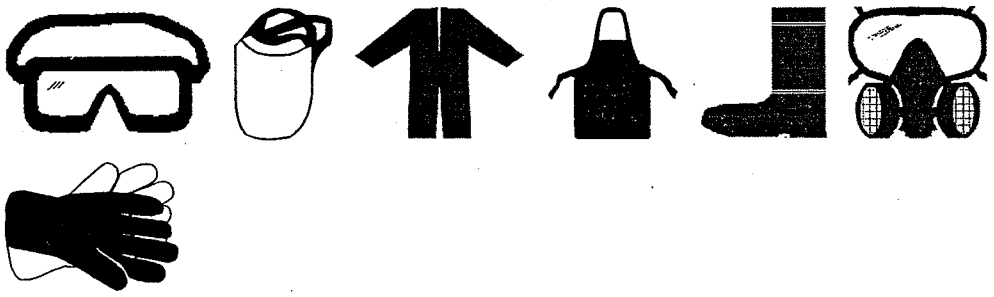
Respiratory Respirator use is not expected to be necessary under normal conditions of use. In poorly ventilated areas or in emergency situations, use NIOSH/MSHA approved full face respirator.

Hands Chemical resistant gloves.

Feet Chemical resistant boots or overshoes.

Other information Nitrile or neoprene gloves.

Protective Clothing (Pictograms)



Additional Exposure Control Remarks	Not available.

Section 9. Typical Physical and Chemical Properties

Physical State and Appearance	Clear. Liquid.	**Odor**	Strong Amine like.
pH	10 - 12 (10% Aqueous Solution)	**Color**	Colorless.
Specific gravity	0.974 - 0.986 @ 16°C (61°F)		
Density	8.11 - 8.21 lbs/gal @ 16°C (61°F)		
Vapor Density	>1 (Air = 1)		
Vapor Pressure	0.6 - 1 mm of Hg @ 38°C (100°F)		
Evaporation Rate	>1 (compared to Ether (anhydrous)).		
VOC	Not available.		
Viscosity	95 - 105 cps @ 25°C (77°F)		

Continued on Next Page

Pour Point	-7°C (19°F)
Solubility (Water)	Soluble
Physical Chemical Comments	Not available.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Oxidizing material.
Hazardous Decomposition Products	Not applicable.
Hazardous Polymerization	Hazardous polymerization is not expected to occur.
Special Stability & Reactivity Remarks	Aluminum. Copper Zinc

Section 11. Toxicological Information

Component Toxicological Information

Acute Animal Toxicity

1) Alkyl ether amine — ORAL (LD50): Acute: 690 mg/kg [Rat]. DERMAL (LD50): Acute: 2000 mg/kg [Rabbit].

Chronic Toxicity Data

1) Alkyl ether amine

An alkyl ether amine is a component of this product. Repeated or chronic inhalation may cause lung damage. Skin contact may aggravate an existing dermatitis. Overexposure to vapor, dust or mist may aggravate existing respiratory conditions, such as asthma, bronchitis, and inflammatory or fibrotic respiratory disease.

Product Toxicological Information

Acute Animal Toxicity	Not available.
Target Organs	gastrointestinal tract, respiratory tract, skin/epithelium, eyes.
Other Adverse Effects	Not available.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Biodegradable/OECD	Not available.
Toxicity of the Products of Biodegradation	Not available.
Special Remarks	Not available.

Continued on Next Page

Section 13. Disposal Considerations

Responsibility for proper waste disposal rests with the generator of the waste. Dispose of any waste material in accordance with all applicable federal, state and local regulations. Note that these regulations may also apply to empty containers, liners and rinsate. Processing, use, dilution or contamination of this product may cause its physical and chemical properties to change.

Additional Waste Remarks Not available.

Section 14. Transport Information

DOT Classification	Amines, liquid, corrosive, n.o.s., (contains Alkyl ether amine), 8, UN2735, II	
DOT Reportable Quantity	Not applicable.	
Marine Pollutant	Not applicable.	
Additional DOT information	Not available.	
Emergency Response Guide Page Number	153	

Section 15. Regulatory Information

HCS Classification	Target Organ Effects. Corrosive.
U.S. Federal Regulations	
Environmental Regulations	Extremely Hazardous Substances: Not applicable to any components in this product. SARA 313 Toxic Chemical Notification and Release Reporting: Not applicable to any components in this product. SARA 302/304 Emergency Planning and Notification substances: Not applicable to any components in this product. Hazardous Substances (CERCLA 302): Not applicable to any components in this product. SARA 311/312 MSDS distribution - chemical inventory - hazard identification: immediate health hazard; Clean Water Act (CWA) 307 Priority Pollutants: Not applicable to any components in this product. Clean Water Act (CWA) 311 Hazardous Substances: Not applicable to any components in this product. Clean Air Act (CAA) 112(r) Accidental Release Prevention Substances: Not applicable to any components in this product.
Threshold Planning Quantity (TPQ)	Not applicable.
TSCA Inventory Status	All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory. This product does not contain any components that are subject to the reporting requirements of TSCA Section 12(b) if exported from the United States.
State Regulations	State specific information is available upon request from Baker Petrolite.
International Regulations	
Canada	All components are included or are exempted from listing on the Canadian Domestic Substance List..
WHMIS (Canada)	D-2B, E
European Union	All components are included or are exempted from listing on the European Inventory of Existing Commercial Chemical Substances or the European List of Notified Chemical Substances.
	International inventory status information is available upon request from Baker Petrolite for the following countries: Australia, and Australia (NICNAS), China, Korea (TCCL), Philippines (RA6969), or Japan.
Harmonized Tariff Code	Not available.

WATER DEPARTMENT JAN 20 PM '04

Continued on Next Page

Other Regulatory Information	No further regulatory information is available.

Section 16. Other Information

Other Special Considerations	Not available.

Baker Petrolite Disclaimer

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Petrolite, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

Product Data

BAKER HUGHES

Baker Petrolite

BPB 59430

Condensate Treatment

DESCRIPTION:

A liquid, volatile neutralizing amine blend designed for application to steam condensate systems. It is applied to control corrosion caused by the presence of carbon dioxide in steam distribution and condensate return line systems. Due to the volatility characteristics of this product, it will provide corrosion protection throughout a variety of pressures encountered in steam production. In use concentrations, the product is compatible with most boiler water treatment chemicals.

APPLICATION:

BPB 59430, and aqueous dilutions of it, should be applied continuously using a proportioning chemical feed pump. High purity water must be used. Product injection points may be into the boiler feedwater, boiler steam drum or into the boiler steam header. Injection into the steam header is accomplished using a stainless steel quill. Dosage rates should be determined by your local representative.

TYPICAL PROPERTIES:

General Appearance	Clear amber liquid
Specific Gravity	0.98
Density @ 60°F	8.2 lbs/US gal
pH	12.3 - 12.9
Closed Cup Flash Point	>200°F

FEATURES AND BENEFITS:

Feature:

- Elevates pH of condensate

Benefit:

- Reduces corrosion potential to extend life of condensate system

SAFETY AND HANDLING:

For industrial use only. Use with adequate ventilation. Can cause severe eye, skin and respiratory tract irritation. Eye protection such as OSHA recommends and normal protective clothing should be worn.

Refer to the Material Safety Data Sheet (MSDS) for safe handling information.

This product, or aqueous dilutions of it, may be stored in stainless steel, fiberglass, high density polyethylene, or epoxy phenolic lined containers. Low density plastics should not be used.

