DEVELOPER FREED FROM JAIL IN OCTOBER

Opponents now say Bostic obeying disclosure orders

By TRICIA ROBERTSON
Staff Writer

Lawyers who got developer Marlow Bostic put in jail for contempt of court are satisfied that he has now complied with orders to disclose all of his assets.

Wilmington lawyer Joel Rhine said he and law partner Gary Shipman are now negotiating with Mr. Bostic and his lawyers concerning payment of a multimillion-dollar judgment against the developer and Winston-Salem oilman Roger Page.


Bostic

"We have withdrawn our motion for civil contempt," Mr. Rhine said, meaning unless Mr. Bostic fails to reach a payment agreement satisfactory to the people who won the judgment, the matter won't go back to court.

It was as a result of that motion that U.S. District Judge James C. Fox of Wilmington ordered Mr. Bostic jailed Aug. 6 after finding that he violated court orders to disclose all his assets to Mr. Rhine and Mr. Shipman. The lawyers represent a group of people who bought lots in Ocean Ridge, a North Topsail Beach subdivision developed by Mr. Page and Mr. Bostic.

Lot owners sued after they found they couldn't build because the developers failed to get the required environmental permits.

The owners sued after they found they couldn't build on their lots because the developers failed to get the required environmental permits. They also did not complete street

Please see BOSTIC *on page 4A*

Bostic

Continued from page 1A

lighting, a swimming pool and other amenities as promised.

In 1992, juries in two trials awarded the property owners a total of $13 million. The amount was cut to about $5.3 million by a federal appeals court last year.

Shortly after the trials, Mr. Bostic and Mr. Page claimed they were broke and couldn't pay. U.S. Magistrate Alexander B. Denson found that the pair were transferring assets in an attempt to avoid paying the judgment.

He ordered them to disclose all their assets and stop transferring their holdings to other people.

In August, Judge Fox found that Mr. Bostic still had not complied and ordered him jailed for contempt of court.

One source of contention was a corporation called Golden Acres, which holds most of the land the Ocean Ridge property owners say Mr. Bostic owns. The company listed assets of $10.8 million in 1992. Mr. Bostic claimed he did not own Golden Acres. The plaintiffs, Judge Fox and income tax records say he does own the corporation.

Judge Fox freed Mr. Bostic in October so he could help his lawyers negotiate a settlement with the plaintiffs. Those negotiations continue, but Mr. Rhine said he feels confident his clients will be compensated. He said the parties have agreed to keep secret any pending agreements.

Mr. Rhine wouldn't say whether Mr. Bostic has acknowledged that Golden Acres is his corporation or if part of the judgment would be paid with that corporation's assets.

The plaintiffs already have come to an agreement with Mr. Page for payment of his share of the judgment. Mr. Rhine wouldn't say how much money would change hands because that agreement is also secret.

"We hopefully will be compensated by both of them," Mr. Rhine said.

Meanwhile, Mr. Rhine said his clients have decided not to appeal a ruling that cut the judgment against Mr. Bostic and Mr. Page. The 4th Circuit Court of Appeals ruled that the original award was too high. The plaintiffs considered appealing to the U.S. Supreme Court.

"We decided as a business decision that it wasn't worth the money," he said. "We were satisfied we can place our clients in the position they want to be with the assets that have been disclosed."

Mr. Bostic still faces a charge of criminal contempt, for which he could be sentenced to life in prison. A court date has not been set.

(6)

What the U.S. needs to clean up the most is the litigious Superfund process

Too much Superfund money is wasted paying lawyers. The program needs to be reformed and lawyers removed from the process.

BY JAMES M. STROCK

Superfund, the federal program to clean up the nation's toxic waste sites, has become the environmental equivalent of the Defense Department's $600 toilet seat.

The aim is worthy enough: to clean up hazardous wastes left buried in the ground, which leach into groundwater and threaten homes and neighborhoods. But after more than a dozen years and nearly $30 billion, the U.S. Environmental Protection Agency concedes clean-up has been completed at fewer than 200 of the 2,000 sites that pose the greatest threat to public health. The eventual cost is estimated at between $100 billion and $700 billion. How can this be? A recent Rand Corporation report found that nearly one-third of the money spent at studied sites has gone to "transaction costs" — bureaucratic jargon for lawyer and consultant fees. That's because Superfund embraces a nightmarish definition of liability. For one thing, it is retroactive, meaning individuals or companies are now held liable for activity that was legal when it occurred.

Second, the definition is wildly expansive. People who briefly owned property that earlier had become contaminated may be liable; municipalities may be liable for arranging for the transportation of hazardous wastes, even if required by law to do so; and those who sell scrap metal to recyclers may become liable for spills at the recycler's plant, if the sellers knew the recycling process would include spillage.

This malleable definition of liability has hit the insurance industry with huge litigation costs. Hardly any businesses escape the liability noose: old-time manufacturers in industries such as printing, paints, auto parts or aviation; modern industries, such as computer-chip producers; and small businesses, such as dry cleaners (which can watch their lines of credit vaporize overnight if they become potentially liable in a suit).

In my own state of California, we see monuments to Superfund all around us. Public officials in Oakland have complained to me that fear of toxic liability is holding up redevelopment of the city's downtown area. That's because under Superfund rules, the purchaser of a property is liable for clean-up costs of any hazardous wastes that may be found there. And once imposed, liability for waste clean-up is open-ended; costs typically run to more than $30 million per site.

The result, of course, is to discourage investment in industrial inner cities. Business executives tell me it is much less risky to develop property in pristine exurban areas that have not yet been industrialized.

Such disincentives make no environmental sense. Indeed, the cumbersome and litigious Superfund process — often involving hundreds of liable parties — can stall clean-up efforts for months or years. This has prompted the state of California to ask the EPA not to list certain sites on its Superfund priority list.

Take, for example, the Mare Island Naval Station, scheduled for closure in 1996, which has a problem with hazardous wastes. Cal/EPA has decided the best way to convert the base to commercial use is by circumventing the Superfund process.

There are several steps that could be taken to reform the Superfund program and begin to take lawyers out of the process, including:

- *Repeal retroactive liability.* For actions taken before Superfund passed, Congress should calculate the cost of clean-up and allocate it among those who benefit from it — whether all of us or specific sectors of industry — and not pin it on whoever happens to be the current owner.
- *Differentiate between polluters and clean-up contractors.* The Superfund liability system touches virtually anyone making an operational decision regarding a clean-up. Instead, clean-up contractors, when working in accord with government mandate, should not fear being swept into the same liability dragnet as initial polluters.
- *Create an insurance system to terminate clean-up liability.* Once satisfactory clean-up efforts have been made, liability should cease. For remedies that are insufficient, but when there is not evidence of negligence or fraud, funding could be provided through a generic insurance mechanism.
- *Delegate the program to the states.* Because Superfund sites involve, at core, land-use issues — and because development of "green" areas is now subsidized by the program — states are better positioned than Washington to make progress. The key will be to transfer the funding without attaching unduly bureaucratic federal strings.

In his first State of the Union address, President Clinton seemed aware of the central problem: "I'd like to use that Superfund to clean up pollution for a change and not just pay lawyers." A year later, however, his administration has failed to act. If Superfund is not to generate another banner year for corporate bean counters, the administration must clean up the law now.

James M. Strock, California's secretary for environmental protection, was former chief law enforcement officer for the EPA. This is adapted from an essay in the Winter 1994 Policy Review, the quarterly journal of The Heritage Foundation.

October 4, 1990

To: File

From: Pat DeRosa PD

Re: Current disposition of files listed below

On October 3, 1990, I spoke by telephone with Robert Morris, EPA Project Officer, Region IV, (404) 347-5065 regarding the current disposition assigned by EPA to the sites listed below. These sites have been assigned as NFRAP status (No further remedial action planned) as a result of information gathered during the preliminary assessment.

Site Name	ID#
Alandale Dr. (4008) Chemicals	NCD981929557
Bostic Drum	NCD982119554
Buckhorn Road	NCD982119588
Chadbourn Tire Fire	NCD986166460
Duke University Transformer St	NCD986171098
Gibbs Electroplating	NCD980848766
Gibson Midnight Dumping Site	NCD982119620
Gillcrest Road Drum Midnight	NCD981929243
John Deere Tractor	NCD981928385
NC DOT Maintenance Yard PCB	NCD982119612
PCB Contamination Wells	NCD981932932
Poulos Groundwater Contamination	NCD986170694
Queens Property	NCD079045027
Sampson County Trash Dumpster	NCD981929797
SCM-Glidden Metal Finishers	NCD037160116
Union County Drum	NCD981930217
Vass Truck Wreck	NCD981929391
West Carolina Smelting	NCD981929979

6

2:50 PM

66670

Sam Bass Camera & Video

A YORK COMPANY

Cameron Village
434 Woodburn Road
Raleigh, NC 27605

INVOICE

INVOICE DATE	INVOICE NUMBER
6/28/89	C01I068985

SOLD TO
NC DEPT HUMAN RESOURCES
DIV. HEALTH SERVICES
PO BOX 2091
RALEIGH NC 27602

SHIP TO
NC DEPT HUMAN RESOURCES
DIV HEALTH SERVICES
PO BOX 2091
RALEIGH NC 27602

CUSTOMER NO.	PURCHASE ORDER NO.	SHIP VIA	SALESMAN	TERMS	PAGE NO.
140756			00 33	NET, 10 DAYS EOM	1

ORDERED	B/O	SHIPPED	U/M	ITEM NUMBER	VENDOR	DESCRIPTION	UNIT PRICE	AMOUNT	TX
1		1	EA	PDP	KLX	PROCESSING, DEVL, & PRINT	14.49	14.49	5
		EXPR		PAYMENT TYPES		CREDIT CARD/CHECK #	APPROVAL	AMOUNT	
		0000		SAM BASS CHARGE				15.21-	

BOSTIC DRUM

ALL CHARGES MUST HAVE NAME AND SIGNATURE

EDWARD WALLINGFORD
PLEASE PRINT NAME

SIGNATURE

Thank You

ATTN: PAT BOWDEN
SUPERFUND BRANCH

CUSTOMER INVOICE

SUB TOTAL	14.49
TAX	.72
TOTAL	15.21
PAYMENT	.00
AMOUNT DUE	15.21

O.H. Materials Corp.
405 Mohawk Road
P.O. Box 1190
Clermont, FL 32711
904-394-2196

OHM

September 4, 1987

Mr. Jim Kapotic
U.S.E.P.A. Region IV
345 Courtland Street
Northeast Atlanta, GA 30365

Dear Jim:

Please consider this an update of O.H. Materials Corp. (OHM) understanding of the Bostic site project, since our telephone conversation on September 3, 1987.

We understand that you are currently negotiating with Mobay Chemical, the producer of the dinitrophenol, to treat the material at their facility in North Carolina. Mobay seems to be prepared to do this if the proper authorizations can be secured from the EPA RCRA section regarding permitting. Mobay currently does not have the proper RCRA TSD permit. You are also in contact with EPA attorney's and RCRA staff regarding the legalities of this option.

If the proper authorizations can be secured for Mobay Chemical to treat at their facility, OHM may not have any further involvement or only be required to repackage the material for transport to their facility.

If this cannot be worked out, the most viable alternative at this time seems to be off-site disposal by incineration. In working with our transportation and disposal staff in Findlay, Ohio, the most viable means of disposal would be at Stablex, Inc. of Rock Hill, South Carolina. Stablex would require the material to be mixed into a 50 percent by weight solution with ethanol or benzene. This would result in a threefold volume increase of material or approximately 300 drums. With disposal at $550 per drum, the total cost would be $165,000 for disposal alone. In addition, Stablex will not accept the material until a sample of the mixture is approved by their laboratory.

Regarding on-site treatment by OHM, preliminary opinions are that this too would be very costly to the point of being cost prohibitive. This assessment was made after consultations with Peter Grajczak of our regional office in Roswell, Georgia.

OHM will begin preliminary planning towards the off-site disposal alternative in case the Mobay option cannot be resolved.

If you should have any questions or further information, please call me at (904) 394-2196.

Sincerely,

Robert Mangham/dlb

Robert Mangham
Project Manager

RFM:dlb

pc: Bucky Thompson, OHM, Roswell, Georgia

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

SEP 4 1987

CERIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Keith E. Fountain
Lanier and Fountain
Attorneys at Law
114 Old Bridge Street
Jacksonville, North Carolina 28540

Re: Bostic Site
Holly Ridge, North Carolina

Dear Mr. Fountain:

The Environmental Protection Agency (EPA) has determined that the storage of drums of dinitrophenol in the Bostic equipment garage, Holly Ridge, North Carolina, may pose an imminent and substantial endangerment to the public health or welfare or the environment because of the release or threat of release of hazardous substances as defined in Section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) 42 U.S.C. §9601. Consequently, an Administrative Order was issued May 12, 1987 to Mr. Marlow Bostic. Mr. Bostic received the Order on May 18, 1987. The Order specified certain activities and terms which were to be completed within a certain period of time.

On June 3, 1987 EPA met with you and Mr. Bostic to discuss the Order. Because of the cooperation exhibited by Mr. Bostic during the meeting, the deadlines set in the Order to commence and complete the cleanup were extended to July 17, 1987. Mr. Bostic has not met any of those deadlines, including the cleanup of the dinitrophenol required in the Order. Because of the hazards presented by the illegal storage of dinitrophenol in the Bostic garage, cleanup of the site is imperative.

On July 20, 1987 you were contacted by Mr. Jim Kopotic of my staff and notified that EPA was initiating removal activities at the Bostic Site. August 5, 1987 EPA collected samples from the drums to characterize the waste for disposal.

Currently, the EPA is proceeding with the cleanup of dinitrophenol stored in the Bostic garage located 1.5 miles north of Holly Ridge, Onslow County, North Carolina. If you have any further questions regarding the matter, you may contact Mr. Jim Kopotic at 404/347-3931 or Ms. Elizabeth Osheim, Assistant Regional Counsel, at 404/347-2641.

Sincerely,

Patrick M. Tobin,
Director
Waste Management Division

cc: Jerry Rhodes
NC-DHR

NORTH TOPSAIL WATER & SEWER, INC.

Lot 14, Coastal Drive
Sneads Ferry, NC 28460

Ph: (919) 328-1100 - 289-2363

September 2, 1987

Mr. James D. Kopotic
c/o U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Kopetic:

As per our conversation, I am herewith enclosing the latest information I have recieved in reference to the disposal of the chemicals at my shop on Rt. 17, Holly Ridge, N.C.

If there are any further questions, please contact me at my office.

Very truly yours,

Marlow Bostic (lt)

Marlow Bostic

MB:lt

Enclsoure

CC: K. Fountain, Attorney

ECOFLO

P.O. Box 692
Bladensburg, MD 20710
(301) 773-9500

P.O. Box 10383
Greensboro, NC 27404
(919) 855-7925

August 28, 1987

Mr. Marlo Bostic
NORTH TOPSAIL SHORES
Box 223 Coastal Drive
Sneads Ferry, NC 28460

Dear Mr. Bostic:

After receiving the laboratory analysis on your materials from Dr. Rubin, I have prepared this quotation for the management of your wastes. The methods selected for your materials consider current and future liabilities, and are fully warranted under ECOFLO's Terms and Conditions.

2,4,-Dinitrophenol	Landfill	$247.00/55-gallon

The above costs are based upon a minimum of 80 55-gallon drum containers and include all transportation and disposal fees. Any containers which are not in acceptable condition can be repackaged into 85-gallon over-pack drums. Any overpacks are subject to a surcharge of $50.00 per drum. On-site services and materials shall be billed in accordance with ECOFLO's Time and Materials Rates and Policies (enclosed). The enclosed Pre-disposal Authorization specifies the acceptance fees involved with your waste. When you are ready to proceed with the acceptance process, please sign and return the Pre-disposal Authorization Form to my attention with your purchase order. Also please sign and return the enclosed Material Characterization Form, and the Proposal and Service Agreement, keeping the customer copies. A valid EPA Identification Number is required in order to complete this project, so please make sure you secure one from the State before we begin the project.

I look forward to working with you on this project, and I will contact you soon to discuss how you want to proceed.

Sincerely,

ECOFLO, INC.

Chris Davis
Account Manager

mya

Enclosures

AGRICULTURAL
EXTENSION
SERVICE

North Carolina State University
School of Agriculture and Life Sciences

Department of Biological and
Agricultural Engineering
Box 7625, Raleigh, NC 27695-7625
Telephone (919) 737-2675

Mr. Chris Davis
ECO-FLO
2750 Patterson Street
Greensboro, NC 27407

Dear Mr. Davis:

SUBJECT: 24-DNP

You had some concerns that the chemical compound currently under Mr. Bostic's control does not contain dioxane. Samples of the material have been analyzed by a private consulting laboratory. Samples were analyzed using gas chromatography mass spectrophotometer and other appropriate analytic techniques.

The results of the chromatographic analysis are attached. The chromatogram indicate selected organic compounds, none of which appear to be dioxane.

If you have questions, please contact me at the letterhead address. I have enjoyed working with you and Mr. Bostic on this and I look forward to seeing this project completed.

Sincerely,

A. R. Rubin, Extension Specialist
Biological and Agricultural Engineering

ARR:dl
Attachment

cc: Marlow Bostic

TIME AND MATERIALS RATES
(July 1987)

P.O. Box 692
Bladensburg, MD 20710
(301) 773-9500

P.O. Box 10383
Greensboro, NC 27404
(919) 855-7925

A. Technical Personnel

		($/hour)
1.	Project Manager	$ 50.00
2.	Crew Leader	45.00
3.	Chemist	40.00
4.	Driver/Technician	35.00

NOTE:
1. Time and a half will be charged for all weekday work commencing before 8 AM or continuing after 4:30 PM.
2. Double time will be charged for all weekend and holiday work and for work done on an emergency or "rush" basis.
3. All rates shall be charged portal to portal.
4. Work involving an overnight travel will be subject to a subsistence charge of $80/man/day.

B. Equipment

		($/unit)
1.	Pick up or Van	$ 20/hr
2.	12' Truck	25/hr
3.	18' or 20' Truck	30/hr
4.	Tandem Axle Tractor	40/hr
5.	5000 gal. Tank Trailer	125/day
6.	40-45' Van Trailer	45/day
7.	SS Vaccuum Trailer	175/day
8.	Autos	80/day
9.	Air Packs ..... (each recharge $12.00)	65/day
10.	Teal Hand Pump	20/day
11.	Lutz Drum Pump	50/day
12.	Wet/Dry Vac	20/day
13.	Fork Lift (2500#) ..... (Fork lift requires delivery charge)	130/day
14.	Double Drumgrabber	80/day
15.	Drum Pouring Attachment	80/day
16.	Banding Machine	35/day
17.	Chain Saw	50/day
18.	Cut-off Saw	50/day
19.	Supplied Air System ..... (2 man minimum)	100/man/day
20.	Air Packs ..... (plus recharges @ $20)	65/day
21.	Other	

Subcontract Equipment will be billed at invoiced cost plus 30%.

C. Materials ($/each)

1.	55 gal. steel drum	.....	$ 34.00
2.	55 gal. poly drum	.....	35.00
3.	55 gal. PCB drum (17-C)	.....	45.00
4.	40 gal. fibre drum	.....	18.00
5.	30 gal. fibre drum	.....	20.00
6.	20 gal. fibre drum	.....	14.00
7.	10 gal. fibre drum	.....	8.00
8.	12A/12B boxes	.....	8.00
9.	5 gal. pail-DOT 37A	.....	10.00
10.	Salvage Drums	.....	135.00
11.	Sample Bottles (Nalgene)	.....	4.00
13.	COLIWASA-3/4"	.....	18.00
14.	COLIWASA-2"	.....	20.00
15.	Clay Adsorbent (50# bag)	.....	7.00
16.	Vermiculite (4 ft bag)	.....	8.50
17.	Sawdust	.....	7.00
18.	Packaging Tape	.....	5.00
19.	Labels (all types)	.....	.50
20.	Lime (50# bag)	.....	7.50
21.	Sodium Bicarbonate (100# bag)	.....	100.00
22.	Protective Clothing *		
	Package #1- (Tyveks/Respirator/Gloves)		70.00
	Package #2- (Saranek/Respirator/Gloves)		80.00
	Tyveks		12.00
	Saranex		20.00
	Respirator Cartridges (pr.)		20.00
23.	Other Materials may be provided at cost plus 30%.		

* A credit of $20 will be applied to each applicable Protective Clothing charge when breathing air systems are used instead of respirators.

D. Transportation and Disposal

Transportation and disposal shall be quoted upon request.

revised 7/87

ADDITIONAL PRICING INFORMATION
(July 1987)

1- For all new waste streams generated which require profiling prior to disposal, a $100.00 per waste profile cost will be incurred. Additionally, any costs associcated with analytical work or the processing of waste streams at disposal facilities will be charged. The above charge will also apply to all labpacks on a per shipment basis. **You will be notified of any additional analytical or facility fees prior to ECOFLO initiating the work.**

2- Annually ECOFLO must recertify all active waste streams. Recertifications will be billed out at the prevailing rates provided in item #1 above.

3- For pick ups of less than ten (10) drums a pick up fee of $350.00 will be charged.

4-Pickups of less than 5 drums or 20 ft^3 shall be subject to a 10% small order surcharge on all services in addition to the mobilization fee described in item #3 above.

5- All prices are subject to change on fifteen (15) days notice.

6- Unless a specific mobilization charge has been quoted, work involving no waste pick-up shall be billed according to the attached Time & Materials Rates on a portal to portal basis.

7- For any shipments of 2 drums or less per waste stream, to Chemical Waste Management in Emelle Alabama, of inorganic solids, organic solids, and inorganic liquids a surcharge of $100.00 per waste stream will be added to cover the minimum cost at the disposal facility. In addition, a $40.00 surcharge is required for all drums shipped to this facility which are less than 90% full to cover solidification costs. The ¼90% full surcharge will be billed upon notification from Chemical Waste Management.

8- Shipment of materials in Salvage Drums (i.e. 85 Gallon Overpacks) will be subject to an additional charge of $100.00 above the quoted 55 gallon drum price.

9- For cancellation of work scheduled without providing ECOFLO at least 48 hours prior notice a cancellation charge of $500.00 will be assessed.

ADDRESS: Box 223 Coastal Drive
North Topsail Shores

CITY: Sneads Ferry STATE: NC

ZIP: 28460 CLIENT CONTACT: Marlo Bostic PHONE: (919) 328-1100

301-773-9500
919-855-7925

1171

ECOFLO

THE ABOVE NAMED, HEREINAFTER "CLIENT," HEREBY AUTHORIZES ECOFLO TO QUALIFY CERTAIN WASTES, INDICATED BELOW, FOR DISPOSAL. THE CLIENT UNDERSTAND THAT ALL DISPOSAL APPROVALS ON THESE MATERIALS SHALL BE GRANTED BASED UPON CLIENT SUPPLIED DESCRIPTIONS OF THE WASTE(S). MATERIALLY ACCURATE AND COMPLETE ECOFLO MATERIALS CHARACTERIZATION FORMS PROVIDE ECOFLO WITH THE NECESSARY DESCRIPTIONS. UPON QUALIFICATION OF THE WASTES ECOFLO SHALL BILL AND CLIENT SHALL PAY IN ACCORDANCE WITH THE ESTIMATE PROVIDED BELOW. **TERMS: DUE UPON RECEIPT**

WASTE STREAM INFORMATION	ROUTING	COST ESTIMATE
E-CODE ______ STREAM NAME 2,4-dinitrophenol [redacted]	MINIMIZE COST ☒ MINIMIZE LIABILITY ☐ QUALIFY BACK-UP ☐ OTHER ______	ACCEPTANCE: 100 FACILITY: 225 ANALYTICAL: ______ SAMPLING: ______ STREAM COST: 325
E-CODE ______ STREAM NAME ______ [redacted]	MINIMIZE COST ☐ MINIMIZE LIABILITY ☐ QUALIFY BACK-UP ☐ OTHER ______	ACCEPTANCE: ______ FACILITY: ______ ANALYTICAL: ______ SAMPLING: ______ STREAM COST: ______
E-CODE ______ STREAM NAME ______ [redacted]	MINIMIZE COST ☐ MINIMIZE LIABILITY ☐ QUALIFY BACK-UP ☐ OTHER ______	ACCEPTANCE: ______ FACILITY: ______ ANALYTICAL: ______ SAMPLING: ______ STREAM COST: ______
E-CODE ______ STREAM NAME ______ [redacted]	MINIMIZE COST ☐ MINIMIZE LIABILITY ☐ QUALIFY BACK-UP ☐ OTHER ______	ACCEPTANCE: ______ FACILITY: ______ ANALYTICAL: ______ SAMPLING: ______ STREAM COST: ______

Taking the hazard out of waste management.

CLIENT HAS READ AND UNDERSTANDS THE ABOVE AND HEREBY AUTHORIZES ECOFLO TO PROCEDE.

CLIENT: Marlo Bostic

SIGNATURE: ______

PURCHASE ORDER # ______

DATE: ______

EST. TOTAL AUTHORIZATION

ACCEPTANCE: 100

FACILITY: 225

ANALYTICAL: ______

SAMPLING: ______

TOTAL FEES 325

ECOFLO

Proposal No. C. Davis

PROPOSAL & SERVICE AGREEMENT

ECOFLO, Inc., hereinafter "ECOFLO", a Maryland Corporation having offices at 5355 Kilmer Place, Bladensburg, Maryland, 20710, is offering handling services for certain materials as defined herein. The services offered shall be subject to the conditions of this proposal and the General Terms and Conditions attached.

This offer is made to: Mr. Marlo Bostic, hereinafter "Client", at the following location: Box 223 Coastal Drive
North Topsail Shores
Sneads Ferry, NC 28460, telephone number (919)328-1100.

The materials subject to this offer have been characterized on Materials Characterization Form(s), hereinafter "MCF", numbered _____.
The approximate quantities of materials are: 80 to 100 55-gallon drums.

ECOFLO shall perform the following services:

- [X] Packaging
- [X] Labeling
- [ ] Treatment/Recycle
- [ ] Pumping
- [X] Manifesting
- [X] Transportation
- [X] Disposal
- [ ] Waste Characterization
- [ ] Other _____

REGARDING MATERIALS TRANSPORTATION:

Vehicle shall be loaded by: [X] ECOFLO [ ] Client [ ] ECOFLO & Client

Demurrage of $ N/A /hr. shall be charged for all delays in loading after the first three (3) hours.

REGARDING CONTAINERS:

Containers shall be provided by: [X] ECOFLO [ ] Client if necessary

Containers shall be at the expense of: [ ] ECOFLO [X] Client

PRICING: The services described herein shall be charged in accordance with ECOFLO's current price schedule (attached) except as noted below:

Transportation and disposal of 80 to 100 55-gallon drums at $247.00/55-gallon drum. If containers are not in acceptable condition, ECOFLO can repackage them as necessary according to attached Time and Materials Rates Schedule. Any drums which are overpacked in 85-gallon containers will be subject to a surcharge of $50.00/drum.

The term of this Agreement shall be for a period of 30 days from the date of offer.

MATERIALS DESTINATIONS:

MCF#	Primary Facility	Alternate Facility
	Chemical Waste Management	

ECOFLO's Approved Facilities List may serve as Alternate Facilities List upon verbal notification to Client.

ECOFLO and Client have reviewed and understand the above proposal and the terms and conditions on the reverse. By signature below Client accepts this offer and enters into Agreement.

ECOFLO, Inc.	Client :
by : _____	by: _____
Name : Chris Davis	Name : _____
Title : Account Manager	Title : _____
Date of offer: August 28, 1987	Date of acceptance: _____

AMENDMENTS:

Payment Terms: 50% of estimated total cost due with issue of purchase order, remainder due upon receipt of invoice.

ECOFLO
specialists in chemical and environmental management

Greensboro, NC (919) 855-7925
Tuxedo, MD (301) 773-9500

MATERIAL CHARACTERIZATION FORM

TO BE COMPLETED BY ECOFLO

E-Code No. _____
Sales Rep. LCD
Sample ☐ Yes ☒ No

Attachments: ☐ Lab Analysis ☐ MSDS ☐ Other _____

Prepared By: LCD

GENERATOR INFORMATION

Name: NORTH TOPSAIL WATER & SEWER, INC
Mailing Address: LOT 14, COASTAL DR.
SNEADS FERRY, NC 28460
Facility Address: _____

Technical Contact: MARIO BOSTIC
Title: PRESIDENT
Phone: (919) 328-1100 Ext. _____
Facility: _____
EPA I.D. # _____

If ECOFLO has previously assigned a Customer Code, please indicate: ___ ___ ___ ___
Is this a recertification? ☒ No ☐ Yes - please indicate E-Code previously assigned to this waste stream: ___ ___ ___ ___ - ___ ___ ___
Is this an amendment? ☒ No ☐ Yes

WASTE IDENTIFICATION

Waste Name 2,4-DINITROPHENOL
Process Generating Waste OLD UNUSED MATERIAL
WASTE CODE(S): EPA _____
STATE _____

CHEMICAL CONSTITUENTS (must equal 100% - if listing ranges, ranges must not exceed 20%)

2,4-DINITROPHENOL	60-80%		%
WATER, HEAVY OILS	20-40%		%
	%		%
	%		%
	%		%
	%		%

PHYSICAL STATE at 70°F: ☒ Solid ☐ Liquid ☐ Gas Describe: _____
LAYERS. ☐ Multilayered ☐ Bilayered ☒ None Describe: _____
% SOLIDS. Total 100 % Dissolved _____ % Suspended _____ % Describe: _____
SPECIFIC GRAVITY: ☐ <0.8 ☐ 1.0 – 1.2 ☒ 1.4 – 1.7
☐ 0.8 – 1.0 ☒ 1.2 – 1.4 ☐ >1.7 Exact: _____
ODOR: Describe SLIGHT pH _____ % ASH _____
BTU/lb (exact): _____ COLOR DARK YELLOW CONTAINS BIOLOGICAL WASTE ☐ Yes ☒ No
FLASH POINT: ☐ <20° F ☐ 61° – 100° F ☐ 141° – 200° F
Closed Cup ☐ 20° – 60° F ☐ 101° – 140° F ☐ >200° F Exact: N/A °F
VISCOSITY ☐ Low RADIATION ABOVE BACKGROUND TOTAL ORGANIC CARBON: _____
AT 70° F ☐ Medium (pCi/litre): N/A % MOISTURE: _____
☐ High NRC REGULATED? ☐ Yes ☒ No % SULFUR: _____ % NITROGEN: _____
TOTAL ORGANIC HALOGENS _____ Cl ☐ I ☐ F ☐ Br ☐ REACTIVE? ☐ No ☒ Yes - Describe IF DRY
CONTAIN PESTICIDES? ☒ No ☐ Yes - Describe _____

METALS (in ppm):

	TOTAL	EP TOXIC		TOTAL	EP TOXIC		TOTAL		TOTAL
As	_____	<5	Pb	_____	<5	Ti	_____	Co	_____
Ba	_____	<100	Hg	_____	<.2	Ni	_____	Mg	_____
Cd	_____	<1	Ag	_____	<5	Be	_____	Cu	_____
Cr	_____	<5	Se	_____	<1	Zn	_____	Fe	_____
Cr^{+6}	_____	_____	Sb	_____		Mn	_____	Other	_____

CYANIDES _____ ppm
SULFIDES _____ ppm
DIOXIN _____ ppb
PCB _____ ppm
BOD _____
COD _____

HAZARD ALERT SYMBOL

3	HEALTH
1	FLAMMABILITY

RATED TOXICITY:
[2] Ingestion
[1] Inhalation

INCOMPATIBILITIES: _____

(Please read instructions on reverse)

SHIPPING INFORMATION - TO BE COMPLETED BY ECOFLO

PROPER SHIPPING NAME: _____ UN/NA NUMBER: _____

HAZARD CLASS: _____ SHIPMENT METHOD: ☐ Bulk Solid ☐ Bulk Liquid

ANTICIPATED VOLUME: 100 GAL / LBS / (DRUMS) / CU YDS (Circle) ☐ Drum (Type/Size) _____

per ☒ One Time ☐ Week ☐ Quarter
☐ Month ☐ Year ☐ Other _____

SPECIAL HANDLING INSTRUCTIONS: _____

I HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE AND THAT ALL KNOWN OR SUSPECTED HAZARDS HAVE BEEN DISCLOSED.