Baker Petrolite 24 Hour Emergency Hotline:
1-800-424-9300 (CHEMTREC) U.S.A.
1-613-996-6666 (CANUTEC) Canada
Baker Petrolite Customer Care Hotline:
1-800-872-1916 (8 a.m. to 5 p.m. CST)

Disclaimer of Liability: Baker Petrolite Corporation (BPC) warrants to purchaser, but no third parties or others, the specifications for the product shall fall within a generally recognized range for typical physical properties established by BPC when the product departs BPC's point of origin and that any services shall only be performed in accordance with applicable written work documents. BPC MAKES NO OTHER WARRANTY OR GUARANTEE OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, REGARDING ANY SERVICES PERFORMED OR PRODUCT SUPPLIED. BPC will give purchaser the benefit of BPC's best judgement in making interpretations of data, but does not guarantee the accuracy or correctness of such interpretations. BPC's recommendations contained herein are advisory only and without representations as to the results. BPC shall not be liable for any indirect, special, punitive, exemplary or consequential damages or losses from any cause whatsoever including but not limited to its negligence.

BPPD1366 (10/99)

BAKER HUGHES

Baker Petrolite

EcoTox™

Report

BPB 59430

AQUATIC TOXICOLOGY

Static Acute Freshwater Toxicity

PARAMETERS	RESULTS	VALUES
Specie: Rainbow trout	Lethal Concentration 50%	187 mg/l
Temperature: 12 degrees C	No Observed Effect Concentration	96 mg/l
Duration: 96 hours		

Disclaimer of Liability: Baker Petrolite Corporation (BPC) warrants to purchaser, but no third parties or others the specifications for the product shall fall within a generally recognized range for typical physical properties established by BPC when the product departs BPC's point of origin and that any services shall be performed in accordance with applicable written documents. **BPC MAKES NO OTHER WARRENTY OR GUARANTEE OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, REGARDING ANY SERVICES PERFORMED OR PRODUCT SUPPLIED.** BPC will give purchaser the benefit of BPC's best judgement in making interpretations of data, but does not guarantee the accuracy of correctness of such interpretations. BPC's recommendations contained herein are advisory only and without representations as to the results. BPC shall not be liable for any indirect, special, punitive, exemplary or consequential damages or losses from any cause whatsoever including but not limited to its negligence.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Frank O'Bannon
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Commissioner

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P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.state.in.us/idem

April 10, 2002

VIA CERTIFIED MAIL 7000 0600 0026 4646 0630

Ms. Natalie Grimmer
BP Products North America Inc.
Whiting Business Unit
2815 Indianapolis Blvd
Whiting, IN 46394

Dear Ms. Grimmer:

Re: NPDES Permit No. IN0000108
BP Products North America Inc.
Whiting Business Unit
Whiting, Indiana

Your updated NPDES permit renewal application, received by the Office of Water Quality on April 8, 2002, included a check for $50.00. The check is being returned to you because the necessary application fee was submitted with the original NPDES permit renewal application received on September 1, 1994. Enclosed please find check number 2211 for $50.00. Should you have any questions regarding this matter, please contact Christina Lowry at (317) 232-8707.

Sincerely,

Steven K. Roush
Section Chief
Industrial NPDES Permits Section
Office of Water Quality

CTL/ctl
Enclosure

bp

Ashok K. Jhawar
Business Unit Leader
Whiting Business Unit

OFFICE OF WATER MANAGEMENT
MAY 28 4 06 PM '02

BP
2815 Indianapolis Boulevard
Whiting, IN 46394
USA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 23, 2002

Mr. Steve Roush
Section Chief
Industrial NPDES Permits Section
Office of Water Quality
Indiana Department of Environmental Management
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

Direct 219 473 3179
Fax 219 473 3504
Cell 219 320 0344
jhawarak@bp.com

Re: BP Products North America Inc. - Whiting Business Unit
NPDES Permit - IN0000108
Approval to Change Water Treatment Additive

Whiting, IN
LAKE COUNTY

Per this letter BP Products North America Inc. – Whiting Business Unit is hereby requesting approval to change the water treatment additive for our boiler feed water. The required information for the approval is provided in the attached table (Attachment 1). The MSDS for the additive is also attached.

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 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.

If you have any questions or need any further information, please contact Natalie Grimmer at (219) 473-5417.

Sincerely,

Ashok K. Jhawar

Ashok K. Jhawar
Whiting Business Unit Leader

Attachments

OFFICE OF WATER MANAGEMENT
MAY 28 4 06 PM '02

BP Products North America Inc. - Whiting Refinery
Approval to Change Water Treatment Additive
Attachment 1

Additive Name	BPB 59316
Supplier	Baker Petrolite
New or Replacement	Replacement
Outfall Affected	Outfall 001
Point of Injection	Boiler Feed Water
Feed Rate	232,221 grams/day
Water Treatment Concentration	7.0 mg/l
Duration of Use (hrs/day)	24 hrs/day
Duration of Use (days/year)	365 days/year
Final Discharge Concentration	3.08 mg/l (worst case) *
Determination of Discharge Concentration	*Worst case based upon 100% of additive remaining in final discharge and no removal takes place in the WWTP. This additive should be consumed in the activated sludge plant and the expected final discharge concentration should approach zero.
Control Description	Feed rate is adjusted based upon online control using the inert molybdate tracer.
Hardness of Discharge Water	216 mg/l
Chemical Composition	2% Caustic 8% Polyacrylate 8% Acrylic Polymer 1% Sodium Molybdate
Treatment System Blowdown Rate	6.33 mgd
Outfall Flow Rate	19.9 mgd
Treatment System Temperature	330 - 450 deg F
Treatment System pH	8.0 - 9.0
Toxicity Data ***Fathead Minnow 96h/LC50***	3318 mg/l
Cerodaphnia 48h/LC50	891 mg/l
Relationship of toxicity to pH	Effective pH range: 7.5 - 8.2
Relationship of toxicity to water hardness	Effective hardness 150 - 160 mg/l as $CaCO_3$. Literature indicates that toxicity generally increases with decreasing hardness.

5/23/2002

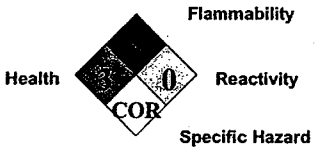
Baker Petrolite

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product Name	BPB 59316	Code	BPB59316
Supplier	Baker Petrolite A Baker Hughes Company 12645 W. Airport Blvd. (77478) P.O. Box 5050 Sugar Land, TX 77487-5050 For Product Information/MSDSs Call: 800-231-3606 (8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400	Version	1.0
Material Uses	Boiler water treatment. Scale Inhibitor	Effective Date	12/20/2001
24 Hour Emergency Numbers		Print Date	12/20/2001

National Fire Protection Association (U.S.A.)



Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight	Exposure Limits
1) Disodium molybdate	7631-95-0	1-5	TWA: 0.5 (mg/m³) from ACGIH (TLV) TWA: 5 (ppm) from OSHA (PEL)
2) Sodium hydroxide	1310-73-2	1-5	CEIL: 2 (mg/m³) from ACGIH (TLV) TWA: 2 (mg/m³) from OSHA (PEL)

The molybdenum exposure limits are for "Soluble Compounds as Molybdenum".

Section 3. Hazards Identification

Physical State and Appearance	State: Liquid., Color: Colorless to light amber, Odor: Mild
CERCLA Reportable Quantity	Sodium hydroxide 8951 gal.
Hazard Summary	DANGER. May be corrosive to eyes, skin and respiratory tract.
Routes of Exposure	Skin (Contact), Eyes, Inhalation.
Potential Acute Health Effects	*Eyes* May be corrosive to the eyes. May cause eye burns and permanent eye injury. *Skin* May be corrosive. Skin contact may produce burns. *Inhalation* May be irritating to lungs. *Ingestion* Not considered a likely route of exposure, however, may be corrosive if swallowed.
Medical Conditions aggravated by Exposure	Exposure to this product may aggravate medical conditions involving the following: respiratory tract, skin/epithelium, eyes.
See Toxicological Information (section 11)	
Additional Hazard Identification Remarks	May be harmful if swallowed. It can produce burns or irritation to mucous membranes, esophagus, or GI tract. May be harmful if ingested. This product may be aspirated into the lungs during swallowing or vomiting of swallowed material. Aspiration into the lungs may produce chemical pneumonitis, pulmonary edema, and hemorrhaging.

Continued on Next Page

Section 8. Exposure Controls/Personal Protection

OFFICE OF WATER MANAGEMENT MAY 29 4 06 PM '02

gineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Personal Protective Equipment recommendations are based on anticipated known manufacturing and use conditions. These conditions are expected to result in only incidental exposure. A thorough review of the job tasks and conditions by a safety professional is recommended, however, to determine the level of personal protective equipment appropriate for these job tasks and conditions.

Eyes Chemical safety goggles. Use full face shield if splashes could occur.

Body Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact.

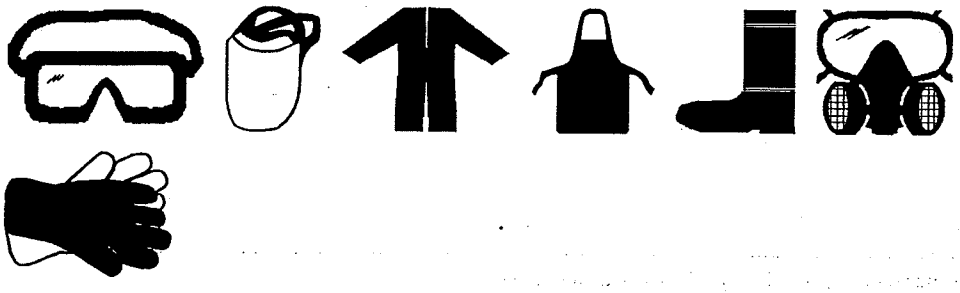
Respiratory Respirator use is not expected to be necessary under normal conditions of use. In poorly ventilated areas or in emergency situations, use NIOSH/MSHA approved full face respirator.

Hands Chemical resistant gloves.

Feet Chemical resistant boots or overshoes.

Other information Nitrile or neoprene gloves.

Protective Clothing (Pictograms)



dditional Exposure ntrol Remarks Not available.

Section 9. Typical Physical and Chemical Properties

Physical State and Appearance	Liquid.	**Odor**	Mild
pH	12.6 - 12.8 (Neat-without dilution.)	**Color**	Colorless to light amber
Specific gravity	1.112 - 1.124 @ 16°C (60°F)		
Density	9.26 - 9.36 lbs/gal @ 16°C (60°F)		
Vapor Density	>1 (Air = 1)		
Vapor Pressure	Not available.		
Evaporation Rate	>1 (compared to Ether (anhydrous)).		
VOC	Not available.		
Viscosity	Not available.		
Pour Point	-9.4°C (15°F)		
Solubility (Water)	Soluble		
Physical Chemical Comments	Not available.		

Continued on Next Page

Section 13. Disposal Considerations

sponsibility for proper waste disposal rests with the generator of the waste. Dispose of any waste material in accordance with all applicable federal, state and local regulations. Note that these regulations may also apply to empty containers, liners and rinsate. Processing, use, dilution or contamination of this product may cause its physical and chemical properties to change.

Additional Waste Remarks	Not available.

Section 14. Transport Information

DOT Classification	Corrosive liquid, basic, inorganic, n.o.s., (contains Sodium hydroxide), 8, UN3266, III	
DOT Reportable Quantity	Sodium hydroxide 8951 gal.	
Marine Pollutant	Not applicable.	
Additional DOT information	Not available.	
Emergency Response Guide Page Number	154	
IMO/IMDG Classification	Corrosive liquid, basic, inorganic, n.o.s. (contains Sodium hydroxide), 8, UN3266, III	
Marine Pollutant	Not applicable.	
Emergency Schedules (EmS)	8-15	
Additional IMO Information	Not available.	

Section 15. Regulatory Information

HCS Classification	Corrosive.
U.S. Federal Regulations	
Environmental Regulations	Extremely Hazardous Substances: Not applicable to any components in this product. SARA 313 Toxic Chemical Notification and Release Reporting: Not applicable to any components in this product. SARA 302/304 Emergency Planning and Notification substances: Not applicable to any components in this product. Hazardous Substances (CERCLA 302): Sodium hydroxide 8951 gal.; SARA 311/312 MSDS distribution - chemical inventory - hazard identification: immediate health hazard; Clean Water Act (CWA) 307 Priority Pollutants: Not applicable to any components in this product. Clean Water Act (CWA) 311 Hazardous Substances: Sodium hydroxide; Clean Air Act (CAA) 112(r) Accidental Release Prevention Substances: Not applicable to any components in this product.
Threshold Planning Quantity (TPQ)	Not applicable.
TSCA Inventory Status	This product or its components, if a mixture, are not listed on the TSCA inventory. This product does not contain any components that are subject to the reporting requirements of TSCA Section 12(b) if exported from the United States.
State Regulations	State specific information is available upon request from Baker Petrolite.
International Regulations	
Canada	Not all components are included on the Canadian Domestic Substances List.
WHMIS (Canada)	D-1B, D-2B, E

Continued on Next Page

[redacted] compliance

bp

Whiting Business Unit
2815 Indianapolis Blvd.
PO Box 710
Whiting, IN 46394-0710

JAN 30 3 37 PM '03

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

January 27, 2003

Mr. Greg Glover
Indiana Department of Environmental Management
Office of Water Management
100 North Senate
Indianapolis, IN 46206-6015

RE: NPDES Permit No. IN 0000108
Exceedance of Daily Maximum Limit for Total Suspended Solids at Outfall 001

Dear Mr. Glover:

This letter serves as a follow-up to our notifications on January 21, 23 and 24, 2003 concerning operational issues at our wastewater treatment plant that were affecting our effluent to Lake Michigan.

IDEM was notified on January 21, 2003 at approximately 9:50 am when a visible sheen and some foaming were seen at Outfall 001 (IDEM Incident No. 3003-01-116). The initial analysis results of the January 21 composite sample were received at approximately 2:00 pm on January 22, 2003. Follow-up results the following morning confirmed that the total discharge loading from Outfall 001 was 35,420 pounds of total suspended solids (TSS). Our daily maximum allowable TSS is 5,694 pounds. This notification was made to IDEM at 11:30 am on January 23, 2003.

On January 24,2003, an additional notification was made concerning composite sample results that were collected for January 22,2003. TSS results indicated an exceedance for the daily maximum TSS limit. Calculations identified total discharge loading from Outfall 001 to be 7,756 pounds of TSS. This notification was made to IDEM at 8:40 am on January 24, 2003.

The sample results for composite sample collected on January 23, 2003 were well within the permit limits.

The permit exceedance was caused by an increase in oil recoveries and solids loading from the refinery operations into the pre-treatment system over the period from January 17 through January 19. When high turbidities were noticed, operators followed established procedures to reduce the impact as much as possible. The plant instituted the watershed plan and reduced flows to the plant to reduce stress. The final filters were backwashed, water from the refinery was impounded and more biological media was added to the activated sludge treatment system. While this helped reduce the severity of the situation, some biological material overflowed from the clarifiers and passed through the filters into Lake Michigan.

OFFICE OF WATER MANAGEMENT
JAN 30 3 37 PM '03

The watershed program is still in place and we will continue to limit flows as much as possible to allow the treatment plant to recover. Turbities are back in line and will be monitored closely until the treatment plant is back to normal operations.

If you need any further information concerning this incident, please contact Mr. Richard Harris at 219-473-3321.