_____ _____ _____

SIGNATURE TITLE DATE

O.H. Materials Corp.
1000 Holcomb Woods Pkwy.
Suite 112
Roswell, GA 30076
404-641-1066

OHM

August 7, 1987

Mr. Jim Kopotic
EPA Region IV
345 Courtland St., N.E.
Atlanta, GA 30365

Dear Mr. Kopotic:

Enclosed are the 1900-55 forms for the charges incurred on the Bostic job to date and information on treatment of phenolic materials.

The 1900-55's represent the time spent during mobilization, on site collecting samples, and during demobilization. Additionally, Bob Mangham's time on August 3, 1987, doing research on the material you sent him and contacting various involved parties is also included on a 1900-55 form.

Currently it is our intention to have analysis done specifically for landfill and/or incineration. The type of analysis required is dependent upon the concentration of 2, 4-dinitrophenol and what limitations this presents to acceptance at EPA-approved facilities or shipment in accordance with DOT regulations.

Bob Mangham will be contacting you to discuss various disposal options as the analytical results become available.

Once a disposal method has been determined OHM will present to you either verbally or written, as required by you, a work plan which details our approach to complete this project.

In the event that disposal off site appears not to be cost-effective, I propose we meet with you to discuss in detail the specifics regarding the enclosed treatability method.

Please review the 1900-55 forms and sign and return the appropriate copies to me. Also, if you require any additional information, reports, or submittals, please contact me at once.

Respectfully,

W.R. Thompson
Project Manager

WRT:sjs

pc: Bob Mangham, OHM Florida

O.H. Materials Corp.
1000 Holcomb Woods Pkwy.
Suite 112
Roswell, GA 30076
404-641-1066

OHM

August 6, 1987

U.S. Environmental Protection Agency
Region IV
345 Courtland St., N.E.
Atlanta, GA 30365

Attn: Mr. James D. Kopotic
Emergency and Remedial Response Branch

Dear Mr. Kopotic:

RE: Contract 68-01-7404, ERCS Zone II

This letter shall confirm that O.H. Materials Corp. has received Delivery Order No. 7404-04-004 for the Bostic Drum Site in Holly Ridge, North Carolina, and has started work as you requested.

Sincerely,

Robert C. Glassen
Program Manager
ERCS Zone II

RCG:sjs

pc: Norm Zima, Contracting Officer
Jean Wright, Project Officer
Jan Rogers, Regional DPO
Marsha Robinson, OHM
File # 5136-S5

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

July 30, 1987

Dr. Robert Rubin
North Caroline State University
Biological and Agricultural Engineering Dept.
P.O. Box 7625
Raleigh, NC 27695

Reference: IEA Report No. 169-19

Dear Dr. Rubin:

Transmitted herewith are the results of analyses on a single sample submitted to our laboratory on July 16, 1987.

Gravimetric Data

2,4-Dinitrophenol	76.3%
Solids*	23.7%

*Non-soluble in Methylene Chloride

The non-soluble material was analyzed by infra-red spectroscopy. The sample's spectrum was interpreted as a highly substituted long chain ester.

Further analysis was performed by Gas Chromatography/Mass Spectroscopy. The solids were dissolved in Acetone to allow sample introduction. Upon analysis, the "solids" could not be chromatographed due to the large molecular weight.

If you require further information concerning this sample please contact me at the above number.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Ademovic
Senior Chemist

JBA/jcl

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

GORDON E. ROBINSON, JR.

114 OLD BRIDGE STREET
(919) 455-4175

July 28, 1987

Ms. Elizabeth L. Osheim
Assistant Regional Counsel
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Re: Atlantic Enterprises
2,4-dinitrophenol
Holly Ridge, North Carolina

Dear Ms. Osheim:

I have reviewed the various news articles concerning removal of 2,4-dinitrophenol from the above site. These news articles, including direct quotes, directly conflict with our earlier conversation. It appears, based upon the time table estimated by news articles, that the most expedite manner in which to remove the matter is to allow us to continue to work on the removal. We are daily checking with Dr. Rubin as to the progress of his analysis. We are informed this will be completed this week with the removal occurring 15 to 20 days later to allow the permits to be obtained from the States involved. This is much less than the eight weeks as Jim Kopotic is quoted as the EPA needing to remove the chemical. In addition, Mr. Dan Martin of GFX Chemicals indicated that the chemicals could be removed for $15,000 to $25,000 depending upon the inert ingredient, which is one-third the sum stated by the news articles.

We are using our best efforts to conclude this matter and great expense has been incurred to complete this matter as expeditely as possible. Please contact me as soon as possible so I can determine the exact posture of the removal and if we are to proceed on our schedule for removal.

Very truly yours,

Keith E. Fountain

KEITH E. FOUNTAIN

KEF:abb

ECOFLO

P.O. Box 692
Bladensburg, MD 20710
(301) 773-9500

P.O. Box 10383
Greensboro, NC 27404
(919) 855-7925

July 14, 1987

Mr. Marty Bostic
North Topsail Shores
Box 223 Costal Drive
Sneads Ferry, NC 28460

Dear Mr. Bostic:

After receiving the laboratory analysis on your material from Dr. Rubin, I have prepared this estimate for the management of your wastes. The methods selected for your materials consider current and future liabilities and are fully warranted under ECOFLO's Terms and Conditions.

2,4-dinitrophenol	- landfill	$524.00/55-gallon drum
	- incineration	$700.00/55-gallon drum

The above costs are based upon a minimum of 80 55-gallon drum containers and include all transportation and disposal fees. Any containers which are not in acceptable condition can be repackaged by ECOFLO into 85-gallon over-pack drums. Any overpacks are subject to a surcharge of $50.00/drum. On site services and materials shall be billed in accordance with ECOFLO's Time and Materials Rates and Policies (enclosed). The above estimate costs are based upon preliminary classification of your waste materials, final quotation for the disposal of your materials can only occur after formal evaluation. The enclosed pre-disposal authorization specifies the acceptance fees involved with your waste. When you are ready to proceed with the acceptance process, please sign and return the Pre-disposal Authorization Form to my attention with your purchase order.

I will contact you to discuss how you want to proceed. Thank you for the opportunity to provide this estimate.

Sincerely,

ECOFLO, INC.

Chris Davis
Account Manager

mya

Enclosure

cc: [redacted]
Richard Gay, NC Solid & Hazardous Waste Management Branch

AZTECK COMPUTER TECH & SALES

P O BOX 387

SNEADS FERRY, NORTH CAROLINA 28460

CHEMICAL DIVISION QUALIFICATION STATEMENT FOR HANDLING HAZARDOUS WASTE AND OR MATERIAL.

VIVIAN S HARDISON:, OWNER OF AZTECK AND OTHER DIVISIONS

EDUCATION: HIGHSCHOOL
COLLEGE: STUDIES AT EAST CAROLINA UNIVERSITY
DURHAM: NORTH CAROLINA CENTRAL
LASALLE INSTITUTE AND MANY WORKSHOPS AND SEMINARS
TO BUILD ON MY CAPABILITIES

EXPERIENCE: OVER <20> TWENTY YEARS IN PUBLIC SERVICE
GOVERNMENT INSTRUMENTALITIES SALES ACTIVITIES

CHEMICAL SALES ALL TYPES
CHEMICAL RESEARCH AND DATA ANALYSIS
<WATER, AIR, MATERIALS, HUMAN>
USE AND APPLICATION SPECIALIST IN BUILDING MATERIALS, HIGHWAYS, PHOTOGRAPHY, SKIN CARE, DETERGENTS AND SOME INTERNAL.

HOUSE CHEMIST AND ASSOCIATE
NED HURST : CONSULTANT, RESEARCH AND DEVELOPMENT
BS, ST. AGUSTINE COLLEGE
CHEMISTRY
GRADUATE WORK: US DEPARTMENT OF AGRICULTURE, WASHINGTON, D C
EXPERIENCE: RETIRED RESEARCH CHEMIST
NAVAL MEDICAL FIELD RESEARCH LAB
CAMP LEJEUNE, N C

OTHER ASSOCIATES: LEADING MANUFACTUER CHEMIST WHOSE PRODUCTS I SELL AND USE

MEDICAL DOCTORS AND SPECIALIST

ERIC BOUFONG, MD
PHIL HAY, MD

AZTECK COMPUTER T & S
P O BOX 387
SNEADS FERRY NC 28460
919/327-4151

8 JULY 87

WE ARE PLEASED TO ASK YOU TO LET US USE THE 2-4 DINITROPHENOL FOR MR. BOSTIC, AND IN NO WAY WILL WE WORK IT KNOWINGLY OUT OF THE REQUIREMENTS OF THE RULES AND REGULATIONS OF THE ENVIRONMENTAL PROTECTION AGENCY, , THE NORTH CAROLINA DEPARTMENT OF HEALTH SERVICES, U. S. DEPARTMENT OF LABOR OCCUPATIONAL AND HEALTH ADMINISTRATION OR THE U. S. EPA.

WE WILL FILE REPORTS ON OUR CHANGE TO THE MATERIAL WE ARE USING, AND PROVIDE DOCUMENTS ON EACH PHASE OF THE CHANGE WE MAKE TO THE MATERIAL IN A CHEMICAL LAW OF THE PRODUCT WE ANTICIPATE FROM OUR SOLUTION TO USE THE NO2, ORDINANCE NOT AS HIGH ON PHENOL.

APPROACH: BY PRODUCT
END PRODUCT
INCREASE SOLUBILITY.
WE REALIZE THE HAZARDS INVOLVED IN THIS PROJECT AND WE PLAN A CONTROLLED AREA WITH CONDITIONS TO PROTECT US, AS WELL AS THE ENVIRONMENT: WE ARE GOING TO DO A PAPER ON THE DANGERS OF THE USE OF THIS MATERIAL FOR THE AGRICULTURE CONCERN AS WELL. THIS BEING VERY IMPORTANT TO THE WELL BEING OF LIVESTOCK AS WELL.

WE WILL ABIDE BY YOUR INSTRUCTIONS IN ANYWAY TO BE IN LINE WITH YOUR WISHES.

PLEASE FEEL FREE TO COME AND JOIN IN WITH US. , OUR SET-UP WILL BE THAT OF A TEMPORARY NATURE WITH PROPER EXAUST, PLENTY OF WATER, FLUSH BATHS, DRAIN FILTERING FOR HAZARDOUS WASTE TO CHECK SOILS IN AREA DURING OPERATION, LAB WASTE ALSO GOES TO FILTERING AREA AND SEPTIC TANK.

WE WILL HAVE ALL PROTECTIVE WEAR AND SUPPLIES AND EMPLOYMENT SECURITY AS WELL.

IF THERE IS ANYTHING YOU WISH TO TELL US WE HAVEN'T MENTIONED, PLEASE LET US KNOW.

SINCERELY,

Vivian S Hardison

VIVIAN S HARDISON

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

114 OLD BRIDGE STREET
(919) 455-4175

July 7, 1987

Mr. James D. Kopotic
Federal On-Scene Coordinator
Emergency Response and Control Section
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 20265

Re: Atlantic Enterprises, Inc.
2,4 di-Nitrophenol

Dear James:

As per the Environmental Protection Agency's request to be notified as to all progress in this matter, we have engaged the services of GSX Chemical Services, Inc., to remove the remaining barrels of 2,4 di-Nitrophenol from the Holly Ridge site. Mr. Daniel L. Martin, Technical Sales Representative, has indicated that the material will be removed within a period of fourteen to twenty-one days. This time period is necessary for Mr. Martin to obtain the necessary state permits from North Carolina and South Carolina.

For your future reference, representatives of GSX Chemical Services, Inc. may be reached at the following address:

Daniel L. Martin
Technical Sales Representative
(919) ~~542~~ 342-6106

GSX Chemical Services, Inc.
P. O. Box 210799
121 Executive Center Drive
Congaree Building, Suite 100
Columbia, SC 29221
(800) 845-1019
(803) 798-2993

Thank you for your patience and cooperation in this matter. Should you wish to discuss the removal plan, please do not hesitate to call me.

Very truly yours,

KEITH E. FOUNTAIN

KEF/pjs

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

114 OLD BRIDGE STREET
(919) 455-4175

June 30, 1987

FEDERAL EXPRESS

Mr. James D. Kopotic
Federal On-Scene Coordinator
Emergency Response and Control Section
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 20265

Re: Atlantic Enterprises/di-Nitrophenol

Dear Mr. Kopotic:

As per your request, this letter is to inform you of the progress being made in this matter.

We have contacted several companies regarding the removal of the 2,4 di-nitrophenol from the Holly Ridge warehouse. As of this date, the two most promising companies are G.S.X. and ECOFLOW, a Greensboro corporation. Mr. Bostic has spoken at length with Charlie Roundtree of G.S.X., and Chris Davis of ECOFLOW, both of whom have indicated their companies' willingness to work on this project. We will apprise you of the specifics as soon as a tentative agreement can be reached.

In addition, Dr. Joseph Adamovic, Senior Chemist of Industrial and Environmental Analysis, Inc., in the Research Triangle, is currently engaged in the analysis of the di-Nitrophenol so that we will have a better working knowledge of the substance.

Should you have any questions, do not hesitate to contact me.

Sincerely,

KEITH E. FOUNTAIN

KEF:abb

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

114 OLD BRIDGE STREET
(919) 455-4175

June 25, 1987

FEDERAL EXPRESS

Mr. James D. Kopotic
Federal On-Scene Coordinator
Emergency Response and Control Section
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 20265

Re: Atlantic Enterprises/di-Nitrophenol

Dear Mr. Kopotic:

Enclosed please find a report submitted by Dr. A. R. Rubin, Extension Specialist in Biological and Agricultural Engineering, the North Carolina State University School of Agriculture and Life Sciences. Dr. Rubin stated in his report that the substance 2,4 di-Nitrophenol is usable in the preservation of wood products, and that there are two potential consumers of the material in this area: Wood Protection Products, Inc., of Charlotte, North Carolina; and Chapman Chemical Company, of Memphis, Tennessee. The report indicates that the 2,4 di-Nitrophenol is a usable substance rather than toxic waste material. I will discuss this report by phone tomorrow.

Should you have any questions, feel free to contact me.

Very truly yours,

KEITH E. FOUNTAIN

KEF:abb
Enclosure

COPY

AGRICULTURAL
EXTENSION
SERVICE

North Carolina State University
School of Agriculture and Life Sciences

Department of Biological and
Agricultural Engineering
Box 7625, Raleigh, NC 27695-7625
Telephone (919) 737-2675

June 23, 1987

Mr. Marty Bostic
North Topsail Water & Sewer Company
Lot 14, North Topsail Shores
Snead's Ferry, NC 28460

Dear Marty:

Re: Materials Investigation

Attached you will find a report and attachments thereto. The subject of the report is "A Materials Investigation." The material is 2,4 di-Nitrophenol (DNP). It is used as a wood preservative.

I have enjoyed working with you on this project. If I may be of further help, please contact me at the letterhead address. I look forward to working with you in the future.

Sincerely,

A. R. Rubin, Extension Specialist
Biological and Agricultural Engineering

ARR:wm
Attachments: (A) Material Report
(B) Chemical Analysis
(C) Literature Review
(D) Wood Products Preservative Literature
(1) Wood Handbook
(2) AWPA Standard P5
(E) Potential Users

COPY

MATERIALS INVESTIGATION

for

Mr. Marty Bostic

Mr. Marty Bostic is currently in possession of an unknown organic compound reported to be 2,4, di-Nitrophenol, (DNP). The exact chemical identity of this material was unknown at the time the sample was received. In order to properly identify the material, a representative sample was collected from several containers at the Bostic site and sent to the Biological and Agricultural Engineering Department for analysis. This sample was then divided into separate subsamples, and one of the samples was sent to a private consulting laboratory for analysis, while the second subsample was retained in the Biological and Agricultural Engineering Department. The private laboratory was Industrial and Environmental Analysts, Inc., Cary, North Carolina. They are a registered and certified laboratory in North Carolina.

The sample was sent to this private laboratory and analyzed using an analytical technique called gas chromatrography/mass spectrophotometry (GC/MS). The results of that analysis are attached. The analysis does indicate that the material is specifically 2,4, di-Nitrophenol. This was first indicated by the determining the melting point using an oil bath to measure melting point. This melting point determination was accomplished in the Agricultural Engineering Department laboratory. Subsequent GC/MS analysis was accomplished at IEA.

Following the identification phase of this project, a review of available literature was accomplished. The data bases examined include Chemical Abstracts, the Agricultural On-Line Information Network, and the Ag-Net Dial Net Data Base. These services are available through the D.H. Hill Library, Reference Section, at NCSU. The literature review did address publications which were completed after 1970.

The literature review was extensive. There were two references which specifically indicate that the material is effectively used to preserve the quality of wood chips (Springer, et. al, 1977). Morrell, et. al. (1986) report a proprietary compound, which does contain DNP, did reduce internal decay in Douglass Fir posts. These results indicate that DNP is an effective wood preservative.

The American Wood Preservers Association (AWPA) Standard P-5 does address water-borne preservers. DNP is a component of a water-borne wood preservative. The water-borne wood preservative is Flour Chrome Arsenate Phenol (FCAP). The water-borne wood preservative is effectively 16% DNP. The section of the AWPA Standard on water-borne preservatives and the wood preservation section of the Wood Handbook, Agriculture Handbook #72, USDA Forest Products Laboratory, are included as attachments to this brief report.

Conclusion

The product investigated does appear to be specifically 2,4 dye-Nitrophenol. There are uses for this material as a wood preservative. There are two potential users for this material in the area. These potential users are Wood Protection Products, Inc., Charlotte, N.C. and Chapman Chemical Company, Memphis, Tennessee. There are also uses for this material on site provided sufficient safeguards can be taken to ensure the material is not abused. Water-borne wood preservatives can be used for protecting wood exposed to the air. Wood-borne preservatives are generally used where the wood product is to be painted or finished.

D18/R347/6-87/wm

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

May 29, 1987

COPY

Dr. Bob Rubin
NCSU
Biological & Agricultural Engineering Dept.
P.O. Box 7625
Raleigh, NC 27695

Reference: IEA Report No. 169-15

Dear Dr. Rubin:

Transmitted herewith are the results of analyses on a single sample submitted to our laboratory on April 28, 1987.

The slurry sample consisted of an inert material and a highly pure organic compound (a conservative estimate of 13 WT % for the organic). The organic was identified as 2,4-dinitropheno by Gas Chromatography/Mass Spectroscopy (see enclosed chromatograms). This technique is designed for low level analysis and cannot be used reliably at the percent range; however, it does verify that no semi-volatile organics are present within 2 orders of magnitude. If strict quantitation is desired, additional techniques must be employed. Please contact me to discuss these possible procedures and their associated costs.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic
Senior Chemist

JBA/djf

RNS1-28-5

```
DIALOG INFORMATION SERVICES
PLEASE LOGON:
?[redacted]
At next logon, please enter User Number at 'PLEASE LOGON'
   prompt, then Password at 'ENTER PASSWORD' prompt.
   Your user number is 005283

Welcome to DIALOG
Dialog version 2, level 12.4.10b

b50Last  logoff  10Jun87 09:21:40
Reconnected in file 53 11Jun87 09:26:06

File  53:CAB ABSTRACTS 1972-1983
   SEE File 50 (1984+)

      Set  Items  Description
      ---  -----  -----------
?
       11Jun87 09:26:08 User005283
    $0.11     0.002 Hrs File53
    $0.12  Estimated total session cost    0.002 Hrs.

File  50:CAB ABSTRACTS - 1984-87/MAY
SEE ALSO FILE 53 (1972-1983)
   **                                    **
   ** An online thesaurus has been added **
   ** to file 50 CAB ABSTRACTS, 1984+    **
   **                                    **

      Set  Items  Description
      ---  -----  -----------
?ss sf=2f
      S1       0  SF=2F
?ss sf=1f
      S2   10249  SF=1F  (FOREST PRODUCTS ABSTRACTS)
?ss dinitrophenol or dnp
      S3     118  DINITROPHENOL
      S4      65  DNP
      S5     162  DINITROPHENOL OR DNP
?c 2 and 5
           10249  2
             162  5
      S6       2  2 AND 5
?type 6/5/1-2
```

6/5/1

0480067 1F009-02081; 7L -01808

Reducing internal and external decay of untreated Douglas-fir poles: a field test.

Morrell, J. J.; Smith, S. M.; Newbill, M. A.; Graham, R. D.
Dep. For. Prod., Coll. For., Oregon State Univ., Corvallis, OR 97331, USA.

Forest Products Journal 1986. 36 (4): 47-52 (24 ref.)
Language: English
Document Type: NP (Numbered Part)
Status: REVISED
Subfile: 1F (Forest Products Abstracts); 7L (International Biodeterioration)

Results are reported of a field trial in Oregon investigating the effectiveness of fumigants and polyethylene wrappings, with and without chemical impregnation. Douglas fir poles were assigned to 5 groups of 8 poles, 6 debarked and 2 intact. Debarked poles were wrapped with polyethylene (POLY) or Osmoplastic (OSMO-a polyethylene film with a proprietary paste containing creosote, sodium fluoride, dinitrophenol, potassium dichromate and PCP) or left unwrapped. Poles wrapped with POLY were treated internally with the fumigants chloropicrin (CP) or methylisocyanate (MIT) or left untreated. Those wrapped with OSMO were treated with CP or left untreated. Intact poles were either treated internally with MIT or left untreated. The amount of fungal colonization in each pole was examined annually by removing increment cores. Results for 4 yr are reported. After 3 yr several tests were used to evaluate the surface condition of test poles below ground and results were compared with those of a microscopic examination of plugs cut from the poles for radial compression tests. Laboratory culturing and closed-tube bioassay with Poria placenta showed that CP and MIT effectively reduced internal decay in the poles. OSMO limited basidiomycete colonization at ground level but was less effective higher up the pole. Results suggest that a combination of externally applied paste and internally applied fumigant will prevent internal decay at or above ground level. The tests of surface condition gave inconclusive results; monitoring of these tests will continue together with assessment of decay.

Descriptors: decay; assessment; field tests; laboratory tests; methodology; fumigants; wood preservation; poles; Pseudotsuga menziesii; wood preservatives; chloropicrin; methyl isocyanate; preservation; polyethylene; poria placenta
Decimal Codes: 1F5.5 ; 1F1.25 ; 1F0.74 Pseudotsuga menziesii
Geographic Names: USA; Oregon
Section Heading Codes: 1F055; 7L2506 ; 1F0125
Section Headings: 5 DAMAGE TO TIMBER AND TIMBER PROTECTION. SURFACE FINISHES - WOOD PRESERVATION - MATERIALS AND METHO (SC=1F055); TIMBER - PRESERVATION (SC=7L2506) ; 1 GENERAL PUBLICATIONS AND GENERAL TECHNIQUES - TECHNIQUES AND METHODOLOGY- LABORATORY AND FIELD TEC (SC=1F0125)

6/5/2
0369028 1F008-02774; 7L(01184

A new ground-contact wide-spectrum organic wood preservative: DNBP.
Conradie, W. E.; Pizzi, A.
Nat. Timber Res. Inst., CSIR, Pretoria, South Africa.
Holzforschung und Holzverwertung 1985. 37 (3): 50-57 (13 ref.)
Language: English Summary Language: German
Document Type: NP (Numbered Part)
Status: REVISED
Subfile: 1F (Forest Products Abstracts); 7L (International Biodeterioration)
Graveyard tests were made over a 25-yr period at two sites in South Africa on samples of Pinus patula treated with 'Dinoseb' [dinitrobutylphenol], i.e. 2-sec-butyl,4,6-dintrophenol (DNBP; CCA used as control). In addition, laboratory tests on DNBP are reported (including accelerated biological, chemical analysis, leaching, volatility, thermal stability, burn, strength, corrosion, gluing, and toxicological tests). Overall, results indicated that DNBP was as effective as CCA for ground-contact applications, with only about 50% of the required CCA retention (while the cost per kg of DNBP is only about 10-15% higher than CCA). Studies on the more toxic 'Dinoterb' (2-tert-butyl,4,6-dinitrophenol) are also reported.

Descriptors: wood preservation; south africa; field tests; pinus patula; wood preservatives; cu-cr-as; dinitrobutylphenol; laboratory tests
Decimal Codes: 1F5.5 ; 1F0.74 Pinus patula ; (680)
Geographic Names: South Africa
Section Heading Codes: 1F055; 7L2506
Section Headings: 5 DAMAGE TO TIMBER AND TIMBER PROTECTION. SURFACE FINISHES - WOOD PRESERVATION - MATERIALS AND METHO (SC=1F055); TIMBER - PRESERVATION (SC=7L2506)
logoff hold
11Jun87 09:27:39 User005283
$1.37 0.025 Hrs File50
$0.50 2 Types in Format 5
$0.50 2 Types
$0.20 Dialnet
$2.07 Estimated cost this file
$2.19 Estimated total session cost 0.027 Hrs.
logoff: level 12.4.10 B 09:27:40

DIALNET: call cleared by request

Acquire
05/27/87 19:10:00 + 27
Sample: SOIL SAMPLE 1.GRAM : 20 ML OF MECL2 POISON
Conds.: -
Formula: -
Submitted by: 02

Run 0:1691501BNA
Free sectors: 24354
Instrument: 1050
Analyst: DANIELS

Acquiring
Scan: 267 of 3000
Weight: 0.000
Acct. No: 169-15

*** GC descriptor: 1 ***

GC is in TEMP. RAMP PHASE Elapsed Time 4 min 26 secs

Injector: 275 DegC CAPILLARY VALVES will be CLOSED for 30 secs
Interface: 302 DegC FIL/MULT. will be OFF for 200 secs
GC Program:

45	-			3.0 min	3.0 total min
45	-	300	10.0 deg/min	25.5 min	28.5 total min
300	-			25.0 min	53.5 total min

*** Scan Parameters ***

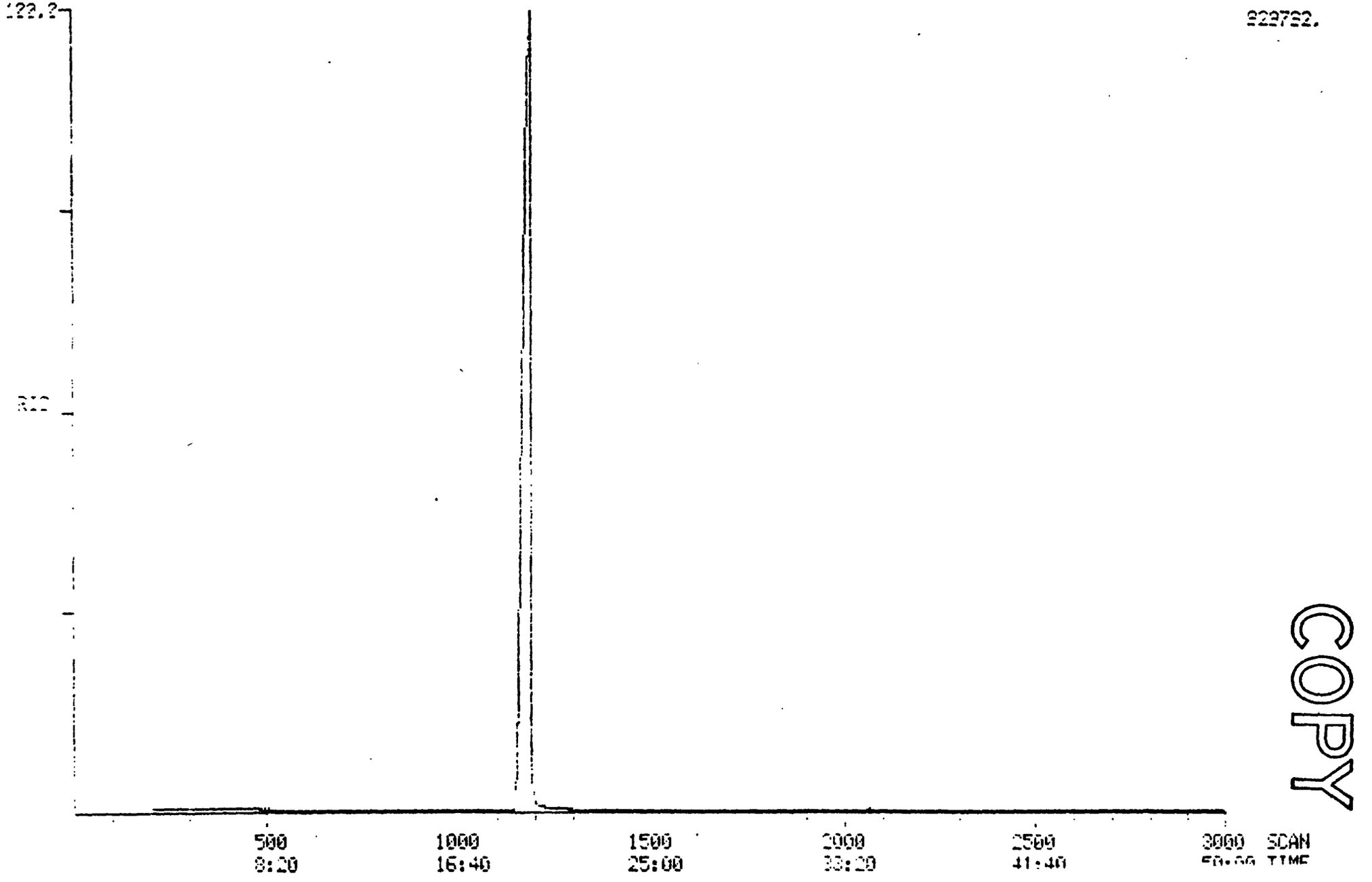
		Scan time (s)		Hold time (s)	
Low mass:	35 u	Up:	0.95 L*	Top:	0.00
High mass:	460 u	Down:	0.00 L	Bottom:	0.05
Cent S/P:	10 Actual: 11	Samp int (ms):	0.200	Peak width:	1000.
Frag S/P:	10 Actual: 11	Samp int (ms):	0.200	Inten/ion:	2
Min peak width:	5	Min frag width %	82	Min area:	100
ADC threshold:	2	Baseline.	0		