Sincerely,

Karleen James

Ms. Karleen James
Environmental Superintendent, HSE

Lake - Compliance

bp

Whiting Business Unit
2815 Indianapolis Blvd.
PO Box 710
Whiting, IN 46394-0710

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

February 28, 2003

Greg Glover
Sr. Environmental Manager
Indiana Department of Environmental Management
Compliance Evaluation Section
Office of Water Quality
P.O. Box 6015
100 North Senate Avenue
Indianapolis, IN 46206-6015

RE: NPDES Permit No. IN 0000108
Exceedance of Daily Maximum Limit for Total Suspended Solids at Outfall 001

Dear Mr. Glover:

This letter is a follow-up to your correspondence dated February 10, 2003 requesting an explanation of the excess loadings that occurred on January 21 and January 22, 2003 at our wastewater treatment facility and our phone conversation on February 27, 2003.

On January 21 and January 22, 2003, the Whiting Refinery Waste Water Treatment facility exceeded the NPDES total suspended solids (TSS) permit limits. On January 21, 35,240 pounds of total suspended solids were released through Outfall 001. On the January 22, the calculated amount was 7,756 pounds of solids. Our permit limit for TSS is 5,694 lbs.

Per your request, events leading up to the exceedence are summarized below.

PLANT HEALTH PRIOR TO THE EVENT

In the ten days prior to the event, the waste water facility had impounded water on three separate occasions. These impoundment episodes were due to high turbidities caused by several process upsets in the refinery. The most significant event was caused by the plugging of a filter on the pump feeding de-emulsifier to a process unit. This lack of de-emulsifier allowed an oil/water/solids emulsion to enter the sewer and be transported to the waste water facility, where it was impounded. The surge capacity at the wastewater treatment plant consists of two tanks of ten million gallons each, the feed surge tank and the storm water surge tank. During normal operation, the feed surge tank is maintained at approximately 65% level to moderate any contaminant spikes that may enter the system. The impounding events that occurred prior to the upset had placed over four million gallons into the storm water surge tank. The waste water facility had been able to process about one million gallons from that tank. However, about three million gallons remained in the storm water surge tank on the evening of January 18, 2003.

The air floatation unit (AFU) was operating at the time about 67% capacity with two out of the six total process boxes shutdown for repair. At the time of the upset, the flow rate through the waste water treatment plant was 16.9 MM gallons per day or about 65% of design capacity. One of the

AFU boxes was out of service for reliability improvements. Another box had failed in late December and was waiting for repair parts to arrive.

The final filters were operating at the time of the event at 75% of capacity with two out of eight filters out of service for mechanical repair.

UPSET EVENT

High inlet turbidities to the waste water facility from the refinery on the night of January 18 into the morning of January 19 caused the total impoundment of water into the storm water surge tank. The weather had been unusually cold, which can lead to instrumentation difficulties on the processing units. These instrumentation failures make it difficult to monitor process conditions at some of the processing units. During this period, feed was going directly to the AFU from the feed surge tank. While the storm water surge tank was filled to the maximum level, the feed surge tank was pulled down to a fairly low level. When the total surge volume was filled to maximum capacity, flow was returned to feed surge tank.

High turbidities were noted at the outlet of the AFU toward the end of the impoundment. This put substantially higher loading of solids and oil and grease directly into the activated sludge plant (ASP) creating substantial additional feed that enhanced young bacterial growth.

The young bacterial growth created a condition where the fine material coming from the clarifiers could not be filtered out. By 1/21/03, turbidities at Outfall 001 climbed steadily, resulting in foaming and biological material passing through the plant and out into Lake Michigan along with a very small sheen of oil. This condition was immediately reported to IDEM and the National Response Center on the morning of 1/21/03.

By late on 1/21/03, Outfall 001 turbidities were falling and the plant was stabilizing. However, Outfall 001 turbidities remained elevated through 1/22/03, although at a much reduced level.

Some of the actions that were taken to reduce total water flow at this time included recycling water back into the refinery, ceasing all draining in the refinery without permission from the waste water facility and impounding 5.5 million gallons into the storm water surge tank. On the night of January 20, bioaugmentation was started in the activated sludge plant with bacteria specially developed to handle high oil and grease conditions in the activated sludge plant. This bioaugmentation is scheduled to continue for several months to ensure reliable operation during the recovery period for the waste water facility.

FOLLOW-UP SINCE THE EVENT

1. A root cause failure analysis (RCFA) of the entire event was immediately started and has been completed. Recommendations from the investigation are currently being implemented. While many of these recommendations center around communications within the refinery and

procedures, a new position is also being created. This new position, the Single Point of Greg Accountability (SPA) for improving environmental performance at the waste water facility, will look at technology and mechanical improvements that can be made at both the waste water facility and upstream units.

2. Repairs on the AFU have continued and currently five out of the six process boxes are fully in service restoring additional AFU capacity. The sixth box is currently undergoing maintenance to enhance reliability and is expected to be in service prior to March 1, 2003.

3. Several units that were identified as potential sources of the high inlet turbidities are currently undergoing scheduled shutdowns, which includes cleaning and maintenance operations that should improve process reliability.

4. It is also thought that the low levels in the feed surge tank may have contributed to the event. Since the event, the tank has been infrared scanned and also sampled at multiple levels to determine if solids or oil that may have built up within the tank. The low levels during impounding may have created a situation where solids and oil were scoured out of the tank and aggravated the conditions at the AFU. More work is ongoing with assessing this possibility and how to address this issue.

5. The priority of an ongoing investigation of the reliability of the design of the final filters has been raised. This investigation is yielding recommendations that are currently being implemented.

If you need further information concerning this incident, please call me at 219-473-3287.

Sincerely,

Karleen K. James
Environmental Superintendent
Health, Safety and Environmental

Lake

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Governor

Lori F. Kaplan
Commissioner

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P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

July 31, 2002

Ms. Natalie Grimmer
[redacted]
2815 Indianapolis Blvd
Whiting, IN 46394

Dear Ms. Grimmer:

Re: NPDES Permitting of Mercury
[redacted]

This letter is being sent to all NPDES permit holders that are classified as a major facility. The purpose of this letter is to inform you of IDEM's revised mercury monitoring and limitation requirements for NPDES permitted facilities in Indiana. Initially, revisions to mercury monitoring requirements will affect those facilities classified a "major facilities."

As described in the enclosed pamphlet, IDEM is pursuing an approach that contains short-term and long-term components. The long-term approach is directed towards permit holders that demonstrate they cannot consistently comply with mercury limits that are or will be contained in their NPDES permits. The long-term approach consists of a rulemaking specific to a state-wide mercury variance. The start of this rulemaking was announced in the June 1, 2002, Indiana Register. This letter primarily describes the short-term component and serves as an information piece for the regulated community.

On June 8, 1999, EPA approved a new mercury analytical procedure named Method 1631 [FR Vol.64, No. 109, Pages 30417-30434]. Prior to the approval of this new method, Method 245.1 and Method 245.2 were the EPA approved methods commonly used to analyze for mercury. The major difference between the two older methods and the new method, from a regulatory perspective, is that Method 1631 is considerably more sensitive and is able to measure mercury down to a level that is below mercury water quality criteria.

Specifically, Method 1631 has a level of quantitation of 0.5 ng/l (nanograms per liter or parts per trillion) whereas the level of quantitation of Methods 245.1 and 245.2 is 600 ng/l. In the Great Lakes System, the most stringent mercury water quality criterion is 1.3 ng/l. In the non-Great Lakes System, the most stringent water quality criterion is 12 ng/l. As can be readily seen, the new method is able to measure below both sets of mercury water quality criteria.