MODE: EI (+) Centroid

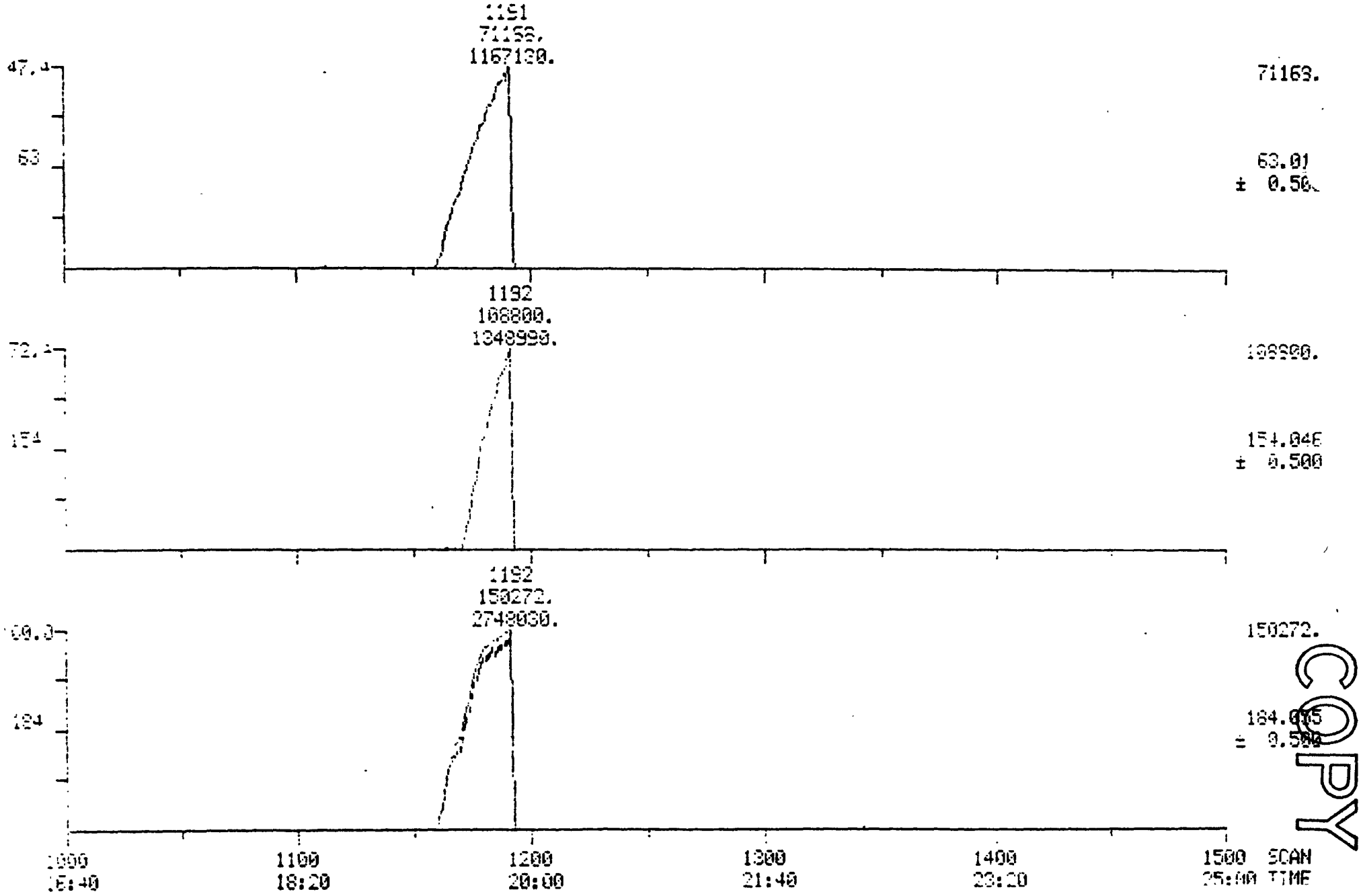
RIC
05/27/87 19:10:00
SAMPLE: SOIL SAMPLE 1 GRAM : 20 ML OF MECL2 POISON
CONDS.: -

DATA: 1631501BNA #1130 SCANS 1 TO 3000
CALI: CALTAB #2

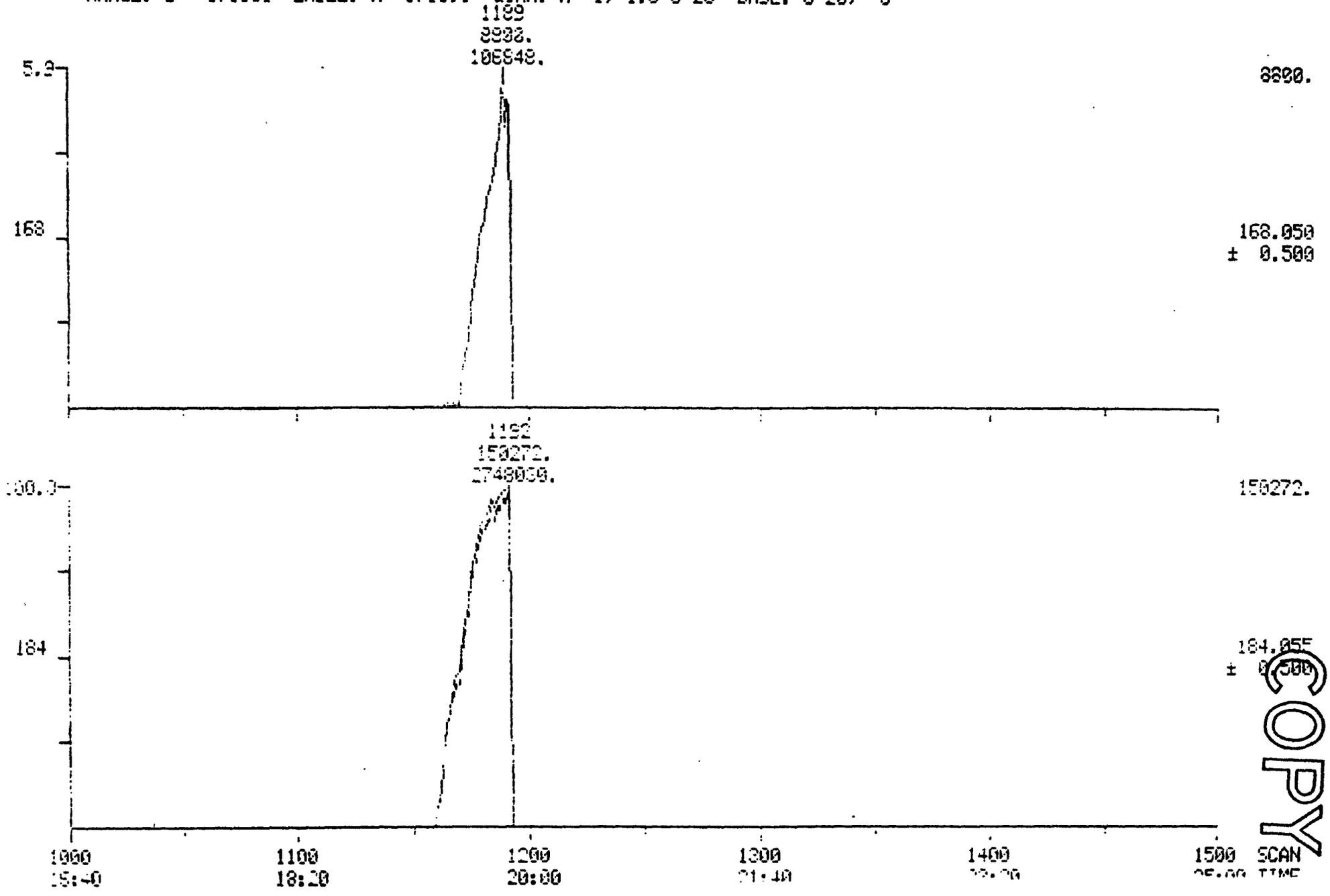
RANGE: G 1,1955 LABEL: N 5,10.0 QUAN: A 0, 1.0 J 20 BASE: U 20, 3



MASS CHROMATOGRAMS
05/27/87 19:10:00
DATA: 1591501BNA #1 SCANS 1000 TO 1500
CALI: CALTAB #2
SAMPLE: SOIL SAMPLE 1 GRAM : 20 ML OF MECL2 POISON
CONDS.: -
RANGE: G 1.3000 LABEL: N 5.10.0 QUAN: A 1. 1.0 J 20 BASE: U 20. 3



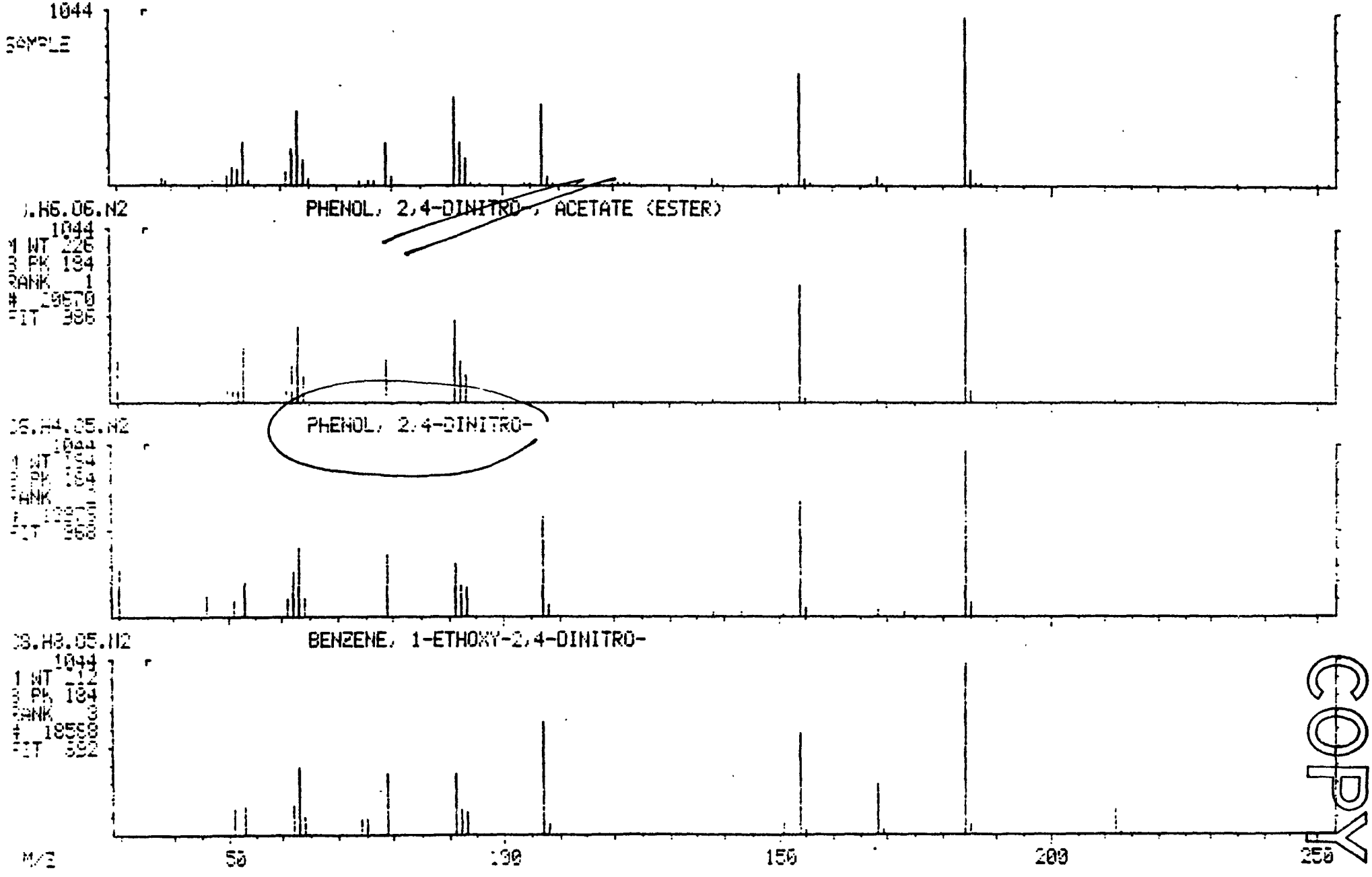
MASS CHROMATOGRAMS
05/27/87 19:10:00
SAMPLE: SOIL SAMPLE 1 GRAM : 20 ML OF MECL2 POISON
CONDS.: -
DATA: 1591501BNA #1 SCANS 1000 TO 1500
CALI: CALTAB #2
RANGE: G 1,3000 LABEL: N 5,10.0 QUAN: A 1, 1.0 J 20 BASE: U 20, 3



LIBRARY SEARCH
05/27/87 19:10:00 + 19:50
SAMPLE: SOIL SAMPLE 1 GRAM ; 20 ML OF MECL2 POISON
CONDS.: -

DATA: 1691501BNA #1190
CALI: CALTAB # 2

BASE M/Z: 184
RIC: 869375.



COPY

COPY

Total $91.35

```
Dialog Information Services' DIALNET
-2034:01-001-
Enter Service:

Service: dialog


DIALNET: call connected

DIALOG INFORMATION SERVICES
PLEASE LOGON:
?[redacted]
At next logon, please enter User Number at 'PLEASE LOGON'
   prompt, then Password at 'ENTER PASSWORD' prompt.
   Your user number is 005283

Welcome to DIALOG
Dialog version 2, level 12.4.10B

Last  logoff  10Jun87 09:21:40
Logon file001 11Jun87 08:44:54
COPR. (c) DIALOG INFORMATION SERVICES, INC. ALL RIGHTS RESERVED.
NO CLAIM TO ORIG. U.S. GOVT. WORKS.

DIALOG News (Enter ?NEWS for details):
**********************************************************************
COMMERCE BUSINESS DAILY (File 195) information is now available
online before the publication date of the printed equivalent.
See ?NEWS for details.
**********************************************************************
Files 100 and 541 have been combined into a single DISCLOSURE file
(File 100).  See ?NEWS for details.
**********************************************************************
The capability to RANK a CROSSTAB report by aggregated contract
amount has been added to DMS CONTRACT AWARDS (File 588).  See
?NEWS for details.
**********************************************************************
Now available:
 DISCLOSURE (File 100)--reloaded, combined with File 541
 ARCHITECTURE DATABASE (179)
Free time in June:
 AEROSPACE DATABASE (File 108) for U.S. customers only, and
 CURRENT TECHNOLOGY INDEX (File 142) for all DIALOG customers
```

```
 (including U.S.)--up     $35 of free combined connect time
 and TYPEs or DISPLAY     ailable in June.  U. S. customers
 may divide the $35 be...een the files or may use the total
 in one file or the other.  Customers outside the U.S. may
 use up to $35 in CURRENT TECHNOLOGY INDEX.
Announcements:
 Price changes are in effect on June 1 for the following files:
  SOCIAL SCISEARCH (File 7), PAIS (File 49), NEWSEARCH
  (File 211), and DMS CONTRACT AWARDS (File 588).
  For rates for all DIALOG files, see ?RATES and ?RATESA.
  For rates for individual files, see?RATESn (where n is the
  file number, e.g., ?RATES7 for SOCIAL SCISEARCH).

File   1:ERIC - 66-87/JUNE

       Set   Items  Description
       ---   -----  -----------
?b399
       11Jun87 08:45:14 User005283
    $0.18     0.006 Hrs File1
    $0.04   Dialnet
    $0.22   Estimated cost this file
    $0.22   Estimated total session cost    0.006 Hrs.

File 399:CA SEARCH 1967-1987 UD=10622
(Copr. 1987 by the Amer. Chem. Soc.)

       Set   Items  Description
       ---   -----  -----------
?b312
       11Jun87 08:45:20 User005283
    $0.21     0.002 Hrs File399
    $0.44   Estimated total session cost    0.007 Hrs.

File 312:CA SEARCH 1987 UD=10622
(Copr. 1987 by the Amer. Chem. Soc.)

       Set   Items  Description
       ---   -----  -----------
?ss rn=51-28-5
       S1       42  RN=51-28-5
?ss wood()preserv? and s1
       S2     1949  WOOD  (SEE ?IGNOTE)
       S3      393  PRESERV?
       S4       85  WOOD(W)PRESERV?
                42  S1
       S5        0  WOOD()PRESERV? AND S1
?ss explosi? or fire? or health()hazard? or disposal or waste?? or treatment? or
 sanitary()landfill? or solid()waste??
       S6      748  EXPLOSI?
       S7      786  FIRE?
       S8     1021  HEALTH  (SEE ?IGNOTE)
       S9      661  HAZARD?
      S10      409  HEALTH(W)HAZARD?
      S11     2626  DISPOSAL
      S12     3994  WASTE??
      S13     7877  TREATMENT?
      S14       58  SANITARY
      S15       74  LANDFILL?
      S16        4  SANITARY(W)LANDFILL?
      S17     2717  SOLID
      S18     3994  WASTE??
      S19       68  SOLID(W)WASTE??
      S20    10884  EXPLOSI? OR FIRE? OR HEALTH()HAZARD? OR DISPOSAL OR
                    WASTE?? OR TREATMENT? OR SANITARY()LANDFILL? OR
                    SOLID()WASTE??
```

```
?c 1 and 20
                 42  1
              10884  20
      S21         3  1 AND 20
?121/eng
      S22         3  21/ENG
?122/npt
      S23         3  22/NPT
?type 23/3/1-3

 23/3/1
  106168192    CA: 106(20)168192v    JOURNAL
  Semi-volatile organic analytical methods performance and quality control
considerations
  AUTHOR(S): Wolff, Jeffrey S.; Homsher, Michael T.; Flotard, Richard D.;
Pearson, J. G.
  LOCATION: Lockheed Eng. and Manage. Serv. Co., Las Vegas, NV, 89114, USA
  JOURNAL: ASTM Spec. Tech. Publ.  DATE: 1986  VOLUME: 925  NUMBER: Qual.
Control Rem. Site Invest.:  Hazard. Ind. Solid Waste Test., 5th Vol.
  PAGES: 157-72  CODEN: ASTTA8  ISSN: 0066-0558  LANGUAGE: English

 23/3/2
  106168191    CA: 106(20)168191u    JOURNAL
  Semi-volatile organic analytical methods - general description and
quality control considerations
  AUTHOR(S): Fisk, Joan F.
  LOCATION: Haza    Response Support Div., Off. Solid Waste Emergency
Response, Washin  on, DC, 20460, USA
  JOURNAL: ASTM Spec. Tech. Publ.  DATE: 1986  VOLUME: 925  NUMBER: Qual.
Control Rem. Site Invest.:  Hazard. Ind. Solid Waste Test., 5th Vol.
  PAGES: 143-56  CODEN: ASTTA8  ISSN: 0066-0558  LANGUAGE: English

 23/3/3
  106072544    CA: 106(10)72544k    JOURNAL
  Characterization of the sorption of toxic and hazardous organic
substances to groundwater aquifer solids
  AUTHOR(S): Uchrin, C. G.; Katz, J.; Mangels, G.; Hunter, J. V.
  LOCATION: Cook Coll., Rutgers, State Univ., New Brunswick, NJ, 08903, USA
  JOURNAL: Stud. Environ. Sci.  DATE: 1986  VOLUME: 29  NUMBER: Chem. Prot.
Environ. 1985  PAGES: 663-76  CODEN: SENSDA  ISSN: 0166-1116  LANGUAGE:
English
?end/savetemp
?
?end/savetemp
Temp Search-save "TB632" stored
         11Jun87 08:47:45 User005283
     $4.20     0.040 Hrs File312
             $0.90  3 Types in Format  3
     $0.90   3 Types
     $0.32   Dialnet
     $5.42   Estimated cost this file
     $5.86   Estimated total session cost   0.048 Hrs.
?b311;.exs tb632
         11Jun87 08:47:55 User005283
     $0.31     0.003 Hrs File312
     $0.02   Dialnet
     $0.33   Estimated cost this file
     $6.19   Estimated total session cost   0.050 Hrs.

File 311:CA SEARCH 1982-86
(Copr. 1987 by the Amer. Chem. Soc.)
** File 311 now contains only 11th CIPinfor-**
** mation (1982-1986).  Use file 312 or file  **
** 399 for 12th CIP (1987) information .      **

        Set  Items  Description
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```
       S1      733  RN=51-28-5
       S2    23943  WO'    (SEE ?IGNOTE)
       S3     5234  PR     J?
       S4      739  WOOD(W)PRESERV?
               733  S1
       S5        1  WOOD()PRESERV? AND S1
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
       S6    10254  EXPLOSI?
       S7     9477  FIRE?
       S8    12372  HEALTH  (SEE ?IGNOTE)
       S9     9008  HAZARD?
      S10     6172  HEALTH(W)HAZARD?
      S11    37528  DISPOSAL
      S12    55775  WASTE??
      S13    95628  TREATMENT?
      S14      468  SANITARY
      S15      976  LANDFILL?
      S16       55  SANITARY(W)LANDFILL?
      S17    57804  SOLID
      S18    55775  WASTE??
      S19      763  SOLID(W)WASTE??
      S20   136934  EXPLOSI? OR FIRE? OR HEALTH()HAZARD? OR DISPOSAL OR
                    WASTE?? OR TREATMENT? OR SANITARY()LANDFILL? OR
                    SOLID()WASTE??
Processing
Processing
Processing
              733  S1
           136934  S20
      S21      76  S1 AND S20
      S22      62  S21/ENG
      S23      59  S22/NPT
?type 5/5/1

 5/5/1
  102023478   CA: 102(3)23478a    JOURNAL
  Evaluation of technical limitations to determining organic contamination
in subsurface soils
  AUTHOR(S): Baty, Catherine J.; Perket, Cary L.
  LOCATION: Environ. Eng. and Manage., Ltd., Minneapolis, MN, 55435, USA
  JOURNAL: ASTM Spec. Tech. Publ.  DATE: 1983  VOLUME: 805  NUMBER: Hazard.
Ind. Solid Waste Test.  PAGES: 7-23  CODEN: ASTTA8  ISSN: 0066-0558
  LANGUAGE: English
  SECTION:
CA119001 Fertilizers, Soils, and Plant Nutrition
CA160XXX Waste Treatment and Disposal
CA179XXX Inorganic Analytical Chemistry
  IDENTIFIERS: subsoil pollution org compd detn, arom hydrocarbon subsoil
pollution detn, phenolic subsoil pollution detn, wastewater lagoon subsoil
org pollutant
  DESCRIPTORS:
Soil pollution...
    by org. compds. in subsoil from wastewater drainage trench and lagoons,
    detn. of, tech. limitations to
```

detn. of, in subsoil polluted by wood-preserving plant wastewater, tech. limitation gas chromatog.
Aromatic hydrocarbon lycyclic,analysis...
detn. of, in subsoils polluted by wood-preserving plant wastewater, tech. limitations to high-pressure liq. chromatog.
Soil analysis...
orgs. pollutant detn. in subsurface, from wastewater drainage trench and lagoons, tech. limitations to
CAS REGISTRY NUMBERS:
51-28-5 95-48-7 100-02-7 106-44-5 108-39-4 108-95-2 analysis, detn. of, in subsoil polluted by wood-preserving plant wastewater, tech. limitations to gas chromatog.
50-32-8 85-01-8 91-20-3 120-12-7 129-00-0 analysis, detn. of, in subsoils polluted by wood-preserving plant wastewater, tech. limitations to high-pressure liq. chromatog.
59-50-7 87-86-5 88-06-2 88-75-5 95-57-8 105-67-9 120-83-2 534-52-1 detn. of, in subsoil polluted by wood-preserving plant wastewater, tech. limitations to gas chromatog.
53-70-3 56-55-3 83-32-9 86-73-7 191-24-2 193-39-5 205-99-2 206-44-0 207-08-9 208-96-8 218-01-9 detn. of, in subsoils polluted by wood-preserving plant wastewater, tech. limitations to high-pressure liq. chromatog.
7440-44-0D orgs. compds., detn. of, in polluted subsurface soils, tech. limitations to
?type 23/3/1-59

23/3/1
105229340 CA: 105(26)229340v JOURNAL
Sensitivity and evaluation of explosive substances
AUTHOR(S): Fukuyama, I.; Osawa, T.; Miyake, A.
LOCATION: Dep. Saf. Eng., Yokohama Natl. Univ., Yokohama, Japan,
JOURNAL: Propellants, Explos., Pyrotech. DATE: 1986 VOLUME: 11
NUMBER: 5 PAGES: 140-3 CODEN: PEPYD5 ISSN: 0721-3115 LANGUAGE: English

23/3/2
105213852 CA: 105(24)213852c JOURNAL
Priority pollutant assessment in the USA: scientific and regulatory implications
AUTHOR(S): Staples, Charles A.; Werner, A. Frances
LOCATION: Monsanto Co., St. Louis, MO, 63167, USA
JOURNAL: Toxic Subst. J. DATE: 1985 VOLUME: 6 NUMBER: 4 PAGES: 186-200 CODEN: TSUJDP ISSN: 0199-3178 LANGUAGE: English

23/3/3
105076853 CA: 105(9)76853n JOURNAL
Chemically induced resistance to heat treatment and stress protein synthesis in cultured mammalian cells
AUTHOR(S): Haveman, J.; Li, G. C.; Mak, J. Y.; Kipp, J. B. A.
LOCATION: Radiotherapy Dep., Acad. Med. Cent., 1105 AZ, Amsterdam, Neth.
JOURNAL: Int. J. Radiat. Biol. Relat. Stud. Phys., Chem. Med. DATE: 1986 VOLUME: 50 NUMBER: 1 PAGES: 51-64 CODEN: IJRBA3 ISSN: 0020-7616
LANGUAGE: English

23/3/4
105001737 CA: 105(1)1737u JOURNAL
Contact and artificial soil tests using earthworms to evaluate the impact of wastes in soil
AUTHOR(S): Neuhauser, Edward F.; Loehr, Raymond C.; Malecki, Michael R.
LOCATION: Dep. Agric. Eng., Cornell Univ., Ithaca, NY, 14853, USA
JOURNAL: ASTM Spec. Tech. Publ. DATE: 1985 VOLUME: 886 NUMBER: Hazard. Ind. Solid Waste Test. PAGES: 192-203 CODEN: ASTTA8 ISSN: 0066-0558
LANGUAGE: English

23/3/5
104229920 CA: 104(26)229920p JOURNAL

23/3/19
102190650 CA: 10)190650g JOURNAL
Remote detection of ..oundwater contaminants using far-ul..aviolet laser-induced fluorescence
AUTHOR(S): Chudyk, Wayne A.; Carrabba, Michael M.; Kenney, Jonathan E.
LOCATION: Dep. Civ. Eng., Tufts Univ., Medford, MA, 02155, USA
JOURNAL: Anal. Chem. DATE: 1985 VOLUME: 57 NUMBER: 7 PAGES: 1237-42
CODEN: ANCHAM ISSN: 0003-2700 LANGUAGE: English

23/3/20
102137456 CA: 102(16)137456x CONFERENCE PROCEEDING
High-performance liquid chromatographic analysis of nitrophenols
AUTHOR(S): Haeberer, A. F.; Scott, Trudy A.
LOCATION: Environ. Res. Lab., U.S. Environ. Prot. Agency, Athens, GA, USA
JOURNAL: Adv. Identif. Anal. Org. Pollut. Water EDITOR: Keith, Lawrence H (Ed), DATE: 1981 VOLUME: 1, PAGES: 359-70 CODEN: 53CYAW LANGUAGE: English PUBLISHER: Ann Arbor Sci,Ann Arbor, Mich

23/3/21
102137244 CA: 102(16)137244b CONFERENCE PROCEEDING
Overcoming bottlenecks in environmental sample analysis
AUTHOR(S): Finnigan, R. E.; Story, M. S.; Hunt, Donald F.
LOCATION: Finnigan Corp., Sunnyvale, CA, USA
JOURNAL: Adv. Identif. Anal. Org. Pollut. Water EDITOR: Keith, Lawrence H (Ed), DATE: 1981 VOLUME: 2, PAGES: 555-70 CODEN: 53CYAW LANGUAGE: English PUBLISHER: Ann Arbor Sci,Ann Arbor, Mich

23/3/22
102119284 CA: 102(14)119284k CONFERENCE PROCEEDING
Determination of priority pollutants in industrial wastewaters by stable-isotope dilution gas chromatography/mass spectrometry
AUTHOR(S): Colby, B. N.; Rosecrance, A. E.
LOCATION: La Jolla, CA, USA
JOURNAL: Adv. Identif. Anal. Org. Pollut. Water EDITOR: Keith, Lawrence H (Ed), DATE: 1981 VOLUME: 1, PAGES: 221-30 CODEN: 53CYAW LANGUAGE: English PUBLISHER: Ann Arbor Sci,Ann Arbor, Mich

23/3/23
102118644 CA: 102(14)118644r JOURNAL
Evaluation of analytical methods for the determination of POHC in combustion products
AUTHOR(S): James, Ruby H.; Adams, Robert E.; Finkel, Joseph M.; Miller, Herbert C.; Johnson, Larry D.
LOCATION: South. Res. Inst., Birmingham, AL, USA
JOURNAL: Proc. - APCA Annu. Meet. DATE: 1984 VOLUME: 77th NUMBER: Vol. 1 PAGES: 84-18.5, 25 pp. CODEN: PAAME3 ISSN: 0193-9688 LANGUAGE: English

23/3/24
102089413 CA: 102(10)89413g JOURNAL
Development of a solvent extraction method for determining semivolatile organic compounds in solid wastes
AUTHOR(S): Warner, John S.; Landes, Moira C.; Slivon, Laurence E.
LOCATION: Battelle Columbus Lab., Columbus, OH, 43201, USA
JOURNAL: ASTM Spec. Tech. Publ. DATE: 1983 VOLUME: 805 NUMBER: Hazard. Ind. Solid Waste Test. PAGES: 203-13 CODEN: ASTTA8 ISSN: 0066-0558
LANGUAGE: English

23/3/25
102023478 CA: 102(3)23478a JOURNAL
Evaluation of technical limitations to determining organic contamination in subsurface soils
AUTHOR(S): Baty, Catherine J.; Perket, Cary L.
LOCATION: Environ. Eng. and Manage., Ltd., Minneapolis, MN, 55435, USA
JOURNAL: ASTM Spec. Tech. Publ. DATE: 1983 VOLUME: 805 NUMBER: Hazard. Ind. Solid Waste Test. PAGES: 7-25 CODEN: ASTTA8 ISSN: 0066-0558

LANGUAGE: English

23/3/26
101186017 CA: 101(21)186017t JOURNAL
The comparative cell cycle and metabolic effects of chemical treatments on root tip meristems. II. Propham, chlorpropham, and 2,4-dinitrophenol
AUTHOR(S): Rost, Thomas L.; Morrison, Steven L.
LOCATION: Dep. Bot., Univ. California, Davis, CA, 95616, USA
JOURNAL: Cytologia DATE: 1984 VOLUME: 49 NUMBER: 1 PAGES: 61-72
CODEN: CYTOAN ISSN: 0011-4545 LANGUAGE: English

23/3/27
101165404 CA: 101(19)165404b JOURNAL
The treatment of ionizable compounds in quantitative structure-activity studies with special consideration to ion partitioning
AUTHOR(S): Scherrer, Robert A.
LOCATION: Riker Lab., St. Paul, MN, 55144, USA
JOURNAL: ACS Symp. Ser. DATE: 1984 VOLUME: 255 NUMBER: Pestic. Synth. Ration. Approaches PAGES: 225-46 CODEN: ACSMC8 ISSN: 0097-6156
LANGUAGE: English