LFK

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Arthur E. Smith, Jr.
Vice President & Environmental Counsel

801 E. 86th Avenue
Merrillville, IN 46410-6272
(219) 647.5252
Fax: (219) 647.5271
aesmith@nisource.com

March 20, 2001

Diane Regas
Acting Assistant Administrator, Water
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dept. of Environmental Mgmt.
Commissioner's Office

MAR 21 2001

Re: Cogeneration Facility Project
BP Amoco Refinery Site in Whiting, Indiana

Lake

Dear Ms. Regas:

IN0000108

The purpose of this letter is to bring to your attention a very serious water permitting issue. U.S. EPA Region 5 has asserted a position that is inconsistent with a decision by the Indiana Department of Environmental Management (IDEM) and U.S. EPA's regulations, and that would, if adopted as U.S. EPA's position, create adverse consequences both with respect to the environmentally beneficial cogeneration facility described below and, more generally, other similar environmentally beneficial projects. We understand that U.S. EPA has not yet made a final decision, and the opportunity exists to reach a decision that would avoid delaying the operation of this cogeneration facility, planned to commence within the next several weeks, and to encourage other cogeneration environmentally beneficial energy projects. We request your active support in moving this matter to a rapid conclusion.

Whiting Clean Energy, Inc., (WCE), one of NiSource's affiliates, and BP Amoco are engaged in a relationship that has resulted in WCE completing construction of a combined steam and power (cogeneration) facility at BP Amoco's refinery site in Whiting, Indiana. The cogeneration facility, after public notice and comment, has obtained required air permits. Construction, at a cost in the hundreds of millions of dollars, has progressed in reliance upon, and operations were expected to commence early this summer based upon those permits and a determination, made more than one year ago by IDEM, that neither a new nor a modified water permit is required for wastewater discharges from the cogeneration facility. The wastewater will be processed through the refinery's wastewater treatment system with similar wastewater generated by the refinery. IDEM's decision should be confirmed by U.S. EPA.

cc: OWM
O Air
Tim Mets
Adrian B.

IDEM properly exercised its discretion not to require a new or modified permit. The cogeneration facility will discharge to BP Amoco's private wastewater treatment facility, which, in turn, discharges to Lake Michigan pursuant to BP Amoco's NPDES permit. Based upon an analysis provided to IDEM and U.S. EPA, discharges from the cogeneration facility will be within permit

Thus, the cogeneration facility does not meet the new source criteria, and the Part 423 NSPS are not applicable.

We believe that IDEM has properly exercised its discretion not to require a new or modified NPDES permit. IDEM's decision, if supported by U.S. EPA, will result in immediate environmental benefit from this project and favorable precedent for other similar environmentally beneficial energy projects, without compromising water quality protection. Under the circumstances, U.S. EPA can, and should confirm IDEM's determination that neither a new or modified NPDES permit is required for this project.

Region 5 understands the need to promptly resolve this matter because operations were planned to begin within a few weeks and Region 5 agrees that this project will result in net environmental benefits. Region 5 is scheduling a meeting at U.S. EPA's offices in Washington D.C. to discuss this matter, and the meeting is currently targeted for March 23, 2001. There are two areas of national import: First, overturning the exercise of reasonable judgment by an authorized state should only occur in limited circumstances. The issue of interdependency is a factual issue that U.S. EPA should not inject itself into in this manner and at this late date. The State had the facts and acted reasonably. Second, there is increasing national interest in formulating a sound energy policy, which includes environmental protection. This matter presents a concrete example in which U.S. EPA may allow an environmentally beneficial project to proceed without drafting a law, proposing a regulation, or issuing new guidance to administratively alter permitting procedures or requirements. The result of U.S. EPA following the existing criteria, thereby allowing combined heat and power projects that are substantially interdependent to proceed, will be one of the largest, cleanest, most efficient energy projects in the industrial heartland of the Midwest.

The current situation provides an opportunity for U.S. EPA to clarify permitting obligations for cogeneration facilities, and to set a clear precedent that will permit immediate operation of this environmentally beneficial project and encourage other similar projects. We request your assistance to bring this matter to a rapid conclusion, and we would be happy to discuss any questions or concerns you may have regarding this matter.

Sincerely,

Arthur E. Smith, Jr. KEH

Arthur E. Smith, Jr.
Senior Vice President and
Environmental Counsel

cc: S. Sorrels, BP
L. Kaplan, IDEM
Robert Brenner, U.S. EPA
Robert Wood, U.S. EPA
Jeff Lape, U.S. EPA
G. Prichard, U.S. EPA

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Lake

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www.state.in.us/idem

February 13, 2001

VIA CERTIFIED MAIL 7000 0520 0023 5050 1563

Ms. Jo Lynn Traub
EPA, Region 5
Water Quality Standards
77 West Jackson Blvd
Chicago, IL 60604

Re: Mixing Zone Application for Lake Michigan
NPDES Permit No. IN0000108
BP Amoco Oil Company - Whiting Refinery
Whiting, Indiana

Attached please find a copy of the mixing zone application submitted to the Indiana Department of Environmental Management (IDEM) by BP Amoco Oil Company in Whiting, Indiana. This copy of the mixing zone application is being sent to you pursuant to the requirement in the federal GLI regulations. BP Amoco Oil Company has applied for a mixing zone in Lake Michigan. BP Amoco Oil Company is requesting that the mixing zone be approved for the purposes of calculating water quality based effluent limitations for its renewed NPDES Permit No. IN0000108.

IDEM has identified several deficiencies in the mixing zone application and has requested BP Amoco Oil to submit the following additional information:

1. Current acute and chronic whole effluent toxicity test results.
2. Ambient water toxicity test results.
3. Genotoxic/Mutagenic test results.
4. Test results from In-Vitro Assays for systemic effects.
5. Test results from biosurvey studies for aquatic life.
6. Test results from bioaccumulation studies.
7. Test results from sediment analysis studies.

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February 13, 2001

VIA CERTIFIED MAIL 7000 0520 0023 5050 1563

Ms. Jo Lynn Traub
EPA, Region 5
Water Quality Standards
77 West Jackson Blvd
Chicago, IL 60604

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NPDES Permit No. IN0000108
BP Amoco Oil Company - Whiting Refinery
Whiting, Indiana

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5. Test results from biosurvey studies for aquatic life.
6. Test results from bioaccumulation studies.
7. Test results from sediment analysis studies.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 27 2000

REPLY TO THE ATTENTION OF WN-16J

Matthew C. Rueff, Assistant Commissioner
Office of Water Management
Indiana Department of Environmental Management
P.O. Box 6015
100 North Senate Avenue
Indianapolis, Indiana 46206-6015

Re: Whiting Clean Energy, Inc. Co-Generation Cooling Tower Blowdown

Dear Mr. Rueff:

It has come to our attention (December 21, 1999 letter from you to Messers Smith and Sorrels) that your agency intends to allow the subject facility to discharge through the exiting treatment facilities at BP Amoco in Whiting, Indiana. Your letter also implies that there is no need for a permit application, preparation of a draft permit, public notice and issuance of a new National Pollutant Discharge Elimination System (NPDES) permit for this facility. Such action is in conflict with several Federal Regulations and should not proceed.

To begin, this is a "new source" as defined at 40 CFR122.2 and new sources are required to apply for a NPDES permit as specified at 40 CFR 122.21(a). This conclusion is based on the consideration that a portion of this new power plant is also a new steam electric power plant and categorical effluent limits at 40 CFR 423.15 must be applied in any NPDES permit issued for this facility. Attached is a June 30, 1988 Guidance Memo prepared by Mr Kaplan which is in part the basis for this conclusion. Accordingly, any final issued permit must contain technology based effluent limitations as required by 40 CFR 122.44(a) for the steam electric portion of the power plant.

Since the NPDES permit for the BP Amoco facility has expired, it may not be modified to include this new source. Thus, a new permit must be issued following procedures specified at 40 CFR 124 which includes development of a draft permit and public notice of that draft permit. We request that a copy of the permit, when drafted, be sent to us for review and comment.