23/3/28
101157359 CA: 101(18)157359a JOURNAL
Use of bonded phase silica sorbents for the sampling of priority pollutants in wastewaters
AUTHOR(S): Chladek, Ema; Marano, Richard S.
LOCATION: Chem. Anal.-Res. Tech. Serv., Ford Motor Co., Dearborn, MI, 48121, USA
JOURNAL: J. Chromatogr. Sci. DATE: 1984 VOLUME: 22 NUMBER: 8 PAGES: 313-20 CODEN: JCHSBZ ISSN: 0021-9665 LANGUAGE: English

23/3/29
101157083 CA: 101(18)157083f CONFERENCE PROCEEDING
Importance of sludge-borne organic chemicals for land application programs
AUTHOR(S): Jacobs, Lee W.; Zabik, Matthew J.
LOCATION: Pest. Res. Cent., Michigan State Univ., East Lansing, MI, 48824, USA
JOURNAL: Annu. Madison Conf. Appl. Res. Pract. Munic. Ind. Waste, 6th
DATE: 1983 PAGES: 418-26 CODEN: 52BCAM LANGUAGE: English PUBLISHER: Univ. Wis.-Ext., Dep. Eng. Appl. Sci.,Madison, Wis

23/3/30
101011906 CA: 101(2)11906e TECHNICAL REPORT
Development of sampling and preservation techniques to retard chemical and biological changes in water samples
AUTHOR(S): Miller, H. H.; Crook, M. V.; Spigarelli, J. L.
LOCATION: Midwest Res. Inst., Kansas City, MO, USA
JOURNAL: Report DATE: 1983 NUMBER: DRXTH-TE-CR-82182; Order No. AD-A135365 PAGES: 231 pp. CODEN: D8REP4 LANGUAGE: English CITATION: Gov. Rep. Announce. Index (U. S.) 1984, 84(5), 107 AVAIL: NTIS

23/3/31
101011776 CA: 101(2)11776n CONFERENCE PROCEEDING
Chemical composition of offshore produced oil brines
AUTHOR(S): Curran, Mary Ann; Lysyj, Ihor
LOCATION: Ind. Environ. Res. Lab., U. S. Environ. Prot. Agency, Cincinnati, OH, 45268, USA
JOURNAL: Toxic Hazard. Waste, Proc. Mid-Atl. Ind. Waste Conf., 15th
EDITOR: LaGrega, Michael D. (Ed), Hendrian, Linda K (Ed), DATE: 1983
PAGES: 166-75 CODEN: 51JYAJ LANGUAGE: English PUBLISHER: Butterworth, Boston, Mass

23/3/32
100214930 CA: 100(26)214930k CONFERENCE PROCEEDING
Treatability of hazardous waste leachate at publicly owned treatment

works
AUTHOR(S): Goltz, Ro D.; Badalamenti, Salvatore; Oss, ert N.
LOCATION: Environ. Pr.., Agency, New York, NY, USA
JOURNAL: Natl. Conf. Manage. Uncontrolled Hazard. Waste Sites DATE: 1983
PAGES: 202-8 CODEN: 51IZAH LANGUAGE: English PUBLISHER: Hazard. Mater.
Control Res. Inst.,Silver Spring, Md

23/3/33
100179663 CA: 100(22)179663b JOURNAL
Removal of refractory organics by aeration. IV. Solvent sublation of chlorinated organics and nitrophenols
AUTHOR(S): Valsaraj, Kalliat T.; Wilson, David J.
LOCATION: Dep. Chem., Vanderbilt Univ., Nashville, TN, 37235, USA
JOURNAL: Colloids Surf. DATE: 1983 VOLUME: 8 NUMBER: 2 PAGES: 203-24
CODEN: COSUD3 ISSN: 0166-6622 LANGUAGE: English

23/3/34
100161356 CA: 100(20)161356u JOURNAL
The combined powdered activated carbon-activated sludge (PACT) process for toxics control
AUTHOR(S): Dunn, George F., Jr.; Hutton, David G.
LOCATION: E. I. du Pont de Nemours and Co., Wilmington, DE, USA
JOURNAL: Water Resour. Symp. DATE: 1983 VOLUME: 10 NUMBER: Toxic Mater.: Methods Control PAGES: 53-76 CODEN: WARSA9 ISSN: 0083-7709
LANGUAGE: English

23/3/35
100161353 CA: 100(20)161353r JOURNAL
Use of phosphorus-31 nuclear magnetic resonance spectroscopy and electron microscopy to study phosphorus metabolism of microorganisms from wastewaters
AUTHOR(S): Florentz, M.; Granger, P.; Hartemann, P.
LOCATION: Anjou-Rech. Co. Gen. Eaux, 75384/08, Paris, Fr.
JOURNAL: Appl. Environ. Microbiol. DATE: 1984 VOLUME: 47 NUMBER: 3
PAGES: 519-25 CODEN: AEMIDF ISSN: 0099-2240 LANGUAGE: English

23/3/36
100012132 CA: 100(2)12132r JOURNAL
Analytical techniques for the quantitation of substituted phenols in municipal sludges
AUTHOR(S): Phillips, John H.; Zabik, Matthew; Leavitt, Richard
LOCATION: Pestic. Res. Cent., Michigan State Univ., East Lansing, MI, 48824, USA
JOURNAL: Int. J. Environ. Anal. Chem. DATE: 1983 VOLUME: 16 NUMBER: 2
PAGES: 81-93 CODEN: IJEAA3 ISSN: 0306-7319 LANGUAGE: English

23/3/37
99217955 CA: 99(26)217955u (correction of 97(16)132855v) JOURNAL
Presence of phenolic compounds in sewage, effluent and sludge from municipal sewage treatment plants
AUTHOR(S): DeWalle, F. B.; Kalman, D. A.; Dills, R.; Norman, D.; Chian, E. S. K.; Giabbai, M.; Ghosal, M.
LOCATION: Dep. Environ. Health, Univ. Washington, Seattle, WA, 98195, USA
JOURNAL: Water Sci. Technol. DATE: 1982 VOLUME: 14 NUMBER: 4-5
PAGES: 143-50 CODEN: WSTED4 ISSN: 0273-1223 LANGUAGE: English

23/3/38
99181187 CA: 99(22)181187d CONFERENCE PROCEEDING.
Organic priority pollutants in wastewater
AUTHOR(S): McMahon, L. W.
LOCATION: Oak Ridge Gaseous Diffus. Plant, Oak Ridge, TN, USA
JOURNAL: Proc. UCC-ND/GAT Environ. Prot. Semin. EDITOR: Oakes, T. W (Ed)
, DATE: 1983 NUMBER: CONF-820418 PAGES: 220-50 CODEN: 50KQAT
LANGUAGE: English MEETING DATE: 820000 PUBLISHER: NTIS,Springfield, Va

23/3/39
99163486 CA: 99(1634B6w TECHNICAL REPORT
Effect of ozonation on the biodegradability and adsorbability of specific organics to be removed in the biologically activated carbon (BAC) process
AUTHOR(S): DiGiano, Francis A.; Mcshane, Shelia F.; Lorenzo, Michael F.
LOCATION: Water Resour. Res. Cent., Univ. Massachusetts, Amherst, MA, USA
JOURNAL: Report DATE: 1982 NUMBER: PUB-135, W83-03107, OWRT-A-132-MASS(1); Order No. PB83-208876 PAGES: 111 pp. CODEN: D8REP4
LANGUAGE: English CITATION: Gov. Rep. Announce. Index (U. S.) 1983, 83(18), 4450 AVAIL: NTIS

23/3/40
99110421 CA: 99(14)110421a JOURNAL
Isolation of phenol and substituted phenols using a cyclohexyl bonded-phase extraction column with HPLC analysis
AUTHOR(S): Dimson, Philip
LOCATION: Analytichem Int., Harbor City, CA, 90710, USA
JOURNAL: LC, Liq. Chromatogr. HPLC Mag. DATE: 1983 VOLUME: 1 NUMBER: 4
PAGES: 236-7 CODEN: LCHMD7 ISSN: 0746-0252 LANGUAGE: English

23/3/41
99027442 CA: 99(4)27442b JOURNAL
Effects of ozone on the biodegradability of biorefractory pollutants
AUTHOR(S): Medley, David R.; Stover, Enos L.
LOCATION: USA
JOURNAL: J. - Water Pollut. Control Fed. DATE: 1983 VOLUME: 55
NUMBER: 5 PAGES: 489-94 CODEN: JWPFA5 ISSN: 0043-1303 LANGUAGE: English

23/3/42
99010262 CA: 99(2)10262v JOURNAL
Ozone-assisted biological treatment of industrial wastewaters containing biorefractory compounds
AUTHOR(S): Stover, Enos L.; Wang, Lien Wei; Medley, David R.
LOCATION: Sch. Civ. Eng., Oklahoma State Univ., Stillwater, OK, USA
JOURNAL: Ozone: Sci. Eng. DATE: 1982 VOLUME: 4 NUMBER: 4 PAGES: 177-94 CODEN: OZSEDS ISSN: 0191-9512 LANGUAGE: English

23/3/43
98221499 CA: 98(26)221499v JOURNAL
Trace analysis of organic priority pollutants by high-resolution gas chromatography and selective detectors (FID, ECD, NPD and MS-DS): application to municipal wastewater and sludge samples
AUTHOR(S): Giabbai, M.; Roland, L.; Chian, E. S. K.
LOCATION: Sch. Civ. Eng., Georgia Inst. Technol., Atlanta, GA, 30332, USA
JOURNAL: Anal. Chem. Symp. Ser. DATE: 1983 VOLUME: 13 NUMBER: Chromatogr. Biochem., Med. Environ. Res. 1 PAGES: 41-52 CODEN: ACSSDR
ISSN: 0167-6350 LANGUAGE: English

23/3/44
98185011 CA: 98(22)185011u JOURNAL
Extraction of priority pollutants from solids
AUTHOR(S): Harrold, D.; Elizabeth; Young, James C.
LOCATION: Iowa State Univ., Ames, IA, USA
JOURNAL: J. Environ. Eng. Div. (Am. Soc. Civ. Eng.) DATE: 1982 VOLUME: 108 NUMBER: EE6 PAGES: 1211-27 CODEN: JEEGAV ISSN: 0090-3914
LANGUAGE: English

23/3/45
98149062 CA: 98(18)149062c JOURNAL
Predicting treatability of multiple organic priority pollutant wastewaters from single-pollutant treatability studies
AUTHOR(S): Kincannon, Don F.; Weinert, Anne; Padorr, Robin; Stover, Enos L.
LOCATION: Sch. Civ. Eng., Oklahoma State Univ., Stillwater, OK, 74074, USA

JOURNAL: Proc. Ind[illegible]te Conf. DATE: 1983 VOLUME: 37, PAGES: 641-50
CODEN: PIWCAX ISSI[illegible]073-7682 LANGUAGE: English

23/3/46
98122675 CA: 98(15)122675t JOURNAL
Concanavalin A-mediated agglutination and distribution of concanavalin A-binding sites in Acanthamoeba following treatment with colchicine and cytochalasin B
AUTHOR(S): Paatero, Guni Isomaa, Boris; Ranninen, Thomas; Wessberg, Susanna
LOCATION: Inst. Biol., Abo Akad., SF-20500, Abo, Finland
JOURNAL: Eur. J. Cell Biol. DATE: 1983 VOLUME: 29 NUMBER: 2 PAGES: 166-70 CODEN: EJCBDN ISSN: 0171-9335 LANGUAGE: English

23/3/47
98113051 CA: 98(14)113051j JOURNAL
Removal mechanisms for toxic priority pollutants
AUTHOR(S): Kincannon, Don F.; Stover, Enos L.; Nichols, Virgil; Medley, David
LOCATION: Sch. Civ. Eng., Oklahoma State Univ., Stillwater, OK, USA
JOURNAL: J. - Water Pollut. Control Fed. DATE: 1983 VOLUME: 55 NUMBER: 2 PAGES: 157-63 CODEN: JWPFA5 ISSN: 0043-1303 LANGUAGE: English

23/3/48
98086487 CA: 98(11)86487x JOURNAL
The effect of mixed treatment with glucose, sodium fluoride, and DNP on rotational streaming
AUTHOR(S): Vintila, Rozalia; Soran, V.
LOCATION: Cent. Biol. Sci., Cluj-Napoca, Rom.
JOURNAL: Rev. Roum. Biol., Ser. Biol. Veg. DATE: 1982 VOLUME: 27 NUMBER: 2 PAGES: 127-32 CODEN: RRBVD5 LANGUAGE: English

23/3/49
98059614 CA: 98(8)59614e JOURNAL
Analysis of organic priority and nonpriority pollutants in environmental samples by GC/MS/computer systems
AUTHOR(S): Lao, R. C.; Thomas, R. S.; Bastien, P.; Halman, R. A.; Lockwood, J. A.
LOCATION: Lab. Serv. Div., Environ. Canada, Ottawa, ON, Can., K1A 1C8
JOURNAL: Pergamon Ser. Environ. Sci. DATE: 1982 VOLUME: 7 NUMBER: Anal. Tech. Environ. Chem. 2 PAGES: 107-18 CODEN: PSSID2 ISSN: 0271-0935 LANGUAGE: English

23/3/50
97202699 CA: 97(24)202699y TECHNICAL REPORT
Behavior of organic priority pollutants in the terrestrial system: di(N-butyl)phthalate ester, toluene, and 2,4 dinitrophenol
AUTHOR(S): Overcash, Michael R.; Weber, Jerome B.; Miles, Marion L.
LOCATION: Dep. Biol. Agric. Eng., North Carolina State Univ., Raleigh, NC, USA
JOURNAL: Report DATE: 1982 NUMBER: W82-04965, OWRT-B-122-NC(6); Order No. PB82-224544 PAGES: 108 pp. CODEN: D8REP4 LANGUAGE: English
CITATION: Gov. Rep. Announce. Index (U. S.) 1982, 82(21), 4376 AVAIL: NTIS

23/3/51
97187682 CA: 97(22)187682s JOURNAL
Evaluation of methodology for the survey analysis of solid wastes
AUTHOR(S): Miller, H. C.; James, R. H.; Dickson, W. R.; Neptune, M. D.; Carter, M. H.
LOCATION: South. Res. Inst., Birmingham, AL, 35255, USA
JOURNAL: ASTM Spec. Tech. Publ. DATE: 1981 VOLUME: 760 NUMBER: Hazard. Solid Waste Test. PAGES: 240-66 CODEN: ASTTAB ISSN: 0066-0558
LANGUAGE: English

23/3/52
97132855 CA: 97([illegible]32855v JOURNAL
Presence of phenolic compounds in sewage, effluent and s[illegible]e from municipal sewage treatment plants
AUTHOR(S): DeWalle, F. B.; Kalman, D. A.; Dills, R.; Norman, D.; Chian, E. S. K.; Giabbai, M.; Ghosal, M.
LOCATION: Dep. Environ. Health, Univ. Washington, Seattle, WA, 98195, USA
JOURNAL: Water Pollut. Control (Maidstone, Engl.) DATE: 1982 VOLUME: 14 NUMBER: 4-5 PAGES: 143-50 CODEN: WPOCAH ISSN: 0043-129X LANGUAGE: English

23/3/53
97106333 CA: 97(13)106333d CONFERENCE PROCEEDING
The combined treatment of preimplantation mouse embryos cultured in vitro with x-rays and 2,4-dinitrophenol
AUTHOR(S): Mueller, W. U.; Streffer, C.; Zamboglou, N.
LOCATION: Inst. Med. Strahlenphys. Strahlenbiol., Universitaetsklin. Essen, Essen, Fed. Rep. Ger.
JOURNAL: Dev. Eff. Prenatal Irradiat., Int. Symp. EDITOR: Kriegel, Heinz (Ed), Schmahl, W. (Ed), Kistner, G (Ed), DATE: 1982 PAGES: 293-8 CODEN: 48KTAD LANGUAGE: English MEETING DATE: 800000 PUBLISHER: Fischer, Stuttgart, Fed. Rep. Ger

23/3/54
97035411 CA: 97(5)35411a JOURNAL
Histamine release from rat peritoneal mast cells exposed to ultraviolet light
AUTHOR(S): Fjellner, Bo; Haegermark, Oesten
LOCATION: Dep. Dermatol., Karolinska Sjukhuset, S-10401, Stockholm, Swed.
JOURNAL: Acta Derm.-Venereol. DATE: 1982 VOLUME: 62 NUMBER: 3 PAGES: 215-20 CODEN: ADVEA4 ISSN: 0001-5555 LANGUAGE: English

23/3/55
97028099 CA: 97(4)28099r CONFERENCE PROCEEDING
Removal of priority pollutants with a combined powdered activated carbon-activated sludge process
AUTHOR(S): Hutton, David G.
LOCATION: Environ. Control Div., E. I. du Pont de Nemours and Co., Inc., Deepwater, NJ, USA
JOURNAL: Chem. Water Reuse EDITOR: Cooper, William J (Ed), DATE: 1981 VOLUME: 2, PAGES: 403-28 CODEN: 46LSAZ LANGUAGE: English PUBLISHER: Ann Arbor Sci.,Ann Arbor, Mich

23/3/56
96168411 CA: 96(20)168411r JOURNAL
Priority pollutants in industrial effluents
AUTHOR(S): Colby, Bruce N.; Beimer, Robert G.; Rushneck, Dale R.; Telliard, William A.
LOCATION: La Jolla, CA, USA
JOURNAL: Int. Environ. Saf. DATE: 1982 NUMBER: Feb. PAGES: 8-13 CODEN: IESAD7 ISSN: 0141-4836 LANGUAGE: English

23/3/57
96074120 CA: 96(10)74120t JOURNAL
Treatability of toxic wastewater pollutants by solvent extraction
AUTHOR(S): Hwang, Seong T.
LOCATION: U. S. Environ. Prot. Agency, Washington, DC, USA
JOURNAL: AIChE Symp. Ser. DATE: 1981 VOLUME: 77 NUMBER: 209 PAGES: 304-15 CODEN: ACSSCQ ISSN: 0065-8812 LANGUAGE: English

23/3/58
96057210 CA: 96(8)57210e JOURNAL
The reductive treatment of industrial wastewaters. II. Process applications
AUTHOR(S): Sweeny, Keith H.

LOCATION: Enviroser[redacted] Syst. Co., El Monte, CA, USA
JOURNAL: AIChE Symp[redacted]er. DATE: 1981 VOLUME: 77 NUMBE[redacted]209 PAGES: 72-8 CODEN: ACSSCQ ISSN: 0065-8812 LANGUAGE: English

23/3/59
96011156 CA: 96(2)11156p JOURNAL
Biodegradability studies with organic priority pollutant compounds
AUTHOR(S): Tabak, Henry H.; Quave, Stephen A.; Mashni, Charles I.; Barth, Edwin F.
LOCATION: Munic. Environ. Res. Lab., EPA, Cincinnati, OH, USA
JOURNAL: J. - Water Pollut. Control Fed. DATE: 1981 VOLUME: 53 NUMBER: 10 PAGES: 1503-18 CODEN: JWPFA5 ISSN: 0043-1303 LANGUAGE: English

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     S25      105  USES AND S1
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?126/npt
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               59  23
                1  5
     S28       35  27 NOT (23 OR 5)
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?ss s1(1)s25
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     S30      105  S25/DE
     S31      105  S1(L)S25
?type 28/3/1-10
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28/3/1
105229846 CA: 105(26)229846q JOURNAL
Photoelectrochemical cell with a sintered glass membrane
AUTHOR(S): Bhowmik, Benoy B.; Roy, Sharmila; Rohatgi-Mukherjee, K. K.
LOCATION: Phys. Chem. Lab., Jadavpur Univ., Calcutta, 700 032, India
JOURNAL: Indian J. Technol. DATE: 1986 VOLUME: 24 NUMBER: 7 PAGES: 388-90 CODEN: IJOTA8 ISSN: 0019-5669 LANGUAGE: English

28/3/2
105198985 CA: 105(22)198985c JOURNAL
The polarographic behavior of 2,4-dinitrophenol in aqueous and non aqueous methanolic media
AUTHOR(S): Taha, Fouad; El Shayeb, H. A.; Abd El Gaber, A. A.; El Roudi, A. M.
LOCATION: Fac. Sci., Minia Univ., Egypt,
JOURNAL: Bull. Soc. Chim. Belg. DATE: 1986 VOLUME: 95 NUMBER: 4 PAGES: 229-39 CODEN: BSCBAG ISSN: 0037-9646 LANGUAGE: English

28/3/3
105164195 CA: 105(18)164195e JOURNAL
Effect of ionic surfactants on the chromatographic separation of phenols
AUTHOR(S): Rawat, J. P.; Singh, Onkar
LOCATION: Dep. Chem., Aligarh Muslim Univ., Aligarh, 202 001, India
JOURNAL: J. Indian Chem. Soc. DATE: 1986 VOLUME: 63 NUMBER: 2 PAGES: 248-50 CODEN: JICSAH ISSN: 0019-4522 LANGUAGE: English

28/3/4
105126472 CA: 10[illegible]4)126472k JOURNAL
Solvatochromic solvent polarity measurements and retention in reversed-phase liquid chromatography
AUTHOR(S): Johnson, Bruce P.; Khaledi, Morteza G.; Dorsey, John G.
LOCATION: Dep. Chem., Univ. Florida, Gainesville, FL, 32611, USA
JOURNAL: Anal. Chem. DATE: 1986 VOLUME: 58 NUMBER: 12 PAGES: 2354-65
CODEN: ANCHAM ISSN: 0003-2700 LANGUAGE: English

28/3/5
104002983 CA: 104(1)2983n JOURNAL
Mitochondrial membrane potential in lymphocytes as monitored by fluorescent cation diS-C3-(5)
AUTHOR(S): Gulyaeva, N. V.; Konoshenko, G. I.; Mokhova, E. N.
LOCATION: Dep. Bioenerset., Moscow State Univ., Moscow, USSR
JOURNAL: Membr. Biochem. DATE: 1985 VOLUME: 6 NUMBER: 1 PAGES: 19-32
CODEN: MEBIDO ISSN: 0149-046X LANGUAGE: English

28/3/6
103208788 CA: 103(25)208788r CONFERENCE PROCEEDING
Monitoring of herbicide toxicity by using pollen as indicators I - pollen of Apocynaceae
AUTHOR(S): Salsare, S. A.
LOCATION: Dep. Bot., Inst. Sci., Bombay, India
JOURNAL: Curr. Pollut. Res. India EDITOR: Trivedy, R. K. (Ed), Goel, P. K (Ed), DATE: 1985 PAGES: 307-16 CODEN: 54JKAW LANGUAGE: English
PUBLISHER: Environ. Publ.,Karad, India

28/3/7
103183262 CA: 103(22)183262z JOURNAL
A gas chromatographic micromethod for trace determinations of phenols
AUTHOR(S): Benstsson, Goran
LOCATION: Natl. Cent. Ground Water Res., Univ. Oklahoma, Norman, OK, 73019, USA
JOURNAL: J. Chromatogr. Sci. DATE: 1985 VOLUME: 23 NUMBER: 9 PAGES: 397-401 CODEN: JCHSBZ ISSN: 0021-9665 LANGUAGE: English

28/3/8
103171184 CA: 103(20)171184n JOURNAL
Polyallylamine-coated silica gel microbore column for liquid chromatography
AUTHOR(S): Rokushika, Souji; Huang, De Ying; Qiu, Zong Yin; Hatano, Hiroyuki
LOCATION: Fac. Sci., Kyoto Univ., Kyoto, Japan, 606
JOURNAL: J. Chromatogr. DATE: 1985 VOLUME: 332, PAGES: 15-18 CODEN: JOCRAM ISSN: 0021-9673 LANGUAGE: English

28/3/9
103022744 CA: 103(3)22744t JOURNAL
Studies on carbonylating organoiron alkyl complexes (.eta.-C5H5)(CO)(L)FeR
AUTHOR(S): Forschner, T. C.; Cutler, A. R.
LOCATION: Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, 12181, USA
JOURNAL: Organometallics DATE: 1985 VOLUME: 4 NUMBER: 7 PAGES: 1247-57 CODEN: ORGND7 ISSN: 0276-7333 LANGUAGE: English

28/3/10
102124871 CA: 102(14)124871d CONFERENCE PROCEEDING
Chromatographic considerations for the analysis of acid-extractable priority pollutants
AUTHOR(S): Freeman, R. R.
LOCATION: Hewlett-Packard Co., Avondale, PA, USA
JOURNAL: Adv. Identif. Anal. Org. Pollut. Water EDITOR: Keith, Lawrence H (Ed), DATE: 1981 VOLUME: 1, PAGES: 155-69 CODEN: 53CYAW LANGUAGE: English PUBLISHER: Ann Arbor Sci,Ann Arbor, Mich
?type 28/5/11

28/5/11
102120493 CA: 10[illegible]4)120493J JOURNAL
Solute retention in column liquid chromatography. VI. Enthalphy-entropy compensation: the column temperature and mobile-phase composition
AUTHOR(S): Laub, R. J.; Madden, S. J.
LOCATION: Dep. Chem., San Diego State Univ., San Diego, CA, 92182, USA
JOURNAL: J. Liq. Chromatogr. DATE: 1985 VOLUME: 8 NUMBER: 1 PAGES: 187-205 CODEN: JLCHD8 ISSN: 0148-3919 LANGUAGE: English
SECTION:
CA166004 Surface Chemistry and Colloids
CA125XXX Benzene, Its Derivatives, and Condensed Benzenoid Compounds
CA169XXX Thermodynamics, Thermochemistry, and Thermal Properties
IDENTIFIERS: solute retention liq chromatog temp, chromatog retention solute sorbent interaction, arom hydrocarbon chromatog enthalpy entropy compn
DESCRIPTORS:
Phenols;properties...
chromatog. retention of, aq. THF as eluent and temp. effects on
Thermodynamics...
in liq. chromatog. in relation to solute retention
Enthalpy and Enthalpy function...
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Chromatography;column and liquid...
solute retention in, temp. and mobile-phase compn. effect on, enthalpy-entropy compensation in
CAS REGISTRY NUMBERS:
59-50-7 88-75-5 95-57-8 105-67-9 120-83-2 534-52-1 chromatog. retention of, aq. THF as eluent and temp. effects on
51-28-5 100-02-7 108-95-2 properties, chromatog. retention of, aq. THF as eluent and temp. effects on
109-99-9 uses and miscellaneous, as mobile phase with water, in reversed-phase liq. chromatog., enthalpy-entropy compensation in relation to
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?type 35/3/1-11

35/3/1
105229846 CA: 105(26)229846a JOURNAL
Photoelectrochemical cell with a sintered glass membrane
AUTHOR(S): Bhowmik, Benoy B.; Roy, Sharmila; Rohatgi-Mukherjee, K. K.
LOCATION: Phys. Chem. Lab., Jadavpur Univ., Calcutta, 700 032, India
JOURNAL: Indian J. Technol. DATE: 1986 VOLUME: 24 NUMBER: 7 PAGES: 388-90 CODEN: IJOTA8 ISSN: 0019-5669 LANGUAGE: English

35/3/2
104002983 CA: 104(1)2983n JOURNAL
Mitochondrial membrane potential in lymphocytes as monitored by fluorescent cation diS-C3-(5)
AUTHOR(S): Gulyaeva, N. V.; Konoshenko, G. I.; Mokhova, E. N.
LOCATION: Dep. Bioenerset., Moscow State Univ., Moscow, USSR
JOURNAL: Membr. Biochem. DATE: 1985 VOLUME: 6 NUMBER: 1 PAGES: 19-32
CODEN: MEBIDO ISSN: 0149-046X LANGUAGE: English

[illegible]/3/3

103208788 CA: 1[illegible]5)208788r CONFERENCE PROCEEDING
Monitoring of herb[illegible]e toxicity by using pollen as indicators I - pollen of Apocynaceae
AUTHOR(S): Salsare, S. A.
LOCATION: Dep. Bot., Inst. Sci., Bombay, India
JOURNAL: Curr. Pollut. Res. India EDITOR: Trivedy, R. K. (Ed); Goel, P. K (Ed), DATE: 1985 PAGES: 307-16 CODEN: 54JKAW LANGUAGE: English
PUBLISHER: Environ. Publ.,Karad, India

35/3/4
103022744 CA: 103(3)22744t JOURNAL
Studies on carbonylating organoiron alkyl complexes (.eta.-C5H5)(CO)(L)FeR
AUTHOR(S): Forschner, T. C.; Cutler, A. R.
LOCATION: Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, 12181, USA
JOURNAL: Organometallics DATE: 1985 VOLUME: 4 NUMBER: 7 PAGES: 1247-57 CODEN: ORGND7 ISSN: 0276-7333 LANGUAGE: English

35/3/5
100215225 CA: 100(26)215225w JOURNAL
Use of poisons in determination of microbial manganese binding rates in seawater
AUTHOR(S): Rosson, Reinhardt A.; Tebo, Bradley M.; Nealson, Kenneth H.
LOCATION: Mar. Sci. Inst., Univ. Texas, Austin, TX, 78373, USA
JOURNAL: Appl. Environ. Microbiol. DATE: 1984 VOLUME: 47 NUMBER: 4 PAGES: 740-5 CODEN: AEMIDF ISSN: 0099-2240 LANGUAGE: English

35/3/6
100174015 CA: 100(21)174015s JOURNAL
X:YZH systems as potential 1,3-dipoles. Part 2. Oxime cycloadditions: formation of 2:1 adducts
AUTHOR(S): Grigg, Ronald; Jordan, Maurice; Tangthongkum, Aant; Einstein, Frederick W. B.; Jones, Terry
LOCATION: Chem. Dep., Queen's Univ. Belfast, Belfast, UK, BT9 5AG
JOURNAL: J. Chem. Soc., Perkin Trans. 1 DATE: 1984 NUMBER: 1 PAGES: 47-57 CODEN: JCPRB4 ISSN: 0300-922X LANGUAGE: English

35/3/7
99081797 CA: 99(10)81797j JOURNAL
Resolution optimization of substituted phenols
AUTHOR(S): Goldberg, A. P.; Nowakowsa, E.
LOCATION: S. Afr.
JOURNAL: Analytika (Johannesburg) DATE: 1983 NUMBER: Feb. PAGES: 9, 15 CODEN: ANLYDJ LANGUAGE: English

35/3/8
98059656 CA: 98(8)59656v JOURNAL
The ligand-exchange technique in the recovery of organic pollutants from water
AUTHOR(S): Lagana, A.; Petronio, B. M.
LOCATION: Inst. Anal. Chem., Rome, Italy
JOURNAL: Pergamon Ser. Environ. Sci. DATE: 1982 VOLUME: 7 NUMBER: Anal. Tech. Environ. Chem. 2 PAGES: 141-7 CODEN: PSSID2 ISSN: 0271-0935 LANGUAGE: English

35/3/9
97126621 CA: 97(15)126621z JOURNAL
Reactions of aryldiazonium salts and alkyl arylazo ethers. VIII. General acid catalysis of the ionization of alkyl (E)-arylazo ethers in alcoholic solvents
AUTHOR(S): Broxton, Trevor J.; Stray, Andrew C.
LOCATION: Dep. Org. Chem., La Trobe Univ., Bundoora, 3083, Australia
JOURNAL: Aust. J. Chem. DATE: 1982 VOLUME: 35 NUMBER: 5 PAGES: 961-72 CODEN: AJCHAS ISSN: 0004-9425 LANGUAGE: English

35/3/10
[illegible]

97106552 CA: 97[redacted]106552z JOURNAL
A new method that [redacted]stigates superoxide versus respir[redacted]n in vitro using bioluminescence and Sepharose-bound adenosine derivatives
AUTHOR(S): Lippman, Richard D.
LOCATION: Div. Phys. Chem., R. Inst. Technol., S-10044, Stockholm, Swed.
JOURNAL: J. Biochem. Biophys. Methods DATE: 1982 VOLUME: 6 NUMBER: 2
PAGES: 81-7 CODEN: JBBMDG ISSN: 0165-022X LANGUAGE: English

35/3/11
97055012 CA: 97(7)55012p JOURNAL
Broensted and Lewis acid catalysis of X:Y-ZH cycloadditions
AUTHOR(S): Griss, R.; Gunaratne, H. Q. N.
LOCATION: Dep. Chem., Queen's Univ. Belfast, Belfast, UK, BT9 5AG
JOURNAL: J. Chem. Soc., Chem. Commun. DATE: 1982 NUMBER: 7 PAGES: 384-6 CODEN: JCCCAT ISSN: 0022-4936 LANGUAGE: English

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S38 2 S1(L)INSECTICIDE?

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38/3/1
98067075 CA: 98(9)67075v TECHNICAL REPORT
Strengthening insecticide resistance in insects by activation of residual respiration, using some physiologically active substances
AUTHOR(S): Bolonina, V. P.; Smirnova, G. N.
LOCATION: Leningr. Med. Inst., Leningrad, USSR
JOURNAL: Deposited Doc. DATE: 1981 NUMBER: VINITI 243-82 PAGES: 8 pp.
CODEN: D8DEP2 LANGUAGE: Russian AVAIL: VINITI

38/3/2
97121651 CA: 97(15)121651z JOURNAL
Uptake of insecticides by intestinal epithelial cell suspensions isolated from mice
AUTHOR(S): Ahdaya, S. M.; Guthrie, F. E.
LOCATION: Dep. Entomol., North Carolina State Univ., Raleigh, NC, 27650, USA
JOURNAL: Bull. Environ. Contam. Toxicol. DATE: 1982 VOLUME: 29
NUMBER: 1 PAGES: 76-83 CODEN: BECTA6 ISSN: 0007-4861 LANGUAGE: English

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    **                                **

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 10/3/1
  0538181  0V057-01086; 0I055-00002; 7A013-00273
   Respiratory adjustments of the unanaesthetized chicken, Gallus
domesticus, to elevated metabolism elicited by 2,4-dinitrophenol or cold
exposure.
   Gleeson, M.
   Comparative Biochemistry and Physiology, A (Comparative Physiology)
 1986.  83 (2): 283-289  (28 ref.)
   Language: English

 10/3/2
  0366049  0C055-08455; 7W011-01742
   Relationship between the activity of the ethylene-forming enzyme and the
level of intracellular 2,4-dichlorophenoxyacetic acid in pear cell cultures
in vitro.
   Balague, C.;   Pech, J.-C.
   Ecole Nationale Superieure Agronomique de Toulouse, 31076 Toulouse
 Cedex, France.
   Journal of Plant Growth Regulation  1985.  4 (2): 81-89  (30 ref.)
   Language: English

 10/3/3
  0360897  0C055-07887; 7C011-01562; 7W011-01650; 7Q011-03742
   Transport of xenobiotics in higher plants. II. Absorption of defenuron,
carboxyphenylmethylurea, and maleic hydrazide by isolated conducting tissue
of Cyclamen.
   Grimm, E.;   Neumann, S.;   Jacob, F.
   Martin Luther Universitat Halle, DDR-4020 Haale (Saale), German
 Democratic Republic.
   Biochemie und Physiologie der Pflanzen  1985.  180 (5): 383-392  (15
 ref.)
   Language: English

 10/3/4
  0153442  7Q010-01551; 0Q037-02864; 6T001-01754
   Differences between effects of undissociated and anionic
2,4-dinitrophenol on permeability of barley roots.
   Jackson, P. C.
   Plant Physiol. Inst., AR, USDA, Beltsville, Maryland 20705, USA.
(CURRENT TECHNOLOGY INDEX (FILE 144) FOR ... IS AVAILABLE ONLINE)
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Language: English

10/3/5
0139473 7Q010-00765; 0C054-01128; 7C010-00203; 7W010-00439
Effects of metabolic inhibitors on anthocyanin accumulation in petals of Rosa hybrida Hort. cv. Ehigasa.
Nakamae, H.; Nakamura, N.
Kansai Golf Union Green Section Research Center, Minamihata 226-1, Obawashi, Takarazuka 665, Japan.
Plant and Cell Physiology 1983. 24 (6): 995-1002 (23 ref.)
Language: English

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0131690 7Q010-00033; 0Q037-01182; 0S047-02088; 0W033-00649; 0G054-00737; 7W010-00699; 7U007-00872; 7G007-01245
Germination of Echinochloa crus-galli (barnyard grass) seeds under anaerobic conditions. Respiration and response to metabolic inhibitors.
Kennedy, R. A.; Rumpho, M. E.; VanderZee, D.
Dep. of Hort. and Landscape Architecture, Washington State Univ., Pullman, WA 99164, USA.
Plant Physiology 1983. 72 (3): 787-794 (24 ref.)
Language: English
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File 53:CAB ABSTRACTS 1972-1983
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5/3/1
1587127 0S046-05129
Biological activities of 2,4-dinitrophenol in plant-soil systems.
Shea, P. J.; Weber, J. B.; Overcash, M. R.
Agronomy Department, University of Nebraska, Lincoln, NE, USA.
Residue Reviews 1983. 87 1-41 (approx. 100 ref.)
Language: English

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1530133 0W032-03572; 0Q036-10212
Behavior of fluridone, 2,4-dinitrophenol and di-n-butyl phthalate in plants and soils.
Shea, P. J.
North Carolina State Univ., Raleigh, NC 27607, USA.
Dissertation Abstracts International, B. 1982. 42 (7): 2642
Language: English

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1522948 0Q036-053[illegible] 7Q009-02852
Effects of 2,4-d[illegible]ophenol on membrane lipids of roo[illegible]
Jackson, P. C.; St. John, J. B.
Pl. Physiol. Inst., USDA-ARS, Beltsville, MD 20705, USA.
Plant Physiology 1982. 70 (3): 858-862 (20 ref.)
Language: English

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1501011 0J071-03303
Freeze-fracture analysis of the effects of age and 2,4-dinitrophenol on the morphology of flight muscle mitochondria of Musca domestica L.
Turturro, A.; Shafiq, S. A.
Program in Biophysics and Neurology Department, Downstate Medical Center, Box 1213, Brooklyn, New York 11203, USA.
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1478421 0C053-01267; 7Q009-00597
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Singh, J. P.
Department of Agricultural Botany, Konkan Krishi Vidyapeeth, Dapoli 415 712, India.
Current Science 1982. 51 (12): 618-620 (21 ref.)
Language: English

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1460656 0W031-02602
Effects of herbicide 2,4-dinitrophenol on mitosis, DNA, RNA and protein synthesis in Nigella sativa L.
Chand, S.; Roy, S. C.
Dep. Bot., Univ. Calcutta, 35, Ballygunge Circular Rd., Calcutta 700 019, India.
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Language: English

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1427834 0S045-01256
The effect of chloramphenicol and 2,4-dinitrophenol on absorption of ions by intact pumpkin plants.
Votrubova-Vanousova, O.
Katedra fyziologie rostlin a biologie pudy UK, Vinicna 5, 128 44 Praha 2, Czechoslovakia.
Acta Universitatis Carolinae, Biologica 1977. (No. 3-4): 193-197 (12 ref.)
Language: English

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1361495 0Q035-06754
Effects of actinomycin D and 2,4-dinitrophenol on the development of root primordia in azuki bean stem cuttings.
Mitsuhashi-Kato, M.; Shibaoka, H.
Dep. of Bot., Tokyo Univ., Tokyo 113, Japan.
Plant and Cell Physiology 1981. 22 (8): 1431-1436 (12 ref.)
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1322883 0C052-07431
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1248040 0P051-10535
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Language: English

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1216533 0H050-05062
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Fetterer, R. H.; Pax, R. A.; Bennett, J. L.
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Language: English

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1201179 0G051-03703; 0Q034-05381
Potential impact of 2,4-dinitrophenol on corn, soybean and fescue in land application systems.
[Abstract].
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Shea, P. J.; Strek, H. J.; Weber, J. B.; Overcash, M. R.
North Carolina State Univ., Raleigh, NC 27607, USA.
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1980. 145
Language: English

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1196961 0Q034-02775
Inhibition of ethylene production by 2,4-dinitrophenol and high temperature.
Yu, Y.-B.; Adams, D. O.; Yang, S. F.
Dep. of Veg. Crops, California Univ., Davis, CA 95616, USA.
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Language: English

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1183427 0E069-06383
Effects of various inhibitors and 2,4-dinitrophenol on adenosine triphosphatase from Malpighian tubules of Locusta migratoria L.
Fathpour, H.; Anstee, J. H.
Department of Zoology, Durham University, UK.
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Language: English

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1162314 0C051-04596; 0Q034-04559
Concentration-dependent inhibition and enhancement of glutamine synthetase, glutamate dehydrogenase and nitrate reductase activities in pea roots by some respiratory inhibitors and uncouplers.
Sahulka, J.; Lisa, L.
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1159760 0C051-01002
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Yu, Y. B.; Adams, D. O.; Yang, S. F.

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Plant Physiology (0. 66 (2): 286-290 (25 ref.)
Language: English

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1079460 0U050-03337
Superficial or membrane digestion of peptides in dinitrophenol-inhibited small rat intestine.
Gardner, M. L. G.
Dep. Biochemistry, Univ. Edinburgh Medical School, Teviot Place, Edinburgh EH8 9AG, UK.
Clinical Science 1979. 57 (2): 217-220 (25 ref.)
Language: English

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1051692 0Y004-02279
Effects of 2,4-dinitrophenol on trichomonads and Entamoeba invadens.
Muller, M.; Nseka, V.; Mack, S. R.; Lindmark, D. G.
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Comparative Biochemistry and Physiology 1979. 64B (1): 97-100
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1018279 0J068-02736
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Thibault, D. H.; Guthrie, J. E.
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Language: English

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1000832 0C050-06921
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Language: English

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Dep. Bot., Annamalai Univ., Annamalainagar, Tamil Nadu, India.
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Language: English Summary Language: Italian

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0910075 0M058-01040
Purine metabolism and differential inhibition of spore germination in Phytophthora infestans.
Clark, M. C.; Melanson, D. L.; Page, O. T.
Res. Sta., Agric. Canada, Fredericton, NB, Canada.
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Language: English Summary Language: French

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0883917 0Q032-00764
The metabolism of glucose in corn coleoptiles in relation to oxygen and 2,4-dinitrophenol.

Forward, D. F.; Chaung, K.-W.
Dep. of Bot., Tor) University, Toronto, Ontario, da M5S 1A1.
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College of Agriculture, Kyoto University, Sakyo-ku, Kyoto 606, Japan.
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Language: English

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0812645 0S041-02792
Phosphorus absorption by intact maize plants from flowing solutions influenced by 2,4-dinitrophenol and viscosity of solution.
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Language: English

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0796666 0P048-10382
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Kumkum Sikka; Sharma, A. K.
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Language: English

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0747146 0Q031-02939
Phosphorus absorption by intact [illegible] from flowing [illegible]

influenced by 2,4-di[illegible]ophenol and viscosity of solution.
Cizkova-Macurkova[illegible] Lastuvka, Z.
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Language: English

5/3/31
0747082 0Q031-02938
A kinetic study of phosphorus absorption by excised maize roots from flowing solutions influenced by 2,4-dinitrophenol and viscosity of solution.
Cizkova-Macurkova, R.; Lastuvka, Z.
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Language: English

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0737236 1F001-00778
Chemical treatment of chips for outdoor storage. Evaluation of sodium N-methyldithiocarbamate + sodium 2,4-dinitrophenol treatment.
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0711487 0C048-04552
Influence of chilling on electrolyte permeability, oxygen uptake and 2,4-dinitrophenol stimulated oxygen uptake in leaf discs of the thermophilic Cucumis sativus.
Tanczos, O. G.
Groningen University, Groningen, Netherlands.
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Language: English

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0707612 0C048-00438
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Faculty of Sciences, Charles University, Prague, Czechoslovakia.
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0602700 0Q030-01020
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0488062 0M055-00075
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0473503 0Q029-06662
Effect of 2,4-dinitrophenol and ATP on uptake, translocation and distribution of 32P in cotton plants under different light conditions.
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Dep. Cytol., Inst. Cellular Biol., CSIC, Madrid, Spain.
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0363363 1N045-02265
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Kowarski, S.; Blair-Stanek, C. S.; Schachter, D.
Dep. Physiology, College of Physicians and Surgeons of Columbia Univ., New York City 10032, USA.
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0341337 0Q028-05760
Inhibition of in vivo conversion of methionine to ethylene by L-canaline and 2,4-dinitrophenol.
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Department of Vegetable Crops, California University, Davis, CA 95616, USA.
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Language: English

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0337119 0Q028-05380
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Language: English Summary Language: Russian

5/3/44
0335242 0Q028-01509
Effect of 2,4-dinitrophenol on [illegible] of ethylene production and

auxin conjugation b[illegible]ns bean tissue.
Lau, O.-L.; Mur[illegible], P.; Yang, S. F.
Department of Vege[illegible]ble Crops, California University, Davis, California, USA.
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0295770 0C045-00423
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Tel Aviv University, Israel.
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0219540 0Q027-01713
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Cheung, K.-W.
Toronto University, Ontario, Canada.
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0192238 0C044-08561
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0190093 0C044-08533
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Istituto di Scienze Botaniche, Universita di Milano, Italy.
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0183824 0C044-01980

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Language: English Summary Language: Spanish

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0115652 0Q026-05768
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Stuart, D. M.
Western Region, USDA, Reno, Nevada.
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0112263 0Q026-04194
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Anand, R.; Galston, A. W.
Department of Biology, Yale University, New Haven, Connecticut, USA.
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0107289 0Q026-01047
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Svensson, S-E.
Department of Plant Physiology, Lund University, Sweden.
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0081384 0C043-06994
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Universita di Catania, Italy.
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0079974 0C043-03495
Penetration of naphthaleneacetic acid into pear (Pyrus communis L.) leaves.
Greene, D. W.; Bukovac, M. J.
Michigan State University, East Lansing, USA.
Plant and Cell Physiology. 1972. 13 (2): 321-330 (27 ref.)
Language: English
?e sf=1f

Ref Items Index-term
E1 32946 SF=0Y (PROTOZOOLOGICAL ABSTRACTS 1977+)

```
 E2     13351  SF=0Z (C    LANDS DEVELOPMENT ABS. 1980-1982)
 E3     17148 *SF=1F (F    ST PRODUCTS ABSTRACTS 1978+)
 E4     37257  SF=1N (NUTRITION ABSTRACTS & REVIEWS 1973-1976)
 E5      7705  SF=1R (RURAL EXTENSION, EDUC & TRAINING, 1977+)
 E6     38339  SF=2F (FORESTRY ABSTRACTS 1973-1977)
 E7     15381  SF=2R (RURAL DEVELOPMENT ABSTRACTS 1978+)
 E8      3491  SF=2V (ANIMAL DISEASE OCCURRENCE 1980+)
 E9      9034  SF=3R (LEISURE, RECREATION & TOURISM ABS. 1979+)
 E10     2524  SF=7A (POULTRY ABSTRACTS 1975+)
 E11     1986  SF=7C (ORNAMENTAL HORTICULTURE 1975+)
 E12     5222  SF=7Q (CROP PHYSIOLOGY ABSTRACTS 1975+)

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Ref    Items  Index-term
E1     37257  SF=1N (NUTRITION ABSTRACTS & REVIEWS 1973-1976)
E2      7705  SF=1R (RURAL EXTENSION, EDUC & TRAINING, 1977+)
E3     38339 *SF=2F (FORESTRY ABSTRACTS 1973-1977)
E4     15381  SF=2R (RURAL DEVELOPMENT ABSTRACTS 1978+)
E5      3491  SF=2V (ANIMAL DISEASE OCCURRENCE 1980+)
E6      9034  SF=3R (LEISURE, RECREATION & TOURISM ABS. 1979+)
E7      2524  SF=7A (POULTRY ABSTRACTS 1975+)
E8      1986  SF=7C (ORNAMENTAL HORTICULTURE 1975+)
E9      5222  SF=7Q (CROP PHYSIOLOGY ABSTRACTS 1975+)
E10     1098  SF=7Z (TROPICAL OIL SEEDS ABSTRACTS 1976+)
E11    22596  SF=8A (AGRICULTURAL ENGINEERING ABS. 1979+)
E12       59  SH=ACTINOMYCETE INFECTIONS (DL07)

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?ss sf=1f
      S6    17148  SF=1F  (FOREST PRODUCTS ABSTRACTS 1978+)
?ss dinitrophenol or dnp
      S7      562  DINITROPHENOL
      S8      316  DNP
      S9      761  DINITROPHENOL OR DNP
?c 6 and 9
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             761  9
     S10       3  6 AND 9
?type 10/5/1

 10/5/1
  0876914  1F002-00108
   The electrochemical  determination of fluorides  in preservative treated
wood.
   UK, Building Research Establishment, Princes Risborough Laboratory
   Analytical Method Sheet, Building Research Establishment, Princes
 Risborough Laboratory  undated.  (No. 15): 4 pp.  (2 ref. PR)
   Language: English
   Document Type: NW  (Numbered Whole)
   Subfile: 1F  (Forest Products Abstracts 1978+)
   The  fluoride  is  extracted  from  the  wood  with  NaOH  solution  and
 determined  by  means of a fluoride ion-selective electrode. The method is
 suitable  for samples containing not less than 2 p.p.m. NaF, or equivalent
 in  up  to  1 g of wood, and is applicable to preservatives containing Cr,
 As, B  or dinitrophenol.

 Descriptors:  preservative-treated  wood;  detection  and  assay  of
    preservatives; preservatives, wood; f compounds
 Decimal Codes: 1F5.5
 Section Heading Codes:  1F055
 Section Headings:     5  DAMAGE  TO  TIMBER  AND  TIMBER PROTECTION--WOOD
    PRESERVATION  -  MATERIALS AND METHODS (INCLUDING PAINTING, VARNISHING,
    POLISHING, ETC.)  (1F055)
?type 10/5/2-3
CURRENT TECHNOLOGY INDEX (File 142) for >1] DIALOG customers
```

10/5/2
0737313 1F001-00,
Evaluation of chemical treatments to prevent deterioration of wood chips during storage.
Springer, E. L.; Feist, W. C.; Zoch, L. L., Jr.; Hajny, G. J.
For. Prod. Lab., Madison, Wis. 53705, USA.
Tappi 1977. 60 (2): 93-97 (7 ref.)
Language: English
Document Type: NP (Numbered Part)
Subfile: 1F (Forest Products Abstracts 1978+)
Simulators of chip piles were used to evaluate the effectiveness of four chemical treatments in preventing the deterioration of Pinus echinata chips. The treatments were: (1) K N-methyl, N-hydroxymethyldithiocarbamate + Na 2-mercaptobenzothiazole; (2) Na N-methyldithiocarbamate + tetramethylthiuram disulphide + Na lauryl sulphate; (3) NaHSO3 + 2,4-dinitrophenol; and (4) propionic acid. Temp. in the simulators and chip brightness were observed during 6 months' storage. After storage, determinations were made of losses in wood substance, kraft pulping properties and tall oil content of the resulting black liquor. All treatments significantly retarded loss of wood substance; treatments (3) and (4) were most effective in preventing chip deterioration. Treatment (3) was also very effective in suppressing heating of the chips and in preserving wood substance and tall oil; after 6 months, 87% of the initial content of tall oil was retained. Treatment had no deleterious effect on pulp quality. From authors' summary.
Descriptors: 0.74 pinus echinata; 4.4; pinus echinata; wood; storage; preservation; chipping and chips; chips; protective measures; deterioration/protection
Decimal Codes: 1F5.5
Section Heading Codes: 1F055
Section Headings: 5 DAMAGE TO TIMBER AND TIMBER PROTECTION--WOOD PRESERVATION - MATERIALS AND METHODS (INCLUDING PAINTING, VARNISHING, POLISHING, ETC.) (1F055)

10/5/3
0737236 1F001-00778
Chemical treatment of chips for outdoor storage. Evaluation of sodium N-methyldithiocarbamate + sodium 2,4-dinitrophenol treatment.
Springer, E. L.; Benjamin, M.; Feist, W. C.; Zoch, L. L., Jr.; Hajny, G. J.
For. Prod. Lab., Madison, Wis. 53705, USA.
Tappi 1977. 60 (2): 88-91 (8 ref., 1 pl.)
Language: English
Document Type: NP (Numbered Part)
Subfile: 1F (Forest Products Abstracts 1978+)
Fresh chips of Pinus elliottii were sprayed with an aqueous solution of 0.15% Na-N-methyldithiocarbamate + 0.40% Na 2,4-dinitrophenol and formed into an experimental pile 10 ft high. Samples were taken after 1 month and 7 months. The treatment was reasonably effective in slowing heat generation and in retarding losses of wood substance, tall oil, and yield and strength of pulp prepared from the chips. Under certain conditions use of the treatment may be economically attractive.

Descriptors: 0.74 pinus elliottii; 4.4; pinus elliotti; wood; storage; preservation; chipping and chips; chips; protective measures; deterioration/protection
Decimal Codes: 1F5.5
Section Heading Codes: 1F055 ; 1F044
Section Headings: 5 DAMAGE TO TIMBER AND TIMBER PROTECTION--WOOD PRESERVATION - MATERIALS AND METHODS (INCLUDING PAINTING, VARNISHING, POLISHING, ETC.) (1F055); 4 TIMBER EXTRACTION, CONVERSION AND MEASUREMENT--STORAGE AND TRANSPORT OF SAWN TIMBER OR CHIPS (1F044)
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DIALNET: call cleared by request

Dave Fussell – Dir. of Sales & R&D

CHAPMAN

FRITZ NAGEL
JACK L. HOUSE
SALES COORDINATOR
R.. 49 TONY GEORGE

CHAPMAN CHEMICAL COMPANY
416 E. BROOKS ROAD
MEMPHIS, TENNESSEE 38109

PHONE.
AREA 901
396-5151

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MIKE H. FREEMAN

WOOD PROTECTION PRODUCTS,
INCORPORATED

Out-of-State 1-800-438-5957
NC 1-800-438-4534

660 State St.
Charlotte, N.C. 28206
(704) 372-6798

Extension Economics Fact Sheet

Policy and Outlook

PO-15

Agricultural Extension Servic

February 1, 1986

Soil Conservation Requirements in The 1985 Farm Bill

Dana L. Hoag *

New laws concerning soil conservation have passed with the 1985 Farm Bill. Below is a summary of information you may need to know. Turn inside for further details.

SODBUSTER	Anyone who begins cultivation on highly erodible land not farmed at least two years from 1981 to 1985. Sodbusters cannot receive program benefits.
SWAMPBUSTER	Anyone who converts wetland for cultivation after December 1985. Swampbusters cannot receive program benefits.
PROGRAM BENEFITS	1. Any crop price support or payment 2. Farm crop storage loans 3. Federal crop insurance or disaster payments 4. FmHA loans
CONSERVATION RESERVE	Provides 50 percent cost-sharing plus annual rental payments for ten-year contracts to retire highly erodible land to a conservation cover. Reduces crop base during contract. Grazing, haying or any other production forbidden.
CONSERVATION COVER	Introduced grasses, legumes, shrubs or trees with at least a ten-year life. Christmas trees forbidden.
BASE REDUCTION	Reduction of aggregate base in the same proportion as land retired into the conservation reserve is to total cropland. Producer chooses which crop base to reduce.

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* Extension Economist, Soil Conservation and IPM

Important New Laws

Two important new laws concerning soil conservation have been passed as part of the 1985 Farm Bill. The first, conservation compliance, sets soil conservation standards that must be followed to receive any of a variety of government farm program benefits. The second, conservation reserve, provides a financial incentive for farmers to remove highly erodible land from production. These new laws will have an impact on many farmers and hence should be carefully examined by those affected.

Conservation Compliance (CC)

The conservation compliance (CC) law will make farmers who begin production on highly erodible land without an approved conservation plan or who convert wetland to cropland ineligible for the following government program benefits:

- Price supports or payments
- Farm crop storage loans from Commodity Credit Corporation
- Federal crop insurance or disaster payments
- FmHA insured or guaranteed loans

Benefits are lost for all crops grown by the producer until the violation is corrected, even on land not in violation or on another farm.

Highly erodible land is not yet defined. However, for the conservation reserve it is defined as land classes VI, VII or VIII in the soil capability classification system. Also considered "highly erodible" is any land that if cultivated would be predicted to have an erosion rate at least three times so-called tolerance levels. Erosion tolerance levels range from 3 to 5 tons/acre/year, depending on soil properties. The soil capability class, erosion rate and the "tolerable" level of erosion are determined by the local Soil Conservation Service and the Soil Conservation District.

Wetlands that are altered to produce crops that could not have been grown without such alteration are considered to be converted wetland.

Breaking up uncultivated land for production sometimes is referred to as "sodbusting" and converting wetland to cropland is called "swampbusting." Sodbusting and swampbusting penalties are effective immediately and are designed to keep more wetlands and highly erodible land from coming into production.

Land on which a crop was produced or that was diverted from production as part of an ASCS supply reduction program at least two years from 1981 to 1985 is exempt from CC until 1990 (or until two years after completion of a soil survey of the farmer's land if it is not already mapped). Farmland may remain exempt if an SCS conservation plan is being implemented to reduce erosion levels on the highly erodible acreage. Growers can also continue to receive benefits by discontinuing production on the highly erodible land. Soil conservation is not required.

Conservation Reserve (CR)

As 1990 approaches, the CC restrictions will exert pressure on growers to retire land. Under most conditions, converting highly erodible land to a permanent vegetative cover (PVC) that conserves soil involves some cost to the producer. If it didn't, the profit-seeking producer already would have retired the

land. The CR is designed to offset some or all of these costs.

Land put into the CR must be planted to a conservation cover crop and be maintained for the 10-year contract period. Several types of permanent perennial cover crops can be used, including introduced grasses and legumes, forbs, or shrubs and trees. Fields that are predominantly highly erodible can be retired from production and placed into one of these covers for reduced erosion, improved wildlife habitat and recreation. Windbreaks, shelterbelts, diversions, sod waterways and filter strips may also qualify for the CR.

Farmers who retire land into the conservation reserve enter into ten-year contracts with ASCS to keep the land out of production and in an approved soil conservation use in return for annual rental payments. Fifty percent of the cost to establish the practice will be paid or cost shared by the ASCS and an annual rental payment will be paid to maintain the land in conservation use. The amount of the rental payment is determined through a bid submitted to ASCS by the producer. Least-cost bids are accepted on the basis of their cost compared to other bids submitted. A producer can submit a bid for a given value per acre and, if not accepted, may submit another bid the following year.

On farmland retired into the CR, grazing, haying, cropping or harvesting of any kind will not be allowed. Production of Christmas trees also is not permitted. Maintenance of trees, such as thinning or prunning is acceptable, but any product taken off the ground cannot be sold. Also allowed is commercial or private use of the land for hunting.

As the name conservation reserve implies, land in the reserve may be used at the Secretary of Agriculture's discretion to meet emergencies such as drought or crop shortages; the intent is to control erosion but not at the expense of economic stress.

For some producers, the most important requirement of CR is that commodity program bases, allotments and quotas be reduced by a proportion equal to that of the retired land to total cropland for the life of the CR contract. If 20 percent of cropland is retired, 20 percent of the farmer's "aggregate" base is reduced--the aggregate base is the sum of bases for all crops. The producer, however, may designate which individual crop base to reduce and may reduce a combination of several.

Why We Need These Programs

In 1977 and 1982 national resource surveys were conducted that determined the levels and causes of soil erosion. These studies were part of an effort to determine why the United States has not been able to meet clean water goals set for 1985. Soil is the biggest component of water pollution on a volume basis; however, not all water pollution from soil is from agricultural production.

As a result of the national resource inventories (NRIs), it was determined that about half of all cropland erosion occurs on about 10 percent of cropland. Targeting the 40 to 50 million acres of highly erodible land for removal from production could provide savings in soil conservation programs. The theory in targeting highly erodible land for retirement is that since it

has a relatively high rate of erosion and presumably low productivity and higher production cost, it can be retired cheaply while reducing erosion substantially.

In addition to reducing erosion, land retirement can provide improved wildlife habitat, more beauty on farms, and reduced wind erosion--wind erosion causes air pollution and carries soil that damages homes, cars and other outdoor items. Many programs currently are attemting to offer financial incentives to get land out of production for these and other reasons and will be enhanced by the conservation reserve.

Perhaps the most important contribution of the new farm bill conservation measures is the increased land retirement or improved conservation systems that CC likely will bring. Some ASCS commodity programs provided economic incentives to continue farming highly erodible land and directly competed with land retirement programs. For example, acreage diversion programs reduced total production and increased product prices which made highly erodible land more valuable to farm. The commodity programs also encouraged maintenance of a source of less productive land to divert in annual supply reduction programs. Lower yielding land is cheaper to set aside from production than higher yielding ground because less returns are given up by idling the land for one year. The CC program is designed to eliminate these land retirement disincentives and make it easier for other programs to encourage retirement.

The Importance of Timing

An interesting twist to these new programs is that, while the CC will eliminate land retirement disincentives after 1990, the CR has elements that discourage land retirement until 1990. Retiring land before 1990 means loss of a portion of program benefits because base is reduced. In contrast, after 1990, cultivating highly erodible land without appropriate conservation measures will mean loss of all benefits.

Producers who would lose commodity program benefits by retiring land in the CR may want to add those losses to the amount of their CR bids. As 1990 approaches, they can lower their bids because there will be fewer years for which program benefits would be lost. After 1990, program benefits are no longer lost from retiring land.

Even after 1990, it is not required that land be retired to continue receiving program benefits. The only requirement is that the highly erodible land is not cultivated or cultivation must be done in accordance with an approved conservation plan.

What the New Laws Might Mean for North Carolina

Any estimate at this time of the amount of land in North Carolina that will be classified as highly erodible is speculative. Many details remain to be worked out, and there will always be individual cases that do not clearly fit definitions. Nevertheless, information is available about North Carolina that can help assess the possible impacts of these programs.

Nationally, the Farm Bill requires that at least 5 million acres of land be retired in 1986, at least 15 million by 1987, 25 million by 1988, 35 million by 1989, and a total of 40 million by 1990. Total acreage can never

exceed 45 million and at least one-eighth of the acreage should be retired to trees. The proportion of acreage to be retired in any one state varies, and different states may have different allocation criteria. North Carolina has been given an 82,200-acre allotment of the first 5 million national acres for 1986.

North Carolina has about 6.5 million acres of cropland (Table 1), with a little less than 5 million harvested each year. Of these, about 2.9 million acres were classified as needing erosion control in the 1982 NRI. Water erosion is of primary concern; wind erosion is not very serious in the state. The state's average erosion rate is about 7 tons per acre per year--about one-twentieth of an inch annually--but an average of 21 tons erode per year on land eroding at more than two times the tolerance erosion level (2T) as defined by SCS.

As shown in Table 1, approximately one-fourth of all cropland erodes at a level greater than 2T. The amount that would be classified as highly erodible--eroding more than 3T or class VI or VII--and eligible for CR is estimated at about 1 million acres.