Sincerely yours,

William Tonsey for

Rebecca L. Harvey
NPDES Support & Technical Assistance Branch

cc: Mr.Steve Roush, IDEM
Mr. Arther E. Smith, NiSource,Inc.
Mr. Stanley W. Sorrels, BP Amoco

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www.state.in.us/idem

December 21, 1999

Mr. Arthur E. Smith, Jr.
Environmental Officer and Counsel
NiSource, Inc.
801 East 86th Avenue
Merrillville, IN 46410

Mr. Stanley W. Sorrels
Manager, HSE Division
BP Amoco
2815 Indianapolis Boulevard
Whiting, IN 46394

Re: NPDES Permit No. IN0000108, BP Amoco, Whiting, IN
Whiting Clean Energy, Inc. Co-generation Cooling Tower Blowdown

Dear Mr. Smith and Mr. Sorrels:

This letter is in response to the letter from Whiting Clean Energy dated November 29, 1999 and the Technical Analysis of the Cogeneration Blowdown that was sent to IDEM via FAX on December 15, 1999. These documents included information that clarified the impact that the additional cooling tower blowdown from the Cogeneration facility will have on the discharge from the BP Amoco wastewater treatment facility.

My staff have reviewed this information and they now believe that 327 IAC 5-2-11.7(b)(1) applies to this situation. When a new or increased discharge meets the requirements of 327 IAC 5-2-11.7(b)(1), it is allowed to occur. Therefore, the additional cooling tower blowdown from the Whiting Clean Energy, Inc. Cogeneration facility may be added to the BP Amoco wastewater treatment facility regulated through NPDES Permit No. IN0000108 without any permit modification.

Thank you for providing us with the additional information that made this decision possible. If you have any questions, please contact Mr. Steve Roush at 317/232-8706.

Sincerely,

Matthew C. Rueff
Assistant Commissioner
Office of Water Management

SR/sr
cc: U.S. EPA, Region V

12-15-99
Len-
Pls have Steve & Industrial folks review this with early info. ASAP!
Thanks
Kevin

NORTHERN INDIANA PUBLIC SERVICE COMPANY
Subsidiary of NIPSCO Industries, Inc.

SOUTHLAKE COMPLEX
801 East 86th Avenue
Merrillville, IN 46410

Mailing Address: 5265 Hohman Avenue
Hammond, IN 46320-1775

DATE: 12-15-99

TO: Matt Rueff

COMPANY: IDEM

DEPARTMENT:

FAX/LOCATION:

FROM: Kevin E. Hoge

DEPARTMENT: Environmental Affairs

FAX NUMBER: 647-5271

NUMBER OF PAGES TO FOLLOW (*including cover sheet*): 5

If you do not receive all pages, please contact:
219-647-5242

MESSAGE: I wasn't sure you received this part of our letter and I wanted to make sure you did. Thanks

faxcover

TECHNICAL ANALYSIS OF WHITING CLEAN ENERGY COGENERATION BLOWDOWN

There is no prescribed regulatory method or procedure for evaluating whether the additional cooling tower and boiler blowdown will cause a significant change in Outfall 001 quality. The following analysis and series of questions can be posed to demonstrate with a high-level of confidence that the additional cooling tower and boiler blowdown will not cause an overall significant change in Outfall 001 quality.

1. Is additional blowdown within the BP Amoco wastewater treatment plant capacity?

   Yes, as this blowdown is treatable, does not contain substances that would interfere with treatment, will not cause a hydraulic overload, and will not cause violation of discharge limits.

2. Is the BP Amoco WWTP permitted to discharge this type of wastewater?

   Yes, as follows:
   - BP Amoco Whiting Refinery has two power stations, built in 1927 and 1948, that generate steam and electricity for the refinery. The power stations supply approximately 60 to 80 percent of the refinery's steam demand and 40 to 70 percent of the refinery's electricity demand. The remaining steam demand is met by steam production at various refinery process units. The remaining electricity demand is met by purchasing power from NIPSCO (a NiSource subsidiary).
   - Current NPDES Permit does not list specific sources of wastewater to the WWTP or to Outfall 001.
   - Permit Fact Sheet does not list specific sources of wastewater to the WWTP or to Outfall 001.
   - However, the Permit Fact Sheet does state that Cooling Tower Make-up water (approximately 6 mgd) is one of the uses of intake water.
   - It is noted in the Permit Fact Sheet, that one of activities at BP Amoco contributing water to be discharged is the Power Station.
   - The 1989 Permit Renewal Application (PRA) does list cooling towers and boilers as a use of water and source of wastewater.
   - The 1994 Permit Renewal Application (PRA) presents that Cooling Tower Blowdown contributes 1.9 mgd and Boiler Blowdown (with Water Treatment Plant wastewaters) contributes 0.8 mgd to the Outfall 001 total flow of 23 mgd.

3. Will the additional blowdown cause the discharge of new, different, or increased pollutants?

   No, the make-up water for the cooling towers and boilers will be managed as BP Amoco currently manages make-up water for cooling towers and boilers, except that Outfall 001 will not be recycled to the CoGen cooling tower. The water source for the make-up water is Lake Michigan as collected by the BP Amoco (Whiting) Intake.

   The management of the CoGen cooling tower will utilize pH controls, biocides, dispersant, and corrosion inhibitors that have been or are currently utilized by BP Amoco in managing their cooling towers.

4. Will the characteristics of the discharge significantly change from the effluent data presented in the 1989 PRA, 1994 PRA and/or April 1994 to September 1999 DMR's?

No, as follows:

Different evaluations have been conducted to assure that the additional cooling tower blowdown will not cause a significant change to Outfall 001 quality. These evaluations range from best professional judgement, to graphical display, to statistical analysis of effluent flow and zinc. Zinc was selected for evaluation as the CoGen operations will potentially involve addition of a corrosion inhibitor that contains zinc and Outfall 001 effluent monitoring data are available for zinc.

Flow

Outfall 001 Data Sources:

- 1989 Permit Renewal Application (though standard deviation and average monthly average had to be estimated), 1994 Permit Renewal Application, and DMR data from April 1, 1994 to September 30, 1999
- Summary of Outfall 001 data is given in Table 1

CoGen Blowdown Data:

- Based on engineering estimates
- Boiler Blowdown will not be directed to the CoGen Cooling Tower basin
- Cooling Tower operated on 5-cycles with variable blowdown flow as a function of power demands
- Cooling Tower Blowdown Minimum: 400 gpm (0.576 mgd)
- Cooling Tower Blowdown Maximum: 775 gpm (1.116 mgd)
- Boiler Blowdown Minimum: 120 gpm (0.1728 mgd)
- Boiler Blowdown Maximum: 240 gpm (0.3456 mgd)
- Summary of CoGen Blowdown data is given in Table 1

BPJ Assessment:

The long-term or monthly average standard deviation for any of the three time periods is between 3 and 5 mgd. The addition of CoGen blowdown (cooling tower plus boiler) of 0.75 to 1.46 mgd is well within the standard deviation that exists for Outfall 001 flow. The standard deviation for the CoGen blowdown of 0.18 mgd is very small as compared to the Outfall 001 standard deviation of 3 to 5 mgd. Standard deviations are given in Table 1.

Three different scenarios are developed in Table 1 for generating Outfall 001 flows with CoGen:

- Long-term average flow + CoGen Blowdown average flow
- Average of monthly average flow + CoGen Blowdown average flow
- Maximum monthly average flow + CoGen Blowdown maximum flow

Statistical and Graphical Assessment:

Table 2 presents other assessments of the additional flow from the CoGen blowdown to Outfall 001 based on the three different Table 1 scenarios.

The first assessment is based on percent difference between Outfall 001 flow without and with CoGen blowdown for the three time periods. The percent difference is less than 8.5 percent in all cases. As a mechanism to determine whether an 8.5 percent

difference in flow is significant, the acceptable (95 percent confidence) flow measurement variability is 9.8 percent. In other words, it would be difficult, at a 95 percent confidence level, to measure the difference in flow due to the CoGen blowdown.