The NRI gives some indication of land that will be affected by the CR, but what will be the impact of the CC? Some idea can be inferred from the economic importance to the state of the farm program benefits that would be lost for noncompliance (Table 2). The amount varies considerably each year, but total annual payments in North Carolina are over $400 million.

Table 1: Soil Erosion Statistics for North Carolina (1982 NRI)

	Erosion (tons/ac)	Acres (mil.)
Cropland	7.1	6.50
Acres not adequately protected from soil erosion	-----	2.91
Acres eroding at more than 2T*	21.0	1.60
Acres eligible for conservation reserve	-----	1.14

* T is the erosion tolerance level

Though North Carolina farmers receive over $400 million annually, the actual value of the programs is probably less. Some of the payments for loans are repayed and therefore only provide a loss in convenience for the producers if taken away.

The amount of program benefits that would be directly lost for noncompliance, with the exception of tobacco or other loans, is about $30 million each year. This includes payments and price supports, acreage conservation programs and disaster payments. This represents only about 1.5 percent of the gross crop sales in the state of about $2 billion.

A substantial part of the annual payments, $237 million, are for tobacco loans. Preliminary information indicates that, since tobacco is a supported crop, sodbusters and swampbusters will be excluded from tobacco price supports. The $237 million in lost loans represents only a fraction of potential lost tobacco benefits. The total state tobacco sales of $1 billion is the potential loss because all tobacco

is directly or indirectly supported.

One comforting consideration is that producers will not lose any of these benefits until 1990 unless they sodbust or swampbust. Sodbusting would not be common in North Carolina and the financial outlook for converting wetland currently is not very good. In addition, by 1990, the structure of farm programs may change considerably. Therefore, producers should focus on the conservation reserve while beginning to plan for the future when CC may become more relevant. Producers also should not forget the loss in base that would occur if they enter the CR.

Table 2: North Carolina Government Aid to Farmers

	Year(s)	State Total No. (thsd)	Paymt (mil)
Gov't. paymts. & price supports			
-feed grains	1983		16.13
-wheat	"		4.14
-cotton	"		4.31
Acreage conser. programs(farms)	1983	25.7	3.44
FmHA loans	83-5	3.4	119.34
Fed. crop Ins.	83-5	661.1	----
CCC stor. loans	81-3		
-feed grains	"		18.45
-wheat	"		3.50
-cotton	"		11.36
-peanuts	"		0.33
-tobacco	"		237.63
Disaster paymts.	79-83		
-feed grains	"		2.12
-wheat	"		0.18
-cotton	"		0.24
Total annual paymts.			421.17

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

GORDON E. ROBINSON, JR.

114 OLD BRIDGE STREET
(919) 455-4175

June 10, 1987

FEDERAL EXPRESS

Mr. James D. Kopotic
Federal On-Scene Coordinator
Emergency Response and Control Section
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 20265

Re: 2,4-dinitrophenol, Owned By Atlantic Enterprises, Inc.
Holly Ridge, North Carolina
Status Report

Dear Mr. Kopotic:

This will confirm our telephone conversation of this date as to the above referenced matter. We have made numerous contacts as to the removal of the above referenced chemicals. These contacts include Mr. Roundtree and Mr. Meures at GSX of Pinewood, South Carolina, Mr. Frank Hauch at Chem Waste, Atlanta, Georgia and Mr. Robin Harrell at Reidsville, North Carolina.

At present, GSX appears to be the most likely candidate for the removal of the chemical due to their prior involvement in the 1979 cleanup of the same material from another site in Holly Ridge, North Carolina. Their representative indicated that samples were taken during this prior cleanup and while they would require additional samples, their files would expedite this matter. Mr. Meures indicated he would come to the site for samples as soon as possible. However, he requested a copy to the report from the chemist we had previously contacted, Dr. Reubin of North Carolina State University, prior to his visit.

A sample was being taken today by Mr. Robin Harrell as to determine if the chemical could be accepted by his company. This report has not been completed at this time.

Atlantic Enterprises, Inc. is, as is evidenced by the above referenced actions, making arrangements for removal of the chemical. We are making every effort to expedite this process.

In the course of determining our position in this matter, we reviewed court documents which delt with prior litigation as to this same issue with which my clients now find themselves faced. During our meeting of June 3, 1987, Sodyeco was mentioned as a party to that action. Our research has disclosed that Mobay Chemical Corporation and Baychem Corporation were among the parties to this action. I would request your file be corrected in this matter.

I will advise you of any change in the status of this matter, and I trust this matter can be concluded in the immediate future.

Very truly yours,

KEITH E. FOUNTAIN

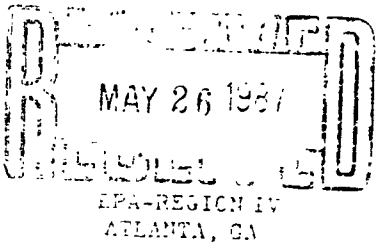
KEF:abb

LANIER AND FOUNTAIN
ATTORNEYS AT LAW
JACKSONVILLE, NORTH CAROLINA 28540

CHARLES S. LANIER
KEITH E. FOUNTAIN

114 OLD BRIDGE STREET
(919) 455-4175

May 21, 1987



Ms. Elizabeth L. Osheim
Assistant Regional Counsel
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Dear Ms. Osheim:

Pursuant to your conversation yesterday with Ms. Robinson of our office, this is to notify you that Mr. Marlow Bostic request a conference regarding the land located 1.5 miles north of Holly Ridge, Onslow County, North Carolina. As we represent both Mr. Bostic and Atlantic Enterprises, Inc., the record owner of said tract of land and any hazardous waste materials thereon, we are requesting this conference in order to discuss the issues of true ownership of the property and said waste materials, for purposes of proper notification of the appropriate officers, and measures that should be taken in order to solve this problem in the safest and most efficient manner possible. We are also interested in discussing any assistance which may be available to the corporation.

Please notify our office when you reach a decision as to the possible dates of the conference.

Should you have any questions, please contact me at (919) 455-4175.

Sincerely,

Charles Lanier

CHARLES S. LANIER

CSL/pjs
cc: Mr. Marlow Bostic

JIM, IS this the letter?

RE: 4WD-ERR

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Marlow Bostic
223 Coastal Drive
Sneads Ferry, North Carolina 28460

Re: Storage of 100 drums of 2,4-dinitrophenol
Holly Ridge, North Carolina

Dear Mr. Bostic:

Enclosed is an Administrative Order requiring you to perform certain actions at the above referenced site. This Order is issued pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. §9606, as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law No. 99-499. Failure to respond within five (5) calendar days will constitute a violation of the enclosed order, and EPA will commence whatever action is necessary to protect the public health, welfare, and the environment.

If you have any questions, please contact Mr. James Kopotic or Ms. Elizabeth L. Osheim at 404/347-3931 or 404 347-2641, respectively.

Sincerely yours,

Jack E. Ravan
Regional Administrator

Enclosure

cc: Jerry Rhodes
NC-DHR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUN 25 1987

EXPRESS MAIL

Mr. Keith E. Fountain, Esquire
Lanier and Fountain
Attorneys at Law
114 Old Bridge Street
Jacksonville, North Carolina 28540

Re: Marlow Bostic Site
Holly Ridge, North Carolina

Dear Mr. Fountain:

In our informal conference of June 3, 1987, Mr. James Kopotic and Mr. Edward Hatcher of our office provided information to you and Mr. Bostic to assist in the disposal of the dinitrophenol. Mr. Bostic agreed to contact EPA within seven days if he decided not to proceed with the cleanup, and to provide EPA with a detailed plan for the cleanup and disposal within fourteen days. Because of the "good-faith" exhibited by Mr. Bostic during the meeting, the deadlines set in the Administrative Order of May 12, 1987 (received by your client on May 18, 1987) were extended an additional two weeks.

On June 24, 1987 EPA's On-Scene Coordinator (OSC) , Mr. James Kopotic, informed me that, other than your letter dated June 10, 1987 stating that Mr. Bostic contacted several hazardous waste disposal companies and intended to proceed with the cleanup of 100 drums of 2,4-dinitophenol, he has not received any information or been contacted about the actual cleanup/disposal schedule and plans. Mr. Kopotic also informed me that he has contacted you several times during the week of June 22nd requesting a cleanup and disposal plan, including the dates for the cleanup activities. To date, EPA has not received a written cleanup plan or schedule for cleanup activities.

Mr. Marlow Bostic has not met with the extended deadlines given to him in the informal conference and EPA is concerned about the resulting delay in cleanup. Because of the numerous violations and hazards outlined in the Order, it is imperative that the cleanup and disposal of the dinitrophenol begin as soon as possible, and be completed in compliance with the Order. If it is still Mr. Bostic's intent to proceed with the cleanup under the terms of the Order, then the following must occur:

- o By close of business on June 29, 1987 the detailed plan outlining the cleanup and disposal must be received by EPA's OSC, and

- o Total cleanup of the site will be completed no later than July 17, 1987.

Please advise me or the OSC during the week of June 29, 1987 if Mr. Marlow Bostic intends to carry out the cleanup as outlined in the Administrative Order. If you have any questions, please call me at 404/347-2641.

Sincerely,

Elizabeth L. Osheim

Elizabeth L. Osheim
Assistant Regional Counsel

cc: Jerry Rhodes
NC-DHR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAY 12 1987

RE: 4WD-ERR

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Marlow Bostic
223 Coastal Drive
Sneads Ferry, North Carolina 28460

Re: Storage of 100 drums of 2,4-dinitrophenol
Holly Ridge, North Carolina

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If you have any questions, please contact Mr. James Kopotic or Ms. Elizabeth L. Osheim at 404/347-3931 or 404 347-2641, respectively.

Sincerely yours,

Lee A. DeHihns III, acting

Jack E. Ravan
Regional Administrator

Enclosure

cc: Jerry Rhodes
NC-DHR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

IN THE MATTER OF:	)	
	)	
Marlow Bostic	)	DOCKET NO.: 87-11-C
Equipment Garage Site,	)	
Holly Ridge, Onslow County,	)	PROCEEDING UNDER SECTION 106(a) OF THE
North Carolina,	)	COMPREHENSIVE ENVIRONMENTAL RESPONSE,
	)	COMPENSATION AND LIABILITY ACT OF 1980
	)	42 U. S. C. §9606(a), AS AMENDED BY THE
	)	SUPERFUND AMENDMENTS AND REAUTHORIZATION
	)	ACT OF 1986.

ADMINISTRATIVE ORDER

This Administrative Order is issued to Marlow Bostic (Respondent) pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U. S. C. §9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law No. 99-499. This authority was delegated to the Administrator of EPA by Executive Order 12580, 52 Federal Register 2923 (January 23, 1987), and has been further delegated to the Regional Administrator of Region IV, EPA. Notice of the issuance of this Order has been given to the State of South Carolina.

EPA has determined that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of the release or threat of release of hazardous substances as defined in Section 101(14) of CERCLA, 42 U. S. C. §9601(14), as amended, from the following location:

> Marlow Bostic equipment garage located 1.5 miles north of Holly Ridge, Onslow County, North Carolina. Warranty Deed: Book 540, page 177.

This Order directs you to undertake action to protect the public and the environment from the endangerment.

FINDINGS OF FACT

1. The site consists of approximately 100 rusty, deteriorating drums containing dinitrophenol, located in an equipment garage 1.5 miles north of Holly Ridge in Onslow County, North Carolina. The Respondent, Mr. Marlow Bostic, owns the equipment garage and property on which it is located. Reportedly, the drums of dinitrophenol have been located at the site for seven (7) years.

2. Dinitrophenol is a listed "hazardous waste" as defined by Section 1004(5) of RCRA, 42 U. S. C. §6903(5), and is a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U. S. C. §9604(14). Dinitrophenol is flammable and explosive. It can be ignited easily and will burn very vigorously. Burning produces toxic gases. It is considered very poisonous to humans if inhaled or ingested. Fumes given off by the powder are considered toxic, and can be absorbed through the skin. Prolonged contact can be fatal to humans.

3. The drums of dinitrophenol were discovered on March 3, 1987 when the Onslow Fire Department responded to a fire at the garage.

4. The North Carolina Department of Human Resources (NC-DHR) conducted an emergency inspection of the site on March 4, 1987. Mr. Marty Bostic, son of Mr. Marlow Bostic, was given verbal notification by NC-DHR that the storage of drums constituted illegal storage of a listed hazardous waste and was advised that he had thirty (30) days to properly dispose of the material.

5. On March 31, 1987, NC-DHR issued a Notice of Violation to Mr. Marlow Bostic concerning the illegal storage of the dinitrophenol and established a compliance schedule for proper disposal. The document was returned unsigned by Mr. Marlow Bostic to NC-DHR.

6. On April 21, 1987, NC-DHR issued a second Notice of Violation, that was to be hand-delivered. The NC-DHR was unable to contact Mr. Marlow Bostic to deliver the Notice.

7. On April 20, 1987 the NC-DHR requested EPA's assistance in responding to the drums of dinitrophenol. On April 23, 1987, Mr. James Kopotic of EPA conducted an inspection of the site. During the site inspection, Mr. Marty Bostic stated to Mr. Kopotic that the material was dinitrophenol, and might be from an older site located in Holly Ridge.

8. At the time of Mr. Koptic's April 28, 1987 inspection, the physical appearance of the material and labels on the drums also identified the material as dinitrophenol. The drums were in a very rusty, deteriorated condition. Numerous drums were rusted through with evidence of the material on the garage floor, and visible inside the drums. Dinitrophenol had escaped some of the drums and is unconfined and exposed to the air.

9. The dinitrophenol is stored inside a heavy equipment garage. Welding is done on the premises. Other flammable materials (e.g., gasoline, diesel fuel, and solvents) are also stored in the garage.

10. The potential migration pathways of the material from the garage into the environment include transport on or by workers and/or equipment, wind dispersal, rainwater runoff, fire or explosion and constitute both an actual and threatened release of hazardous substances.

11. There is an immediate risk to public health and the environment at the site due to the deteriorated condition of the drums containing dinitrophenol, a material which is toxic, ignitable, corrosive and reactive.

CONCLUSIONS OF LAW

1. The site is a facility within the meaning of Section 101(9) of CERCLA, 42 U. S. C. §9601(9).

2. The Respondent is a person as defined in Section 101(21) of CERCLA, 42 U. S. C. §9601(21).

3. Dinitrophenol (2,4-dinitrophenol) is a listed hazardous waste (P048) due to the its ignitability, corrosivity, and reactivity; and dinitrophenol is a hazardous substance within the meaning of Section 101(4) of CERCLA, 42 U. S. C. §9601(4).

4. The hazardous substance described above is stored at the facility in such a manner that there is both an actual release and threatened release of hazardous substances into the environment within the meaning of Sections 101(22) and 106(a) of CERCLA, 42 U. S. C. §§9601(22) and 9606(a).

DETERMINATIONS BY REGIONAL ADMINISTRATOR

Based on the foregoing Findings of Fact and Conclusions of Law, and the entire record of this proceeding, the Regional Administrator has determined that:

(1) The release and threat of release of hazardous substances from the facility may present an imminent and substantial endangerment to the public health or welfare or the environment;

(2) In order to protect public health or welfare or the environment, it is necessary that action be taken to mitigate the release and threat of release of hazardous substances from the facility into the environment; and

(3) The actions required in this Order are consistent with the National Contingency Plan, 40 C. F. R. Part 300.65.

ORDER

Based on the foregoing findings, and conclusions, and determinations, it is hereby ordered that the Respondent shall undertake the following activities pursuant to Section 106(a) of CERCLA, 42 U. S. C. §9606:

1. Respondent shall advise EPA in writing no later than five (5) days after receipt of this Order as to its intentions, and the intended use for the dinitrophenol.

2. Within fifteen (15) days after receipt of this Order, the Respondent shall submit a disposal plan to EPA describing how the material will be disposed of in accordance with all applicable federal, state, and local laws and paragraph (3) below.

3. Respondent shall initiate no later than twenty-one (21) days after receipt of this Order, and complete within forty-five (45) days after receipt of this Order the following measures, which shall be undertaken at the direction of EPA through its On-Scene Coordinator (OSC) and consistent with the National Contingency Plan, 40 C.F.R. Part 300.65:

   a. Remove the 100 drums of dinitrophenol from the Bostic equipment garage, Holly Ridge, North Carolina;

   b. Transport and dispose of the hazardous substances at an approved hazardous waste treatment, storage or disposal facility (TSDF); written notice must be given to EPA addressing all phases of the disposal, including the TSDF to which the wastes are transported; and

   c. Sample and analyze containers of unknown waste, if any, and if OSC deems necessary, transport and dispose of such wastes to an EPA approved hazardous waste treatment, storage, or disposal facility.

4. All actions carried out by the Respondent pursuant to this Order shall be performed in accordance with all applicable federal, state, and local laws.

5. Upon request of the OSC, Respondent shall provide EPA with split samples of any samples collected in accordance with the requirements of this Order.

6. Respondent shall assure access to the site by EPA, and its authorized representatives, contractors and consultants for purposes of the implementation of this Order.

7. All response work performed pursuant to this Order shall be under the direction and supervision of a qualified engineer or Response Manager with expertise and experience in hazardous waste site cleanup. Respondent shall notify EPA as to the identity of such engineer, contractors, or subcontractors to be used in carrying out the terms of this Order in advance of their work at the site.

8. Respondent shall use quality assurance, quality control, chain-of-custody and manifest procedures in accordance with the EPA guidance throughout all activities. Respondent shall consult with EPA in planning for sampling, analysis, transportation and disposal. Respondent shall provide a quality control report to EPA which certifies that all activities have been performed as approved.

9. Respondent shall preserve and retain all records developed pursuant to

following completion of all work conducted by Respondent pursuant to this Order.

10. Nothing herein shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past operations or ownership of the site by the Respondent, its agents, contractors, lessees, successors, or assigns.

11. Notwithstanding compliance with the terms of this Order, the Respondent may be required to take further actions as necessary to abate any endangerment posed by conditions at the site.

12. In the event that the OSC determines that activities implemented are not in compliance with this Order, or any other circumstances or activities are creating an imminent and substantial endangerment to the public health or welfare or the environment, the Regional Administrator of EPA, Region IV, may order Respondent to halt further implementation of this Order for such period of time as necessary to abate the endangerment.

13. Neither the United States nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions of Respondent, its officers, directors, employees, agents, servants, receivers, trustees, successors, or assignees, or of any person, including but not limited to firms, corporations, subsidiaries, contractors, or consultants, in carrying out activities pursuant to this Order, nor shall the United States or any agency thereof be held out as a party to any contract entered into by the Respondent in carrying out activities pursuant to this Order.

14. All submittals and notifications to EPA pursuant to this Order shall be made to Mr. Patrick M. Tobin, Director, Waste Management Division, U. S. Environmental Protection Agency, 345 Courtland Street, N. E., Atlanta, Georgia 30365.

15. This Order is effective upon receipt, notwithstanding any conferences requested by the Respondent. All times for performance of response activities shall be calculated from that date.

16. This Order shall apply to and be binding upon the party to this action, its officers, directors, agents, employees, successors, assigns, and contractors.

OPPORTUNITY FOR CONFERENCE

With respect to those actions required above, you must notify EPA in writing within five (5) days after receipt of this Order whether you intend to comply with the terms of this Order. In addition, if you wish to confer with EPA to discuss this Order, its applicability to you, or the correctness of any factual matters with respect to those actions

five (5) days after receipt of this Order. You may request an informal conference to discuss cleanup plans and scheduling with EPA personnel at the EPA Regional Office located at 345 Courtland Street, Atlanta, Georgia. Such a request must be made in writing or by telephone with written follow-up within five (5) days, after receipt of this Order. Respondent may appear in person or may be represented by attorney or other reprentative at any conference held at their request. Any request for a conference should be made to:

Mr. James D. Kopotic
Waste Management Division
Emergency & Remedial Response Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N. E.
Atlanta, Georgia 30365
404/347-3931

or

Ms. Elizabeth L. Osheim
Assistant Regional Counsel
U. S. EPA - Region IV
404/347-2641

VIOLATIONS OF ORDER

Violation by the Respondent of this Order through failure to comply with any provision herein or otherwise may be enforceable pursuant to Sections 106(b) and 113(b) of CERCLA, 42 U. S. C. §§9606(b) and 9613(b). Failure to comply may also subject Respondent to civil penalties and/or punitive damages in an amount of three times the amount of any costs incurred by the United States as a result of such failure, as provided in Section 106(b) and 107(c)(3) of CERCLA, 43 U. S. C. §§9606(b) and 9607(c)(3). Nothing herein shall preclude EPA from taking such other actions as may be necessary to protect the public health and welfare or the environment and recovering the costs thereof.

By: Lee A. Dewitt III, acting
JACK E. RAVAN
Regional Administrator

Dated this 12th day of May, 1987.

North Carolina Department of Human Resources
Division of Health Services
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor
Phillip J. Kirk, Jr., Secretary

Ronald H. Levine, M.D., M.P.H.
State Health Director

April 21, 1987

HAND DELIVERED

NOTICE OF VIOLATION
Docket 87-433

Mr. Marlow Bostic
P.O. Box 460
Rose Hill, North Carolina 28458

Dear Mr. Bostic:

Re: Storage of Dinitrophenol, Hazardous Waste No P048

On December 18, 1980 the State of North Carolina, Solid and Hazardous Waste Management Branch (State) was authorized to operate the State RCRA hazardous waste program under the Solid Waste Management Act, (Act) N.C.G.S. 130-A, Article 9 and rules promulgated thereto at 10 NCAC 10F (rules) in lieu of the federal RCRA program.

On March 4, 1987, Mr. Richard Gay, Waste Management Specialist with the Branch responded to a request by the Division of Emergency Management to investigate the storage of approximately 100 drums of dinitrophenol in Holly Ridge. These drums were discovered by firemen responding to an alarm. Mr. Gay was informed that these drums were part of the approximately 2000 drums removed from another site in Holly Ridge and that this material was being stored for later use as a wood preservative.

The use of dinitrophenol as a wood preservative is no longer allowed. Further, in 1980, this agency was informed that this material in Holly Ridge was a chemical by-product and a hazardous waste.

> 40 CFR 261.1(a) codified at 10 NCAC 10F .0029 states:
> This part identifies those solid wastes which are subject to regulation as hazardous wastes under Parts 262 through 265 and Parts 270, 271, and 124 of this Chapter and which are subject to the notification requirements of Section 3010 of RCRA
>
> 40 CFR 261.2(b) codified at 10 NCAC 10F .0029 states:
> Materials are solid waste if they are abandoned by being:
> (3) accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

40 CFR 261.2(e)(2) codified at 10 NCAC 10F .0029 states:
The following materials are solid wastes, even if the recycling involves use, re-use, or return to the original process:
(iii) materials accumulated speculatively.

40 CFR 261.1(c)(8) codified at 10 NCAC 10F .0029 states that a material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year (commencing on January 1) the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period.

40 CFR 261.3(a) codified at 10 NCAC 10F .0029 states:
A solid waste, as defined in Section 261.2 is a hazardous waste if:

1. It is not excluded from regulation as a hazardous waste under Section 261.4(b); and
2. It meets any of the following criteria:

   (ii) It is listed in Subpart D and has not been excluded from the lists in Subpart D under Sections 260.20 and 260.22 of this Chapter.

Dinitrophenol is listed in Subpart D as hazardous waste number P048.

It is the determination of this agency that the approximately 100 drums of dinitrophenol, in a garage on US Highway 17, two miles north of Holly Ridge in Onslow County constitutes storage of a listed hazardous waste subject to all applicable requirements of 40 CFR 262 through 265 and 270.

10 NCAC 10F .0032(a) states that any person who treats, stores, or disposes of hazardous waste shall do so in compliance with the standards set forth in this rule, and only after having received a permit from the Department as required by 10 NCAC 10F .0034(b)(1).

The storage of the dinitrophenol described above, is in violation of 10 NCAC 10F .0032(a) in that the site is not a permitted hazardous waste storage facility.

COMPLIANCE SCHEDULE

Comply with 10 NCAC 10F .0032(a).

By May 12, 1987, your site shall no longer store hazardous waste, and all hazardous waste previously on site shall have been shipped to a properly permitted treatment, storage or disposal facility.

As provided by 40 CFR 262.12 codified at 10 NCAC 10F .0030, prior to shipment of the hazardous waste, you shall obtain a provisional EPA Identification Number for this site. You may contact Ms. Margaret Babb with this office at (919) 733-2178 to make provisions for obtaining the I.D. number.

If the above requirements are not met, pursuant to N.C.G.S. 130A-22(a) and 10 NCAC 10G .0701-.0707 an administrative penalty of up to $10,000.00 per day may be assessed for violation of the hazardous waste law or regulations.

If you have any questions concerning this matter, you may contact me or Mack Henderson at (919) 733-2178.

Respectfully,

Jerry Rhodes, Assistant Branch Head
Solid & Hazardous Waste Management Branch
Environmental Health Section

JR:pgb

cc: Richard Gay
Doug Holyfield

6560A

Mobay

Bayer MOBAY

Mobay Corporation
A Bayer USA INC Company

Mobay Road
Pittsburgh, PA 15205-9741
Telephone: 412/777-2000

October 13, 1987

Mr. J. Kopotic
U. S. EPA
345 Courtland Street, N. E.
Atlanta, GA 30365

Dear Mr. Kopotic:

As we have discussed, Mobay Corporation is willing to assist the EPA in dealing with the situation surrounding the drums of 2,4-Dinitrophenol located in Holly Ridge, North Carolina. Our intent is to return the material to our Charleston, South Carolina facility where we will remove trace impurities which interfere with its use in dyestuff manufacture. After purifying the dinitrophenol, we will then offer the material to another chemical firm for further processing into a dyestuff.

Mobay personnel will be onsite on Wednesday, October 24, to remove the material. They will bring a forklift to unstack the palletted drums. They will overpack those drums which are in suspect condition and remove all the material using truck(s) that we will supply. At this point-in-time we anticipate we will be able to complete this work in approximately two (2) working days.

Mobay will transport this material in accordance with all DOT regulations. Because this material is intended for further commercial use (and thus is a commercial chemical product), it is not covered by the RCRA regulations.

Should you wish to discuss the situation further, please give me a call.

Very truly yours,

Douglas E. Krings, Manager
Environmental Programs, Air and Water

35153DEK103

IKP48

CC: D. K. Eberhart
L. P. Hughes

Writer's Direct Dial Number

412-777-2369

COST CENTER	ACKNOWLEDGEMENT OF COMPLE N
IV	PE ORMANCE OBSERVATION REPORT: PART I

CONTRACT NO:	CONTRACTOR:	TDD NO.
68-01-7367	ROY F. WESTON, INC.	04-8708-08-1230

REPORTING ELEMENT:	DATE(S) OF REPORTED OBSERVATION	APPROX. NO. OF HOURS
IV	05 August 1987	245

PERFORMANCE EVALUATION CATEGORY:
11 - Removal

- ☐ FORMAT REPORT
- ☒ LETTER REPORT
- ☐ FORMAL BRIEFING
- ☐ OTHER (SPECIFY)

DESCRIPTION OF CONTRACTOR OBSERVATION BY: NAME/TITLE Conley B Phifer

Conley B. Phifer, TATL

On 05 August 1987, TAT documented on-site activities, prepared a site safety plan, conducted on-site contractor monitoring and provided chemical technical assistance to the OSC during sampling/removal activities at the Bostic Drum Site in Holly Ridge, Onslow County, North Carolina. TAT also prepared a site sketch/map which was included in a letter report outlining all on-site activities.

RATING: 5,4,3,2,1	SIGNATURE OF CONTRACTOR:	DATE:
3	Conley B Phifer	12/22/87

DESCRIPTION OF EPA OBSERVATION BY: NAME/TITLE

RATING: 5,4,3,2,1	SIGNATURE OF EPA:	DATE:

SIGNATURE OF REGIONAL POR COORDINATOR:	DATE:

HQ COORDINATOR'S EVALUATION BY: NAME/TITLE

RATING: 5,4,3,2,1	SIGNATURE OF HQ:	DATE:

DPO ACTION: ☐ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED

COST TO DATE:	DATE: 22 December 1987	ACTUAL TOTAL HOURS: 79.5

TOTAL COST TO CLOSURE:

I CERTIFY THAT THE ATTACHED MATERIALS MEET AND COMPLY WITH ALL REQUIREMENTS OF THE SUBJECT TDD.

DATE: 12/22/87 INTERIM

FINAL

Conley B Phifer
TATL SIGNATURE (INTERIM)

TATL SIGNATURE (FINAL)

I ACKNOWLEDGE THAT I HAVE BEEN PROVIDED WITH THE MATERIALS AND SERVICES SPECIFIED IN THE SUBJECT TDD WITHIN ITS ORIGINAL OR REVISED TIME FRAMES.

DATE: INTERIM

FINAL

DPO SIGNATURE (INTERIM)

DPO SIGNATURE (FINAL)

WHITE - HDQTRS COORDINATOR
WHITE - DPO COPY
BLUE - TATL COPY
GREEN - ZPM COPY
CANARY - PROJECT OFFICER COPY
PINK - CONTRACTING OFFICER COPY
GOLDENROD - DPO (INTERIM COPY)

TAT CPA NTRACT PERFORMANCE OBSERVAT REPORT (POR)
PA il. EVALUATION CRITERIA RAT G WORKSHEET

CONTRACT NO:	CONTRACTOR:	TOD NO:
68-01- 7367	Roy F. Weston	

REPORTING ELEMENT:	DATE(S) OF REPORTED OBSERVATION	APPROX. NO. OF HOURS

PERFORMANCE EVALUATION CATEGORY:

CONTRACTOR REPRESENTATIVE	EPA PERFORMANCE MONITOR

PERFORMANCE CRITERIA	RATING	SUPPORTING COMMENTS
PROJECT PLANNING - ORGANIZING (E.G., WORK PLAN DEVELOPMENT, DATA REVIEW) - SCHEDULING - BUDGETING	5 4 3 2 1	
TECHNICAL COMPETENCE & INNOVATION - EFFECTIVENESS OF ANALYSES - MEET PLAN GOALS - ADHERE TO REGS. & PROCEDURES - APPROACH CREATIVITY/INGENUITY	5 4 3 2 1	
SCHEDULE & COST CONTROL - BUDGET (HOURS & COST) MAINTENANCE - PRIORITY/SCHEDULE ADJUSTMENTS - COST MINIMIZATION	5 4 3 2 1	
REPORTING - TIMELINESS OF DELIVERABLES - CLARITY - THOROUGHNESS	5 4 3 2 1	
RESOURCE UTILIZATION - STAFFING - SUBCONTRACTING - EQUIPMENT, TRAVEL, ETC.	5 4 3 2 1	
EFFORT - RESPONSIVENESS - MOBILIZATION - DAY TO DAY - SPECIAL SITUATIONS (E.G., ADVERSE/ DANGEROUS CONDITIONS)	5 4 3 2 1	

PROJECT COMPLETION CHECKLIST

GENERAL INFORMATION:

TDD # 8708-08 SITE NAME Bostic

DATE DUE: 11-30-87 DATE COMPLETED: 22 Dec 87

ESTIMATED HOURS 245 HOURS USED 70

TAT P.O. W Lucas ALTERNATE _____

TDD SPECIFIC INFORMATION:
(check)

AOC/POR ✓

LOGBOOK ✓

PHOTOS ✓

SITE DIAGRAMS ✓

TABLE OF WITNESS ✓

SAFETY PLAN ✓

QA/QC INFORMATION:
(initial)

P.O. WHL

GROUP LEADER JP

W.P. SPR

TATL CBP

COMMENTS:

OPTIONAL INFORMATION AS PER TDD REQUIREMENTS

SAMPLE DATA ✓

CHAIN-OF-CUSTODY _____

INVOICE _____

BID SHEET _____

PURCHASE REQUISITION _____

SERVICE AGREEMENT _____

OTHER (Specify): _____

WESTON • SPER

100 Atlanta Technology Center, Suite 120, 1575 Northside Drive, NW,
Atlanta, GA 30318 • (404) 352-4147

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

MEMORANDUM

TO: Jim Kopotic, OSC
EPA, Region IV

FROM: Will Lucas WHL
TAT, Region IV

THRU: Conley B. Phifer CBP
TATL, Region IV

SUBJECT: Bostic Drum Site, Holly Ridge,
Onslow County, North Carolina
TDD #04-8708-08-1230
TAT #-4F-01081

DATE: 09 December 1987

BACKGROUND

Drums containing Dinitrophenol were found inside a heavy equipment garage owned by Mr. Marlow Bostic which is located approximately 1.5 miles north of Holly Ridge, Onslow County, North Carolina (Figure 1 - Site Location Map and Figure 2 - Site Diagram). The drums were discovered on 3 March 1987, by the Onslow County Fire Department when it responded to a fire alarm at the garage where the drums were stored. Although the fire was extinguished before any of the Dinitrophenol became involved, its presence onsite continued to present an imminent fire and explosion hazard. Flammable solvents were stored in the garage and welding is typically conducted on the site.