The second assessment is based on whether the addition of the CoGen blowdown would have altered the historically measured maximum for Outfall 001 from April 1991 to September 1999. Figure 1 presents the daily maximum and minimum for the month and a "new Outfall 001 average" that is the DMR monthly average + the maximum CoGen blowdown. Figure 1 has been generated assuming BP Amoco would not change WWTP management for flow. As shown in Figure 1, the additional blowdown would not cause Outfall 001 to exceed the actual measured maximum.

The third assessment is to statistically determine (using Student's t-test) whether the averages generated for Outfall 001 with CoGen blowdown are significantly different from the actual averages for Outfall 001. A Student's t-test can be used as the monthly average flow data are normally distributed and is applicable to small (e.g., $n < 40$) sample sizes. It will be assumed that the number of samples and standard deviations would be equivalent between Outfall 001 without CoGen blowdown and Outfall 001 with CoGen blowdown. Due to the assumption of equal small sample sizes, only the database of monthly averages will be statistically evaluated. Statistical methods for analysis of means and variability for large sample sizes are beyond the scope of this effort.

The statistical analysis of the averages of the monthly averages from the data summaries for the 1989 Permit Renewal Application and the 1994 Permit Renewal Application is given in Table 3. For these two datasets (time periods):

- Outfall 001 average of monthly averages with CoGen blowdown is not statistically significantly different from the Outfall 001 average of monthly averages without CoGen blowdown based on a 99% confidence level ($\alpha = 0.01$).

Zinc

The evaluation used for flow was generally followed to determine the impact of zinc from the CoGen cooling tower and boiler blowdown on Outfall 001 effluent quality. Zinc was evaluated as the blowdown concentrations may change from the intake concentrations due to cooling tower operational management. Zinc is a component of a potential corrosion inhibitor.

The projected masses for zinc in the cooling tower and boiler blowdown are given Table 4. These characteristics are slightly different from information submitted August 24, 1999 due to revised engineering estimates.

Outfall 001 data are based on information submitted in the 1994 NPDES Permit Renewal Application (PRA). The 1989 PRA has only one result for zinc, hence the 1989 PRA cannot be used for statistical evaluations.

The first assessment conducted was a simple comparison of the percent difference between Outfall 001 without CoGen and Outfall 001 with CoGen. Table 5 presents the

outcome of this assessment for zinc. The percent differences (comparing maximums to maximums and averages to averages) ranges from 5.8 percent 17.4 percent. The next consideration is whether these percent differences would be measurable. As demonstrated in Table 5, the percent differences would not be consistently measurable, using USEPA methods and 95 percent confidence intervals for zinc.

The second assessment used the Student's t-test statistical analysis for zinc using the Outfall 001 long-term average (also the n and s) from 1994 PRA and engineering estimates of an average mass from CoGen blowdown added to Outfall 001 long-term average mass. Table 6 presents the result of the Student's t-test for zinc. The zinc Outfall 001 long-term average with CoGen blowdown is not statistically significantly different from the Outfall 001 long-term average without CoGen blowdown based on a 99% confidence level.

Based on these assessments, the effluent quality will not change significantly for zinc due to the addition of the CoGen blowdown to Outfall 001.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

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October 20, 1999

Mr. Arthur E. Smith, Jr.
Environmental Officer and Counsel
NiSource, Inc.
801 East 86th Avenue
Merrillville, IN 46410

Re: Whiting Clean Energy, Inc.
Co-generation Cooling Tower Blowdown

Dear Mr. Smith:

This letter is in response to your letter dated August 24, 1999 in which you presented your position on the non-applicability of 327 IAC 5-2-11.7 to the new discharge of cooling tower blowdown from the electric co-generation station being proposed by Whiting Clean Energy, a subsidiarity of NiSource, Inc. My staff and I have reviewed the documents and tables attached to your letter which explain the rationale for your position and we believe that 327 IAC 5-2-11.7 does apply to this new discharge of cooling tower blowdown.

In the document attached to your letter you explained how the cooling tower blowdown from the new electric co-generating station will be directed to the existing BP Amoco wastewater treatment plant which is currently permitted to treat and discharge wastewater generated by the BP Amoco Oil Refinery including the blowdown from six cooling towers currently in operation at the BP Amoco Petroleum Refinery. NiSource's arguments against the applicability of 327 IAC 5-2-11.7 are summarized as follows:

1. Based on a review of the information contained in the NPDES permit renewal application for BP Amoco's Outfall No. 001(provided in 1989 and 1994), the additional blowdown from the Whiting Clean Energy, Inc. cooling tower is within the existing permit limits for Outfall 001 and will not change the effluent characteristics in Outfall 001 beyond the variability in the maximum values of flow, concentration and mass. There is no request to change any of the existing permit conditions or limits since BP Amoco will be able to comply with the existing permit conditions and limits after the inclusion of this cooling tower blowdown.

2. A demonstration was provided that Lake Michigan receiving waters will be maintained and protected in their present high quality without degradation in accordance with 327 IAC 5-2-11.7(a) by using a formula which compared the Projected Effluent Quality (PEQ) of the cooling tower blowdown and the PEQ of Outfall 001(based on the 1989 and 1994 permit renewal applications) to the Waste Load Allocation (WLA) of the cooling

tower blowdown and the WLA of Outfall 001(based on the mixing zone application submitted by BP Amoco in 1994). The demonstration showed that the PEQ for the cooling tower blowdown and Outfall 001 were less than the WLA for the cooling tower blowdown and Outfall 001.

3. An interpretation of 327 IAC 5-2-11.7 stating that 327 IAC 11.7(c) is only evaluated (and therefore only applicable) if the conditions of 327 IAC 5-2-11.7(a) are not met and the provisions of 327 IAC 5-2-11.7(b) are not applicable.

4. The exemption found in 327 IAC 5-2-11.7(b)(4) applies to any increase in arsenic, chlorides and copper because any increase in these substances would be due solely to their presence in the Lake Michigan intake water.

5. All of the pollutants that will be generated by the new cooling tower blowdown are already discharged from the BP Amoco facility.

6. The additional cooling tower blowdown from Whiting Clean Energy to the BP Amoco wastewater treatment plant will not change the effluent characteristics beyond the variability in and the maximum values of flow, concentration and mass being discharged from the BP Amoco wastewater treatment plant based on the information contained in the 1989 and 1994 permit renewal applications for BP Amoco's NPDES permit.

The IDEM Office of Water Management does consider the new discharge of cooling tower blowdown from the proposed electric co-generation facility owned by Whiting Clean Energy to the BP Amoco wastewater treatment facility to be a new discharge of pollutants to an OSRW(Lake Michigan). The fact that the new pollutants are similar to the ones already being discharged from the BP Amoco wastewater treatment plant is not relevant.

The fact that all of the existing permit limits do not need to be modified to accommodate the cooling tower blowdown from Whiting Clean Energy and that all existing permit conditions and limits will be met is not relevant to meeting the antidegradation demonstration for a new or increased discharge of pollutants into an Outstanding State Resource Water (OSRW). The reason is that any addition of a pollutant at a concentration above the representative background level that does not fall under one of the exemptions found in 327 IAC 5-2-11.7(b) is considered to be degradation.

The exemption contained in 327 IAC 5-2-11.7(b)(4) does not apply to the pollutants increased in the discharge from Outfall 001 that are due solely to their presence in the Lake Michigan intake water because the pollutants in the intake water will be at much higher concentrations when they leave the cooling tower. The cooling tower discharge will also contain water treatment additives for pH control (sulfuric acid), corrosion inhibition (zinc and phosphates) and dispersion (unknown pollutants). These are all considered to be new discharges of pollutants.