On 23 April 1987, OSC Jim Kopotic conducted an on-site investigation of the facility and discovered approximately 100 drums of dinitrophenol in rusty and deteriorated conditions. Some material had spilled onto the garage floor. At this time OSC Kopotic determined that the material posed a significant exposure threat to the workers at the facility and to nearby residents. Dinitrophenol is a flammable solid which can be easily ignited, burn very vigorously, and under certain conditions can explode. Once ignited, the combustion process produces gases which can be toxic if inhaled for a prolonged time.

SUMMARY

Activities conducted on-site were: 1) sample and analyze the material in the drums to determine chemical composition and concentrations, 2) secure the site, and 3) transport and dispose of the material at an EPA approved disposal facility.

On Wednesday 5 August 1987, EPA, TAT, and ERCS personnel mobilized to the site at approximately 0805 hours in order to collect samples from the deteriorated drums. Upon arrival at the site, it was determined that access had not been granted by owner Marlow Bostic for EPA and EPA representatives. At 0815 hours OSC Kopotic departed the site in order to speak with Mr. Bostic personally and receive permission to enter the garage housing the drums of dinitrophenol. At 1045 hours the garage was opened and sampling operations proceeded. Local fire department and police department representatives were present on-site in the event emergency help was needed. Don Decker of the North Carolina Department of Emergency Management was also present (Attachment A - Photographs and Attachment B - Log Notes).

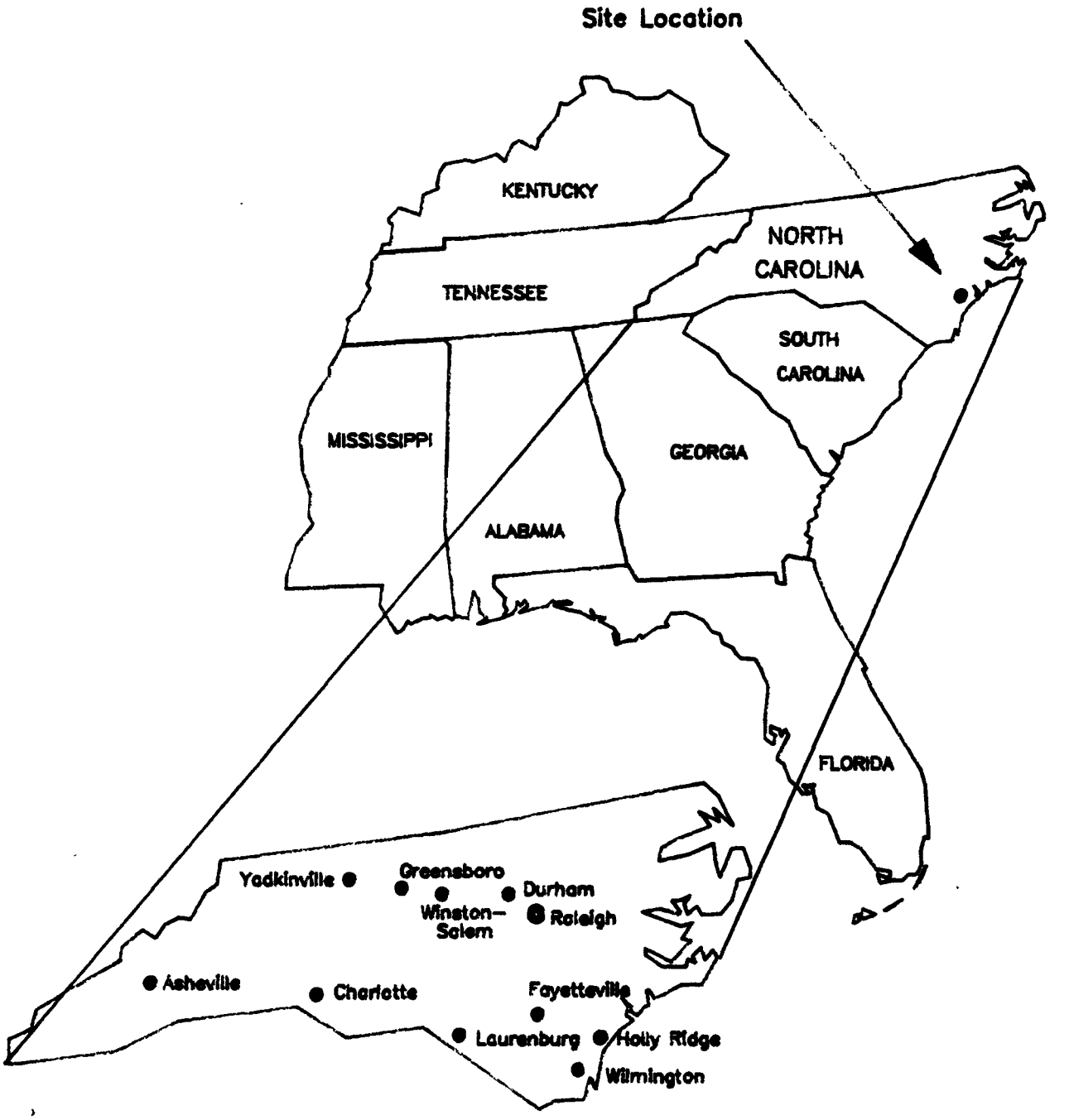
It was determined by ERCS personnel (OH Materials) and OSC Kopotic that three samples would be collected: one sample to be analyzed at Advanced Chemistry Labs of Atlanta, Georgia with the remaining a two samples to be retained by the above laboratory in case split samples were needed or for possible disposal profile analysis. All samples were collected by OH Materials personnel by 1145 hours. At 1220 hours the site was secured and all personnel departed. Once analyses of the samples were received, the most appropriate and cost effective means of disposal was selected by OSC Kopotic (Attachment B - Log Notes and Attachment F - Analytical Results).

On Wednesday 14 October 1987, OSC Kopotic returned to the site along with personnel from Mobay Corporation, a Pittsburgh, Pennsylvania based chemical manufacturer. Mobay Corporation agreed to take the chemical for reprocessing and purification for use in dye manufacture. All drums present within the garage were placed into overpack drums for shipment to Charleston, South Carolina where the dinitrophenol would be reprocessed. Local enforcement officials along with the Department of Emergency Management were on-site during the removal activities which concluded at approximately 1500 hours (Attachment C - Table of Witnesses). Two Mobay Corporation trucks transporting the overpacked drums for reprocessing departed the site at approximately 1530 hours along with remaining site personnel.

A Site Safety Plan is included as Attachment D, Local Media Coverage as Attachment G and 1900 - 55 Cost Tracking Forms as Attachment H.

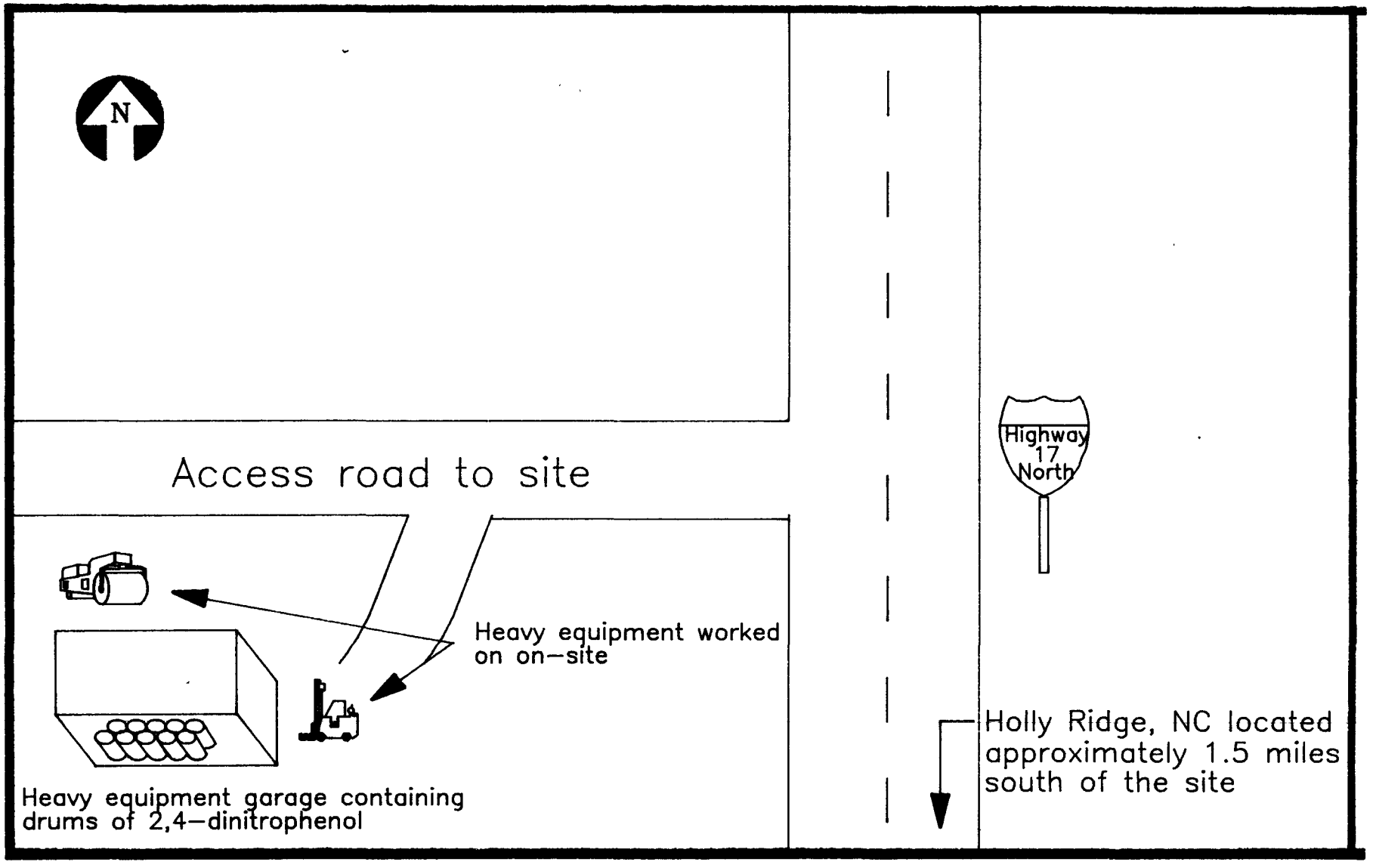
FIGURE 1

Site Location Map



E.P.A. Region IV
Weston T.A.T. Activity Location
TDD #8708-08
Bostic Drum Site
Holly Ridge, Onslow County, North Carolina

EPA



WESTON SPER Region IV TAT

SITE: Bostic Drum Site; Holly Ridge, NC

ACTIVITY DESCRIPTION: Figure 2 – Site Sketch of site layout

TDD NO.: 04-8708-08

DATE: 5 August 1987

ATTACHMENT A

Photographs

PHOTO# 1
OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Garage in background housing drums of 2,4-dinitrophenol.

Location: Bostic Drum Site; Holly Ridge, NC
Date: 5 August 1987 **Time:** 0900
Photographer: Lucas **Witness:** Kopotic
Film: Wolf-color **ASA:** 200 **Location of Negative:**
TDD#: 04-8708-08 TAT Office

PHOTO# 2
OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: OH Materials personnel suiting up in protective gear for sampling operations.

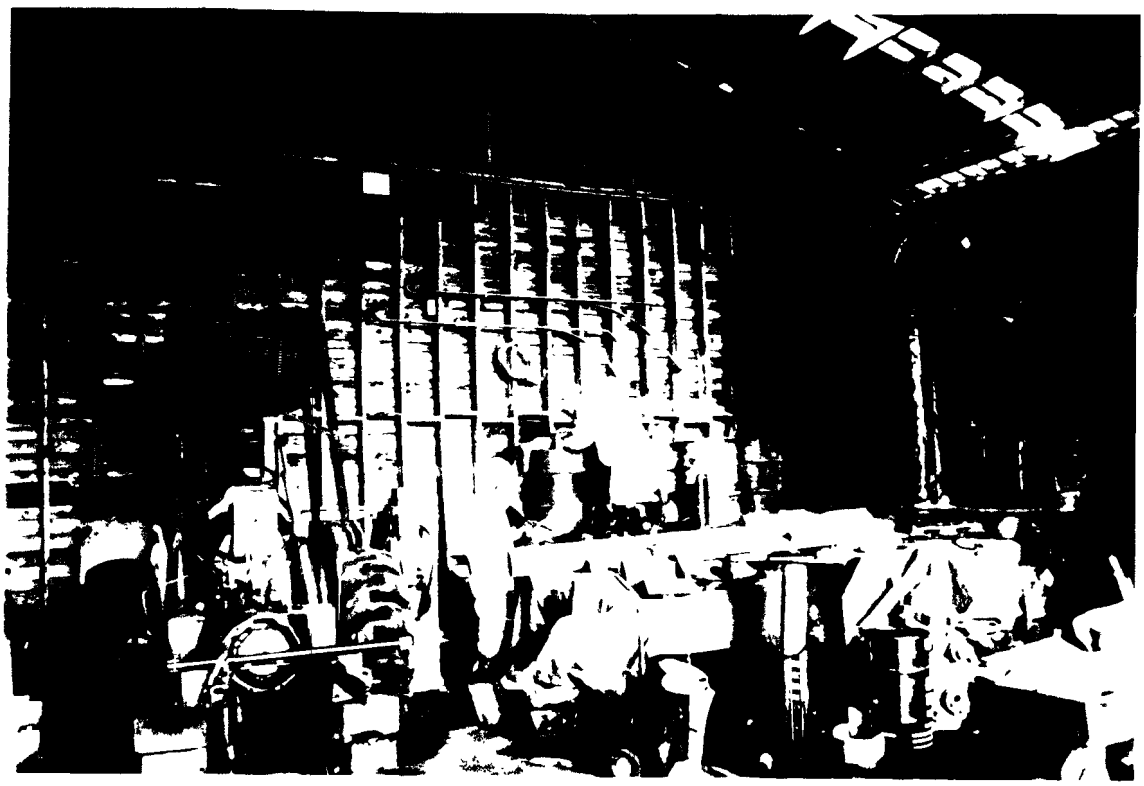
Location: Bostic Drum Site; Holly Ridge, NC
Date: 5 August 1987 **Time:** 1100
Photographer: Lucas **Witness:** Kopotic
Film: Wolf-color **ASA:** 200 **Location of Negative:**
TDD#: 04-8708-08 TAT Office

PHOTO# 3
OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: OH Materials personnel donning respirators in preparation of initiating sampling operations.

Location: Bostic Drum Site; Holly Ridge, NC
Date: 5 August 1987 **Time:** 1115

Photographer: Lucas **Witness:** Kopotic
Film: Wolf-color **ASA:** 200 **Location of Negative:**
TDD#: 04-8708-08 TAT Office



PHOTO# 4
OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: OH Materials personnel collecting samples of dinitrophenol from deteriorated drums within the on-site garage.

Location: Bostic Drum Site; Holly Ridge, NC

Date: 5 August 1987 **Time:** 1145

Photographer: Lucas **Witness:** Kopotic

Film: Wolf-color **ASA:** 200 **Location of Negative:**

TDD#: 04-8708-08 TAT Office

PHOTO# 5
OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Three sample jars containing the collected dinitrophenol.

Location: Bostic Drum Site; Holly Ridge, NC
Date: 5 August 1987 **Time:** 1200
Photographer: Lucas **Witness:** Kopotic
Film: Wolf- color **ASA:** 200 **Location of Negative:**
TDD#: 04-8708-08 TAT Office

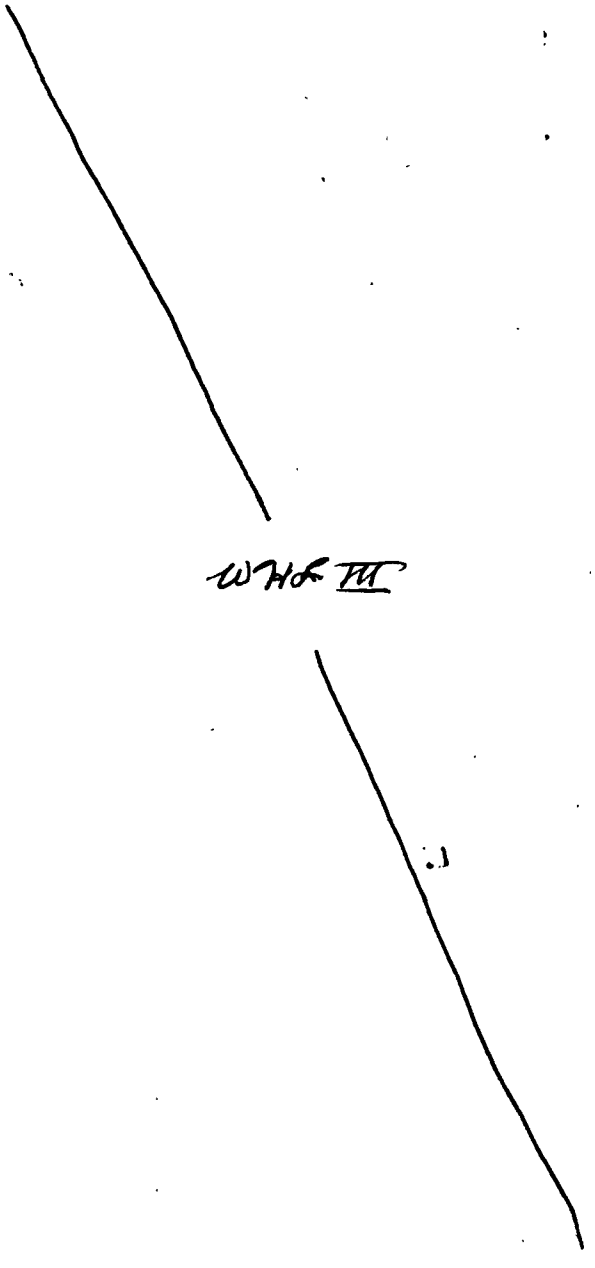
WEDNESDAY AUGUST 5 1987

0730 OSC JIM KAPOTIC, TAT MEMBER WILL LUCAS, AND OH MATERIALS PERSONNEL MEMBERS BUCKY THOMPSON & BOB MANGHAM DEPART HOTEL IN WILMINGTON, NORTH CAROLINA EN ROUTE TO SITE. WHL

0805 PERSONNEL ARRIVE ON SITE. OSC KAPOTIC MEETS WITH DENNY SCHOLAR, EMPLOYEE OF MARLOW BOSTIC, TO DISCUSS ENTRY ONTO THE SITE. MR. SCHOLAR STATES THAT HE DOES NOT KNOW IF PERMISSION HAS BEEN GRANTED TO ENTER THE SITE. WHL

0815 OSC KAPOTIC DEPARTS SITE FOR MR. BOSTIC'S OFFICE IN ORDER TO GAIN PERMISSION TO ENTER THE SITE. LOCAL PERSONNEL ON SITE INCLUDE:
DON DECKER - OFFICE OF EMERGENCY MANAGEME
RAY CAMPBELL - HOLLY RIDGE POLICE DEPT. (CHIEF
MICHAEL O'CONNELL - HOLLY RIDGE POLICE DEPT.
DEPUTY WALDROP - OSLOW COUNTY SHERIFF'S DEPT

1022 OSC KAPOTIC ARRIVES BACK ON SITE FOLLOWIN TRIP TO BOSTIC'S OFFICE. PERMISSION WAS NEITHER GRANTED NOR DENIED TO ENTER THE SITE AND COLLECT SAMPLES. KAPOTIC IN THE PROCESS OF CALLING EPA ATTORNEYS TO RECIEVE INFORMATION ON HOW TO PROCEED WITH OPERATIONS / GAINI ACCESS TO THE SITE. WHL



1045 BUILDING CONTAINING DRUMS IS OPENED TO ALLOW IT TO AIR OUT. OH MATERIALS PERSONNEL SURVEY DRUM AREA TO DETERMINE HOW SAMPLES WILL BE COLLECTED. OSC KOPOTIC CONDUCTING INTERVIEW WITH LOCAL MEDIA.

1100 IT IS DETERMINED THAT THREE SAMPLES WILL BE COLLECTED. ONE SAMPLE TO BE ANALYZED AT ADVANCED CHEMISTRY LABS OF ATLANTA, GEORGIA WITH THE OTHER TWO SAMPLES TO BE RETAINED BY THE ABOVE LABORATORY IN CASE SPLITS ARE NEEDED OR A SAMPLE FOR A DISPOSAL FACILITY. WHK

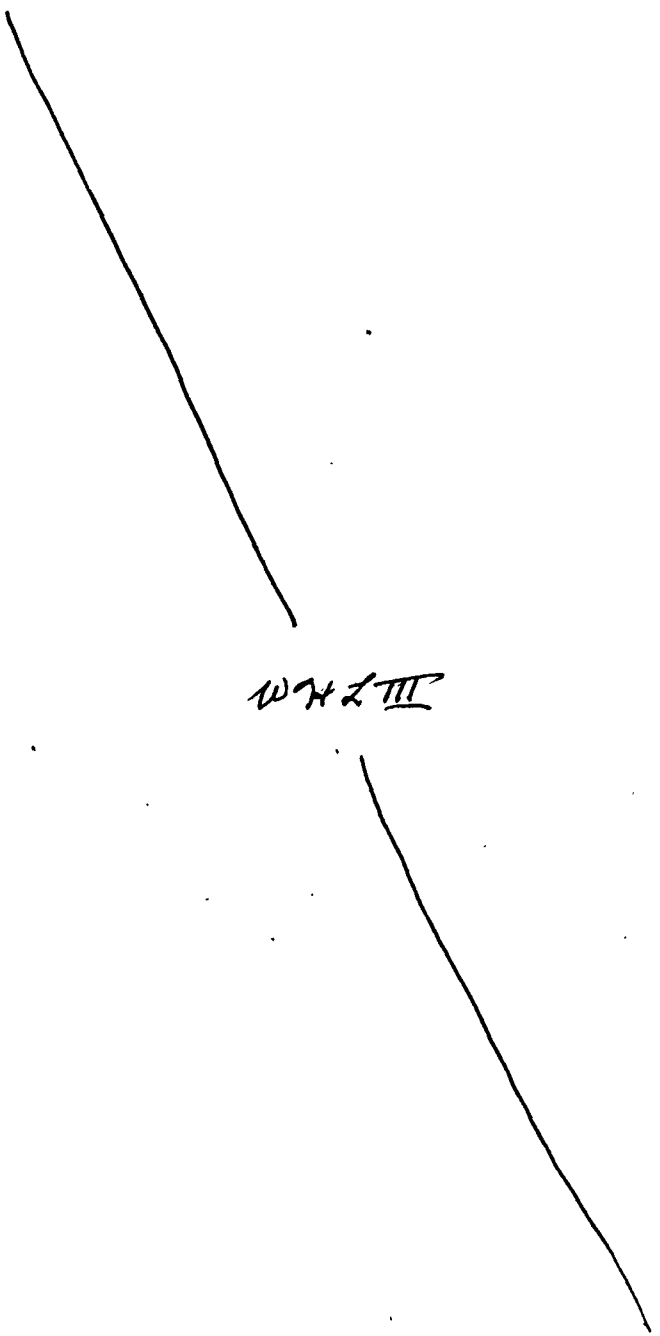
1105 OHM PERSONNEL GEARING UP FOR SAMPLE COLLECTION. WHK

1115 MARTY BOSTIC ARRIVES ON SITE. OHM PERSONNEL GO INTO BUILDING TO BEGIN SAMPLING OPERATIONS. WHK

1120 SAMPLING OPERATIONS ARE BEGUN. NOTE: OSC KOPOTIC OFF SITE TO USE PHONE IN ORDER TO NOTIFY EPA IN ATLANTA OF PROCEEDINGS. WHK

1125 OSC KOPOTIC DISCUSSING WITH MARTY BOSTIC THE PROCEEDINGS OF SAMPLING OPERATIONS. SAMPLING OPERATIONS CONTINUE. WHK

1145 ALL SAMPLES COLLECTED AND PERSONAEL REMOVING CONTAMINATED CLOTHING. CLOTHING TO BE BAGGED AND LEFT ON SITE UNTIL FINAL DISPOSAL OPTIONS ARE DETERMINED

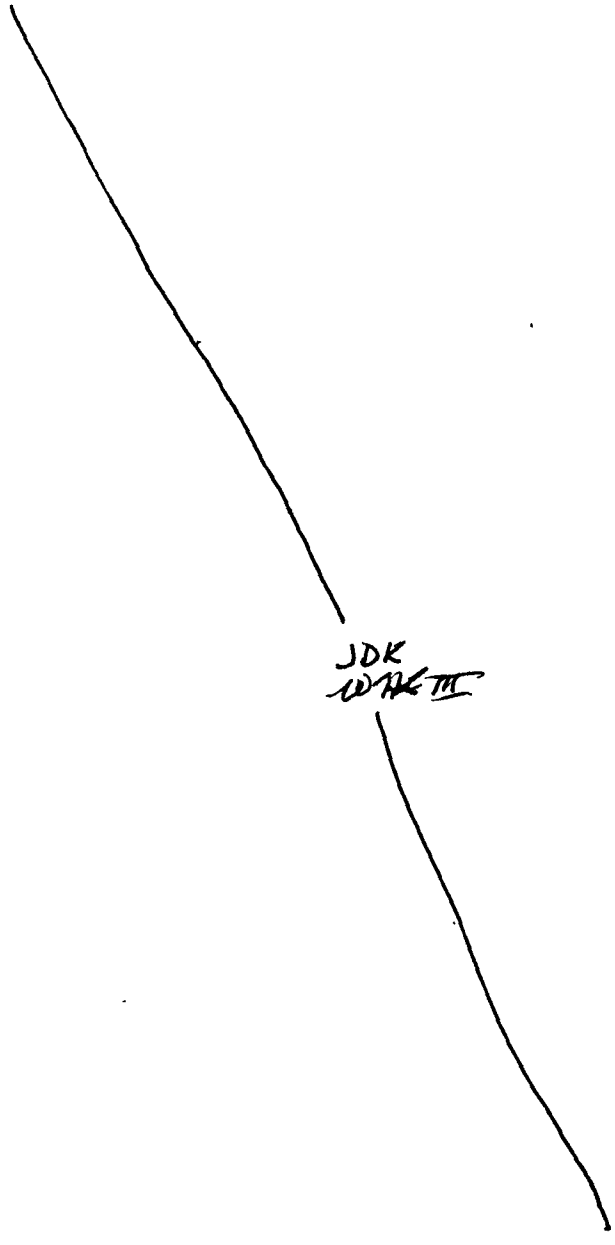


1155 SAMPLE DOCUMENTATION FORMS BEING FILLED OUT BY OH PERSONNEL FOR COLLECTED SAMPLES. WHL

1208 SAMPLES SEALED AND PACKAGED FOR DELIVERY TO ADVANCED CHEMISTRY LABS IN ATLANTA, GEORGIA FOR ANALYSIS. WHL

1220 ALL SITE ACTIVITIES CONCLUDED AND PERSONNEL DEPART SITE. BUILDING CONTAINING DRUMS IS SECURED AND LOCKED. WHL

* 0840 Kopotic arrives at Mr. Marlow Bostic's office (see sketch of map next page). Mr. Bostic was very concerned and confused at EPA's presence at site. Mr. Kopotic told Mr. Bostic that his attorney, Keith Fountain, had been notified that EPA was proceeding with a Removal Action at the site. (Note: Mr. Bostic notified Mr. Kopotic that conversation was being recorded. Upon entering office Mr. Bostic informed Mr. Kopotic that he wanted to record conversation, in particular, what he wanted to say to EPA to set the record straight. Mr. Kopotic was not aware that the recorder was on until half way through the meeting when Mr. Marlow Bostic told his son Macky Bostic (JR) to turn the recorder on, that



to be recorded. Mr. Marty Bostic stated the recorder was already on.) At approximately 0850 Mr. Kopotic called Beth Osheim to inform her of situation; Beth was not in yet. At approximately 0920 Ms. Osheim called Mr. Bostics office (328-1100) and spoke with Mr. Kopotic. Mr. Kopotic informed Ms. Osheim that Mr. Bostic would not deny access onto site, but that he would not grant access either. Mr. Kopotic also informed Ms. Osheim that the conversation was being recorded. Ms. Osheim suggested leaving the office and to call her from another phone. Mr. Kopotic told Mr. Bostic that he was going to discuss situation with Ms. Osheim, and that he would call Mr. Bostic back around 11:00 am. ——— JDK ———