327 IAC 5-2-11.7(c) does apply to all new or increased discharges of a pollutant into an OSRW except for the exemptions listed in 327 IAC 5-2-11.7(b) based on the wording of the first phrase in the first sentence of 327 IAC 5-2-11.7(c) "Notwithstanding subsection (a)(1) and (a)(2),". In accordance with 327 IAC 5-2-11.7(c)(2) and (3), a new or increased discharge of a non-BCC from an facility with an existing NPDES permit (BP Amoco) may be permitted using the following criteria:

1. The factors contained in IC 13-14-8-4.
2. The applicant has demonstrated that all economically and technically feasible measures have been undertaken to avoid the action that will result in the new or increased discharge of the substance, including a demonstration that it is not feasible to limit the new or increased discharge to a temporary or short term period.
3. The new or increased discharge uses no more than ten percent (10%) of the unused loading capacity for the substance.

The total loading capacity must be determined before the unused loading capacity can be determined and the total loading capacity is the product of the applicable water quality criterion times the sum of the existing effluent flow and the appropriate mixing volume for Lake Michigan expressed as a mass loading rate. The unused loading capacity is the amount of the total loading capacity not utilized by point and non-point source discharges established at the time the request to lower the water quality is considered. The appropriate mixing volume for Lake Michigan has not been established by IDEM and the demonstration required by 327 IAC 5-2-11.7(c)(2) has not been submitted by BP Amoco.

The Existing Effluent Quality (EEQ) for Outfall 001 needs to be established so that the unused loading capacity within the appropriate mixing volume of Lake Michigan can be established. The EEQ should be based on recent effluent quality data, not the 1989 or 1994 effluent quality data unless it is shown that the 1999 EEQ is greater than the 1989 or 1994 EEQ. If the effluent quality has increased in concentration or loading since 1989, then those increases are not in compliance with the existing and previous antidegredation regulations that require Lake Michigan to be maintained in its present high quality without degradation. If there is not any data available for a pollutant, then the effluent from Outfall 001 needs to be sampled and analyzed to establish the EEQ for that pollutant.

The exemption for changes in loadings of any substance within the existing capacity and processes that are covered by the existing applicable permit (327 IAC 5-2-11.7(b)(1)) issued to BP Amoco does not apply to the new discharge of cooling tower blowdown from the proposed electric co-generation facility owned by Whiting Clean Energy because the existing permit issued to BP Amoco does not cover the discharge of any wastewater generated from the production of electricity. The existing permit does cover the discharge from the existing cooling towers used by BP Amoco, but it does not cover the discharge from the cooling tower proposed by Whiting Clean Energy. The permit only covers the discharge of wastewater generated from the refining of petroleum by BP Amoco.

The wasteload allocation (WLA) that will be determined upon consideration of the mixing zone demonstration will be the highest limits that are possible due to the requirements of 327 IAC 5-2-11.7(a)(3) which prohibit the regulated facility from undertaking any deliberate action that would result in a degradation of water quality of the OSRW. To satisfy this condition, the WLA will be reduced to a level that is equal to the EEQ. Also, all future WLAs will be reduced to a level that is equal to the EEQ at the time of the permit action. Any additional increase in the discharge of a pollutant shall be equal to the representative background level of that pollutant in the OSRW.

My staff and I are ready to assist you through the process of meeting the antidegredation rules and obtaining a new permit for BP Amoco which needs to be issued before this new discharge can be allowed. I have scheduled a meeting to discuss your proposal on November 12th from 10:00 am to 12:00 Noon at the Indiana Government Center North, Commissioner's Conference Room located on the East end of the 13th floor. If you are not available at this time, please contact Mr. Steve Roush at 317/232-8706 for assistance.

Sincerely,

Matthew C. Rueff
Assistant Commissioner
Office of Water Management

SR/sr

OFFICE
OF
WATER MANAGEMENT
IDEM

AUG 26 2 13 PM '99

Whiting Clean Energy

A NiSource Company
801 East 86th Avenue, Merrillville, IN 46410

August 24, 1999

Mr. Len Ashack
Indiana Department of Environmental Management
Office of Water Management
100 North Senate
P. O. Box 6015
Indianapolis, IN 46206-6015

RE: WHITING CLEAN ENERGY, INC.
COGENERATION COOLING TOWER BLOWDOWN

The attached document, with its four supporting tables, is being submitted in response to IDEM's request during a conference call on August 2, 1999.

It is shown that the interim antidegradation rules for Lake Michigan are not applicable to the cooling tower blowdown from the Whiting Clean Energy cogeneration project. Specifically, based on the provisions of 327 IAC 5-2-11.7(a)(1) and (b)(4), the cogeneration cooling tower blowdown, as treated by the NPDES-permitted BP Amoco wastewater treatment plant and discharged to Lake Michigan via Outfall 001, will not degrade Lake Michigan water quality. Subsequently, a formal antidegradation demonstration is not necessary or required for the cogeneration cooling tower blowdown and no alterations to the current Outfall 001 permit conditions and limits are required to accommodate this blowdown.

Whiting Clean Energy requests that IDEM review this submittal. Please direct any questions through Mr. Kevin Hoge of my staff (219-647-5242).

Sincerely,

Jack L. Mathews / for

Arthur E. Smith, Jr.
Enviromental Officer and Counsel
NiSource, Inc.

OFFICE
OF
WATER MANAGEMENT
IDEM
AUG 26 2 13 PM '99

Whiting Clean Energy, Inc. Co-Generation Facility at
BP Amoco Whiting Refinery - NPDES Permit No. IN0000108
Antidegradation Applicability

Whiting Clean Energy Inc. is providing this assessment of the applicability of the recently Water Pollution Control Board approved interim antidegradation implementation rules for outstanding state resource waters to a cooling tower blowdown discharged to Lake Michigan.

Whiting Clean Energy is planning to install a cooling tower as part of the construction of a Co-Generation (Co-Gen) facility located at the BP Amoco Whiting Refinery. The blowdown from the cooling tower will be directed to the BP Amoco Lakefront Wastewater Treatment Plant (WWTP), as is blowdown from six BP Amoco cooling towers currently in operation. The BP Amoco WWTP is permitted (i.e., 1989 NPDES Permit with renewal application filed August 1994) to treat and discharge, among other types of water, cooling tower blowdown to Lake Michigan via Outfall 001.

The make-up water for the Co-Gen cooling tower will be supplied by the BP Amoco intake (from Lake Michigan). Table 1 presents the background concentrations of constituents detected in Lake Michigan intake water. Whiting Clean Energy is planning to routinely operate the cooling tower on 5 cycles generating a maximum blowdown of 1.116 mgd. When operating the cooling tower at 5 cycles, sulfuric acid will be required for pH control. Whiting Clean Energy could also operate the cooling tower at 3 cycles that would not require pH control, but would generate a larger maximum blowdown of about 2 mgd.

Based on review of Outfall 001 Form 2C information provided in the 1989 and 1994 NPDES Permit Renewal Applications, the additional blowdown to the WWTP is within the permit limits and will not change effluent characteristics beyond the variability in and the maximum values of flow, concentration, and mass. Also, the current Outfall 001 permit limits will continue to be attained. BP Amoco is not requesting any changes to the current permit conditions or limits due to receipt of this cooling tower blowdown at the WWTP.

Even if it is argued that the additional cooling tower blowdown is an increased discharge, implementation of the Lake Michigan antidegradation rule is not applicable or appropriate. Verification that Lake Michigan receiving waters will be maintained and protected in their present high quality without degradation is provided herein. The process of verifying that antidegradation is preserved for a direct discharge to Lake Michigan is found in 327 IAC 5-2-11.7(a)(1), (b)(4), and (c). It should be noted that subsection 11.7(c) is evaluated only if the conditions of (a)(1) are not met and the provisions of (b)(4) are not applicable.

<u>Subsection (b)(4) - Actions Exempted from Antidegradation Implementation Procedures</u>

Subsection (a)(1) does not apply if the increased discharge of constituents is due solely to the presence of the constituent in the intake source (when the facility withdraws intake water from the same body of water) as per (b)(4). Any increase in arsenic, chlorides, and copper would be due solely to the presence of these constituents in the