*0950 Kopotic leaves Mr. Bostic's office. JDK

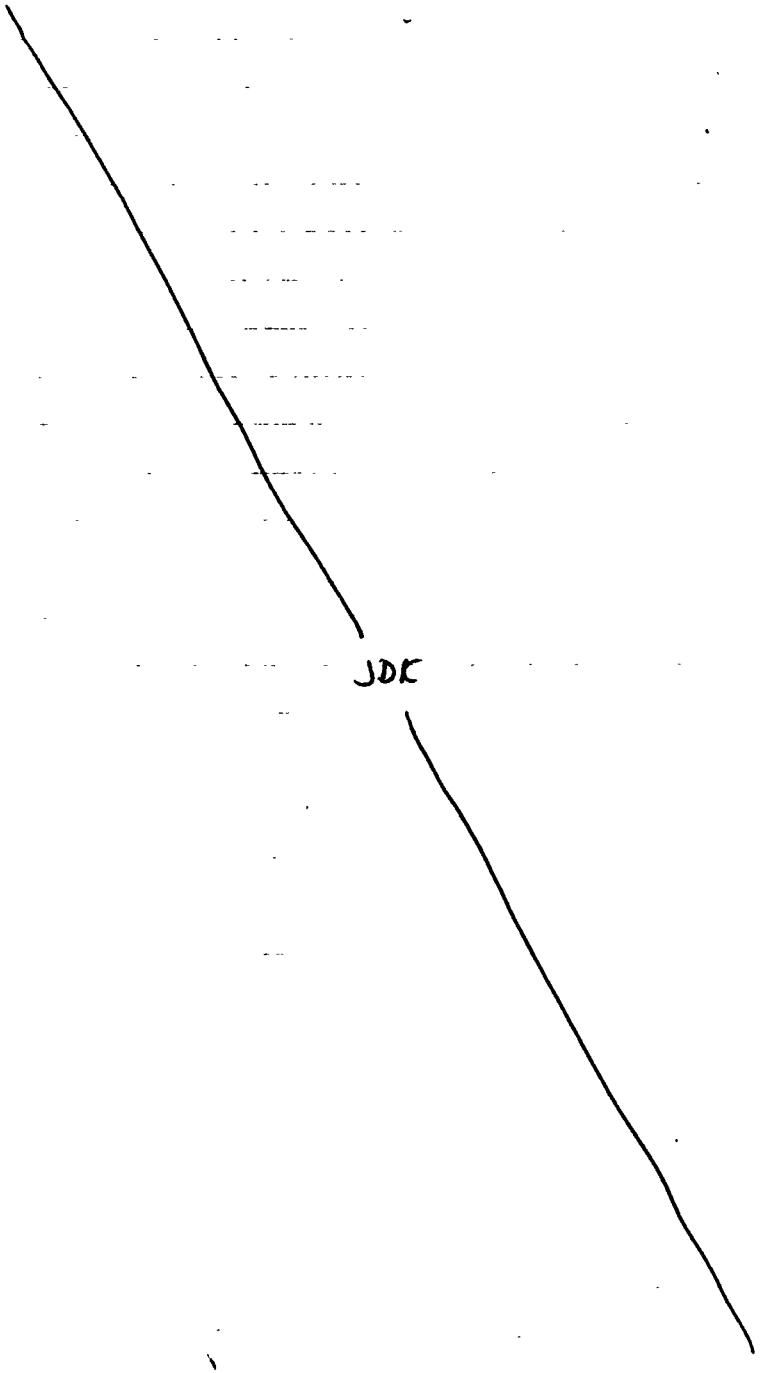
*1025 Kopotic calls Beth Osheim from site. Lets her know he does not want to leave site without collecting samples. Ms Osheim lets Mr. Kopotic know that she had contacted Mr. Fountain on 8/4/87 and that he saw no problem with ——— JDK ———

JDK

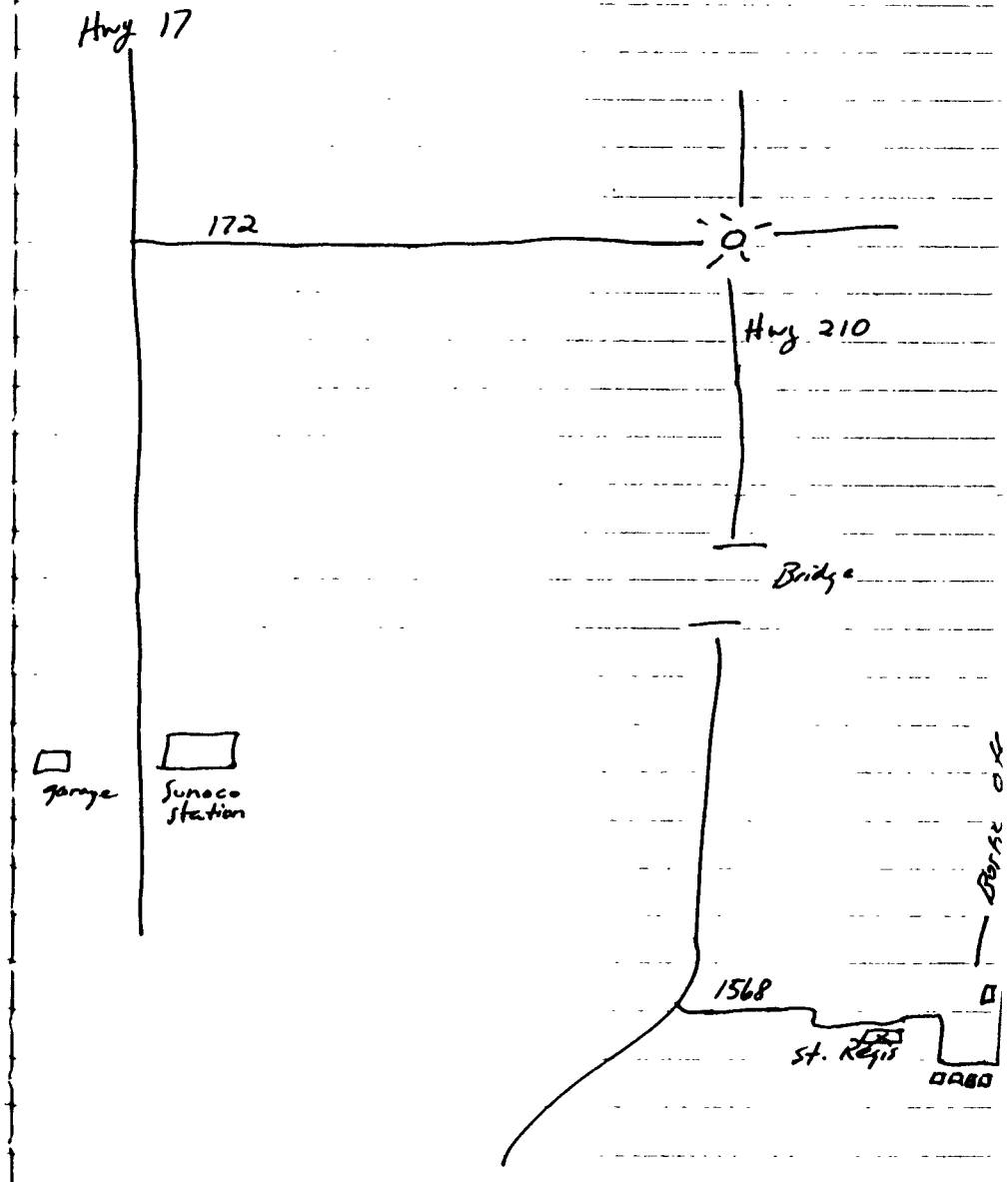
*1040 - Kopotic calls Mr. Bostic at 328-1100. Informs Mr. Bostic that he wants to know if he will give access or deny access, "yes or no?" Mr. Bostic grants access. Mr. Kopotic then asks Mr. Bostic if he wants a split sample. Mr. Bostic states no, that he has all the samples he needs. Mr. Kopotic then asks Mr. Bostic to talk to the garage foreman, Mr. Scholar, and let him know to unlock the garage. Mr. Bostic then talks to Mr. Scholar. —— JDK ——

*1045 Mr. Scholar hangs up phone and open garage door. —— JDK ——

JDK



Bostic's office — JDK



ATTACHMENT C

Table of Witnesses

Table of Witnesses

Jim Kopotic
U. S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365
404/347-3931

Will Lucas, TAT
Roy F. Weston, Inc./SPER Division
100 Atlanta Technology Center, Suite 120
1575 Northside Drive
Atlanta, Georgia 30318
404/352-4147

Bucky Thompson
Bob Mangham
OH Materials Corporation
1000 Holcomb Woods Parkway, Suite 112
Roswell, Georgia 30076
404/641-1066

Marlow Bostic
223 Coastal Drive
Sneads Ferry, North Carolina 28460
919/328-1100

Bob Stout
Mobay Corporation
Mobay Road
Pittsburgh, Pennsylvania 15205-9741
412/777-2000

Don Decker
Office of Emergency Management
Agricultural Building
604 College Street
Jacksonville, North Carolina 28540

Richard L. Gay
North Carolina Department of Human Resources
Solid & Hazardous Waste Management
404 St. Andrews Street
Greenville, North Carolina 27834
919/756-1343

ATTACHMENT D

Site Safety Plan

WESTON SPER DIVISION
HAZARDOUS WASTE SITE INVESTIGATION AND EMERGENCY RESPONSE
HEALTH AND SAFETY PLAN

Assignor: JIM KOPOTIC, OSC REGION IV REGION IV
Date of Inspection: 5 AUGUST - 6 AUGUST Time: _____ TDD No. 04-8709-08
Original Safety Plan: Yes X No ___ Modification No. _____

Site Name: BOSTIC DRUM SITE

Site Address: Street No. _____
City HOLLY RIDGE (1.5 MILES NORTH OF HOLLY RIDGE)
County ONSLOW
State NORTH CAROLINA Zip Code 28458

Site Contact: MARLOW BOSTIC Phone 328-1100

Directions to Site: HIGHWAY 17 NORTH FROM WILMINGTON, N.C. TO HOLLY RIDGE, N.C. APPROXIMATELY 1 1/2 MILES NORTH OF HOLLY RIDGE TURN LEFT ONTO STATE ROAD 50. SITE DIRECTLY ON LEFT

Map Attached: Yes X No ___
If Remote Location: Latitude _____ Longitude _____
SITE HISTORY: DRUMS HAVE BEEN STORED AT THE FACILITY APPROXIMATELY 7 YEARS. FACILITY PRESENTLY USED AS A HEAVY EQUIPMENT REPAIR SHOP AND TOOL STORAGE FACILITY.

INCIDENT DESCRIPTION

TYPE: A) Spill ___ Air Release ___ Fire ___ HW Site X Other ___

B) Assessment ___ Sampling X Emergency Response ___
Clean-up/Removal ___ Other (specify) _____

C) Urban/Residential ___ Commercial ___ Industrial ___
Rural X Remote ___

PHYSICAL DESCRIPTION

Size of Site: ≈5 ACRES Terrain: GRASSY, SANDY Weather HOT/HAZY

Containers Involved in the Release or Incident

Drums X No. 100 Tanks ___ No. ___

Truck ___ License No. ___ Tanker ___ Box ___

Railroad Car ___ Tank No. ___ Box No. ___

Spill ___ Source _____ Approximate Volume _____

Other _____

MATERIALS INVOLVED:

Name	TLV	IDLH	Overexposure Symptoms
2,4 DINITROPHENOL	0.2 mg/m³	5.0 mg/m³	INCREASED METABOLISM AND TEMPERATURE, PROF SWEATING, COLLAPSE, DEATH. MAY CAUSE DERMATITIS, CATARACTS, WEIGHT LOSS, GRANULOCYTOPENIA, POLYNEUROPATHY, EXFOLIAT DERMATITIS.

SPECIAL HAZARDS: SPECIAL HAZARDS OF COMBUSTION PRODUCTS: VAPORS ARE TOXIC. CAN DETONATE OR EXPLODE WHEN HEATED UNDER CONFINEMENT

ANTICIPATED LEVEL OF PROTECTION (circle one): A (B) C D

WHY: KNOWN TOXIC CHEMICAL IF INHALED OR SKIN EXPOSED. PERSONNEL CONDUCTING SAMPLING OPERATI TO WEAR LEVEL B THROUGHOUT. EPA/TAT PERSONNEL TO WEAR APR LEVEL C RESPIRATOR IN A MONITORING ROLE UPWIND FROM KNOWN CONTAMINANTS WHILE CONDUCTING CONTINUOUS AIR MONITORING. READINGS EXCEED THE IDLH EPA/TAT PERSONNEL WILL DEPART AREA.

FIRST AID INSTRUCTIONS FOR KNOWN CONTAMINANTS: REMOVE VICTIM FROM CONTAMINATED AREA AND WASH EXPOSED SKIN WITH SOAP AND WATER. ADMINISTER OXYGEN IF RESPIRATORY PROBLEMS DEVELOP. REFER TO A DOCTOR.

PERSONNEL EXPOSURE HAZARDS: (H=high, M=moderate, L=low, U=unknown)

Inhalation H Skin Contact H Ingestion H Radioactive L

Biological H Fire H Explosion H Unknown ____

PERSONNEL PHYSICAL SAFETY HAZARDS:

Heat X Cold ____ Noise ____ Underground Utilities ____

Overhead Utilities X Heavy Equipment ____ Slip, Trip, Fall X

Sharp Objects X Pressurized Airlines ____ Cyclinders ____

Ladders ____ Scaffolds ____ Unguarded Openings-Wall, Floor ____

Liquids in Open Containers, Ponds, Lagoons X

ACTIONS TAKEN ON SITE:

Was Entry Made: YES X NO ____

Equipment Used: (circle) LEVEL A (B) (C) D WHY: KNOWN TOXIC CHEMICAL. DETERMINATION MADE IN FIELD TO USE LEVEL C, DUE TO WET NATURE OF DINITROPHENOL, BY SITE PERSONNEL. IF DRY, POWDERY FORM IS ENCOUNTERED UPGRADE TO LEVEL B WILL BE MADE.

SCBA X APR X Model ____ Cart./Can. Type X

Tyvek X Poly Tyvek ____ Saran Tyvek ____ Acid Suit ____

Rain Gear ____ Cotton Coveralls ____

Gloves: Inner X Butyl X Nitrile ____ Viton ____ Other ____

Foot Gear: Safety Boots X Outer Boots X Booties ____ Other ____

Description of Decontamination Used: SOAP/WATER. DISPOSABLE PROTECTIVE CLOTHING TO BE BAGGED AND LEFT ON SITE UNTIL FINAL DISPOSAL OPTIONS ARE DETERMINED.

AIR MONITORING Performed by: WILL LUCAS

Instrument Readings: Radiation Meter ____ CGI ____

OVA ____ HNU X Detector Tube ____

Other ____

Wind: Speed ____ Direction ____ Temp. ____ Rel. Hum. ____ B.P. ____

Summarize Air Monitoring Data AIR MONITORING TO BE CONDUCTED UPON OSC REQUEST.

SAMPLING Performed by: O-H MATERIALS PERSONNEL

Sampling Plan (Y or N) N If yes attach copy to safety plan

No. of Samples: Solid 3 Liquid ____ Gas ____ Other ____

Laboratory: ADVANCED CHEMISTRY LABS; ATLANTA, GEORGIA

Has Lab Been Notified of Potential Hazard Level? Yes X No ____

Analyses: SAMPLES TO BE ANALYZED FOR DISPOSAL FACILITIES. SAMPLES ANALYZED FOR TOTAL QUANTITY OF DINITROPHENOL INCLUDING EP TOXICITY + LEACHABLES, BTU VALUE, % AS ETC

Sampling Comments: NO UNUSUAL OCCURRENCES WHILE ON SITE. SOP PROCEDURES ADHERED TO THROUGHOUT SAMPLING OPERATIONS.

DOCUMENTATION Performed by: WILL LUCAS

Type: Photo X Log Book X Recorder _____ Video _____

PUBLIC IMPACT

Distance to Nearest: Residence 1/4 MILE School ≈ 1 1/2 MILES Hospital ≈ 25 MI

Public Building 1/10 MILE Other _____

Evacuation: Yes ____ No X Number ____ By Whom: _____

ENVIRONMENTAL IMPACT:

Nearest Waterway: _____ Distance: _____

Condition	Observed	Potential	None
Surface Water Contamination		X	
Ground Water Contamination		X	
Drinking Water Contamination		X	
Air Contamination		X	
Soil Contamination		X	
Stressed Vegetation		X	
Dead Fish, Other Animals			X

PERSONNEL INVOLVED: (NAME, AGENCY, PHONE, ON or OFF SITE)

SITE MANAGER: JIM KAPOTIC, EPA OSC, ON SITE

SITE SAFETY COORDINATOR: WILL LUCAS, TAT, ON SITE

		Have Read & Understood The Site Safety Plan (check)
EPA	JIM KAPOTIC	✓
TAT	WILL LUCAS	✓
STATE		
OTHER	BUCKY THOMPSON	✓
O-H MATERIALS PERSONNEL	BOB MANGHAM	✓

EMERGENCY INFORMATION

EMERGENCY PHONE NUMBERS:

	Location	Phone	Notified	(Y/N)
Fire	ON SITE	347-4270	Ray Campbell	Y
Police	ON SITE	329-4076	Don Decker	Y
Ambulance	ONSLOW MEMORIAL	353-1234	"	N
Hospital	ONSLOW MEMORIAL JACKSONVILLE, N.C.	353-1234	"	N
Nearest Phone	SUNOCO GAS STATION 2 1/10 MILE			

DIRECTIONS TO HOSPITAL:
(ATTACH MAP)

FROM THE SITE TAKE A LEFT ONTO HIGHWAY 17 NORTH AND GO APPROXIMATELY 20 MILES INTO JACKSONVILLE, NORTH CAROLINA. ONSLOW MEMORIAL HOSPITAL IN JACKSONVILLE, N.C.

ADDITIONAL EMERGENCY PHONE CONTACTS:

CHEMTREC	(800) 424-9300
TSCA HOTLINE	(800) 424-9065,(202)554-1404
CDC	(404) 452-4100 (Day), (404) 329-2888 (Night)
BUREAU OF ALCOHOL, TOBACCO & FIREARMS	(800) 424-9555, (202) 566-7777
NATIONAL RESPONSE CENTER	(800) 424-8802
WESTON MEDICAL EMERGENCY SERVICE	(513) 421-3063
WESTON 24 HOUR HOTLINE	(215) 524-1925, 1926
PESTICIDE INFORMATION SERVICE	(800) 845-7633
EPA ERT EMERGENCY	(201) 321-6660
RCRA HOTLINE	(800) 424-9346
BUR. OF EXPLOSIVES, A.A. RAILWAYS	(202) 835-9500

Prepared by: William H. Lucas III Date: AUGUST 5, 1987

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

SPER HSO Reviewed by: _____ Date: _____
Followup Required: Yes____ No____
Followup Performed: Date:_____ With: _____
Comments: _____

2,4-DINITROPHEN(

DNP

Common Synonyms	Solid crystal	Yellow	Sweet, musty odor
alpha-Dinitrophenol 1-Hydroxy 2 4-dinitro-benzene Nidren	Sinks in water.		

AVOID CONTACT WITH SOLID AND DUST. Keep people away.
Wear goggles self-contained breathing apparatus, and rubber overclothing (including gloves).
Evacuate area in case of large discharges.
Call fire department.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Combustible.
May explode if subjected to heat or flame.
POISONOUS GAS IS PRODUCED WHEN HEATED.
Evacuate surrounding area.
Wear goggles self-contained breathing apparatus, and rubber overclothing (including gloves).
Combat fires from safe distance or protected location.

Exposure

CALL FOR MEDICAL AID

DUST
POISONOUS IF INHALED OR IF SKIN IS EXPOSED.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

SOLID
POISONOUS IF SWALLOWED.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-poison
Restrict access
Should be removed
Chemical and physical treatment

2. LABEL

2.1 Category: Poison
2.2 Class: 6

3. CHEMICAL DESIGNATIONS

3.1 CG Compatibility Class: Not listed
3.2 Formula: $HOC_6H_3(NO_2)_2$-2,4
3.3 IMO/UN Designation: 1.0/0076
3.4 DOT ID No.: 0076
3.5 CAS Registry No.: 51-28-5

4. OBSERVABLE CHARACTERISTICS

4.1 Physical State (as shipped): Solid
4.2 Color: Yellow
4.3 Odor: Musty; sweet

5. HEALTH HAZARDS

5.1 Personal Protective Equipment: Self-contained breathing apparatus; butyl rubber gloves; goggles; lab coat; protective shoes.
5.2 Symptoms Following Exposure: Liver damage, metabolic stimulant, dermatitis, dilation of pupils.
5.3 Treatment of Exposure: Remove victim from contaminated area and wash exposed skin with soap and water. Administer oxygen if respiratory problems develop. Refer to a doctor.
5.4 Threshold Limit Value: 0.2 mg/m³
5.5 Short Term Inhalation Limits: Data not available
5.6 Toxicity by Ingestion: Grade 4; LD_{50} below 50 mg/kg
5.7 Late Toxicity: Produces clouding of lens of eye (cataracts) in animals and humans, birth defects in chick embryos.
5.8 Vapor (Gas) Irritant Characteristics: Not pertinent
5.9 Liquid or Solid Irritant Characteristics: Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
5.10 Odor Threshold: Data not available
5.11 IDLH Value: 5.0 mg/m³

6. FIRE HAZARDS

6.1 Flash Point: Data not available
6.2 Flammable Limits in Air: Not pertinent
6.3 Fire Extinguishing Agents: Water, dry chemical, carbon dioxide, foam
6.4 Fire Extinguishing Agents Not to be Used: Not pertinent
6.5 Special Hazards of Combustion Products: Vapors are toxic
6.6 Behavior in Fire: Can detonate or explode when heated under confinement
6.7 Ignition Temperature: Data not available
6.8 Electrical Hazard: Not pertinent
6.9 Burning Rate: Not pertinent
6.10 Adiabatic Flame Temperature: Data not available
6.11 Stoichiometric Air to Fuel Ratio: Data not available
6.12 Flame Temperature: Data not available

7. CHEMICAL REACTIVITY

7.1 Reactivity With Water: No reaction
7.2 Reactivity with Common Materials: Reacts with oxidizing materials and combustibles.
7.3 Stability During Transport: May detonate when heated under confinement
7.4 Neutralizing Agents for Acids and Caustics: Not pertinent
7.5 Polymerization: Not pertinent
7.6 Inhibitor of Polymerization: Not pertinent
7.7 Molar Ratio (Reactant to Product): Data not available
7.8 Reactivity Groups: Data not available

8. WATER POLLUTION

8.1 Aquatic Toxicity: 200 ppm/0.3 hr/minnow/died/fresh water
8.2 Waterfowl Toxicity: Data not available
8.3 Biological Oxygen Demand (BOD): Data not available
8.4 Food Chain Concentration Potential: None

9. SHIPPING INFORMATION

9.1 Grades of Purity: Data not available
9.2 Storage Temperature: Ambient
9.3 Inert Atmosphere: No requirement
9.4 Venting: Data not available

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

II

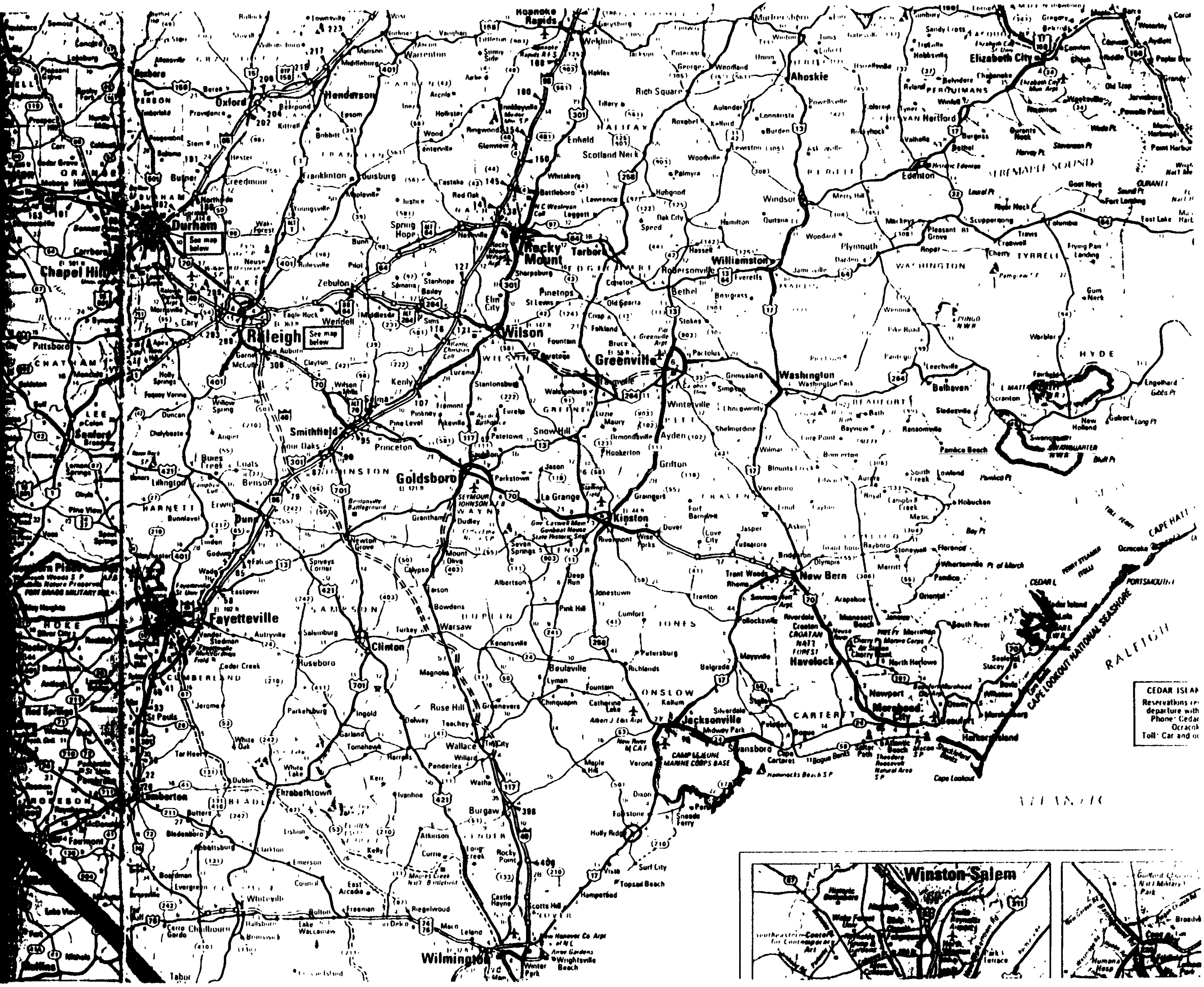
11. HAZARD CLASSIFICATIONS

11.1 Code of Federal Regulations: Poison B
11.2 NAS Hazard Rating for Bulk Water Transportation: Not listed
11.3 NFPA Hazard Classification: Not listed

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 Physical State at 15°C and 1 atm: Solid
12.2 Molecular Weight: 184.1
12.3 Boiling Point at 1 atm: Not pertinent
12.4 Freezing Point: 235°F = 113°C = 386°K
12.5 Critical Temperature: Not pertinent
12.6 Critical Pressure: Not pertinent
12.7 Specific Gravity: 1.68 at 20°C (solid)
12.8 Liquid Surface Tension: Not pertinent
12.9 Liquid Water Interfacial Tension: Not pertinent
12.10 Vapor (Gas) Specific Gravity: Not pertinent
12.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
12.12 Latent Heat of Vaporization: Not pertinent
12.13 Heat of Combustion: Not pertinent
12.14 Heat of Decomposition: Not pertinent
12.15 Heat of Solution: Not pertinent
12.16 Heat of Polymerization: Not pertinent
12.25 Heat of Fusion: Data not available
12.26 Limiting Value: Data not available
12.27 Reid Vapor Pressure: Data not available

NOTES



Roanoke Rapids
Weldon
Murfreesboro
Elizabeth City
Oxford
Henderson
Warrenton
Rich Square
Ahoskie
Hertford
Durham
Chapel Hill
Scotland Neck
Edenton
Windsor
Franklinton
Louisburg
Rocky Mount
Tarboro
Williamston
Plymouth
Nashville
Spring Hope
Zebulon
Wendell
Raleigh
Cary
Wilson
Greenville
Washington
Smithfield
Selma
Goldsboro
Kinston
New Bern
Havelock
Newport
Morehead City
Beaufort
Jacksonville
Swansboro
Clinton
Warsaw
Fayetteville
Dunn
Sanford
Lumberton
Elizabethtown
Whiteville
Burgaw
Wallace
Wilmington
Wrightsville Beach
Topsail Beach
Surf City
Holly Ridge
Cape Lookout
Harkers Island
Pamlico Sound
Albemarle Sound
Cape Lookout National Seashore
Hyde
Ocracoke
Cape Hatteras
Portsmouth
Camp Lejeune Marine Corps Base
Croatan Natl Forest
Hammocks Beach S P
Seymour Johnson A F B
Fort Bragg Military Res
Atlantic
Raleigh
See map below
Winston-Salem
CEDAR ISLAN
Reservations re
departure with
Phone: Cedar
Ocracok
Toll: Car and dr

DNP	2,4-DINITROPHENOL

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	INSOLUBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

Bostic makes things not for EPA officials

'There seems to have been a little confusion between Mr. Bostic and his attorney.'

Jim Kopotic of EPA

■ Cleanup in Wilmington, 2C

By Donna Long
Star-News Correspondent

HOLLY RIDGE — After waiting three hours in the blistering heat here Wednesday, officials of the U.S. Environmental Protection Agency gained entrance to a warehouse containing potentially explosive chemicals.

Jim Kopotic of EPA's regional office in Atlanta said he had expected warehouse owner Marlow Bostic or a representative to meet him at the warehouse at 8 a.m.

Kopotic, accompanied by two employees of O.H. Materials, a hazardous waste company under contract to EPA, came here to take samples from about 100 barrels stored in the warehouse containing a hazardous chemical called 2,4-dinitrophenol.

EPA officials, Onslow County Assistant Emergency Management Coordinator Don Decker, members of the Holly Ridge Volunteer Fire and Rescue Department and law enforcement officers from Onslow County and Holly Ridge arrived at the locked warehouse site by 8 a.m. Shortly before 11 a.m., an employee of Bostic unlocked the building.

"There seems to have been a little confusion between Mr. Bostic and his attorney," said Kopotic, who returned to the warehouse after a meeting with Bostic at the developer's private utility company in Sneads Ferry.

Kopotic said that on Tuesday he told Jacksonville lawyer Keith Fountain, who represents Bostic, that he would be at the warehouse at 8 a.m. Wednesday. Kopotic said Bostic appeared to be unaware of the notification.

Firemen discovered the barrels of 2,4-dinitrophenol in the warehouse March 3 when they arrived to put out a small fire in the building. On March 5, EPA officials ordered Bostic to remove the material.

The chemical, once used to treat wood, is now prohibited by federal regulations because it can become explosive when dry and can be toxic if absorbed through a person's skin.

Kopotic said Wednesday that the chemicals in the warehouse could be linked to about 2,000 barrels of 2,4-dinitrophenol discovered in 1978 in a dilapidated wooden gymnasium near the center of Holly Ridge. Those barrels were removed under a court order.

EPA is proceeding with its own plans to remove the chemicals from the warehouse. Kopotic said last month that once EPA cleans up the site, it will begin legal proceedings to have Bostic reimburse the government. Kopotic has said the cleanup cost could range from $50,000 to $100,000.

"Mr. Bostic feels he has been proceeding with the the cleanup," Kopotic said. He noted, however, that EPA had given Bostic a deadline to come up with a plan and then extended the deadline when no plan was presented.

"The bottom line is to g[illegible] materials cleaned up and [illegible]f here," Kopotic said.

Staff photo by Gray Honeycutt

EPA personnel, Onslow County officials and local law officers wait for Marlow Bostic at his warehouse off U.S. 17 at Holly Ridge.

Hazard

Continued from 1A

to handle the toxic material, arrived at the warehouse about 7 a.m. Wednesday and began packing the barrels into larger metal drums.

Stout said that although some of the original barrels had deteriorated, all the containers were placed in the larger metal barrels without any spillage.

"It would have cost us about $200,000 of taxpayers' dollars to remove and dispose of the chemical," Jim Kopotic, of the EPA regional office in Atlanta, said Wednesday.

Kopotic said the EPA had contacted Mobay about removing it.

Kopotic said the EPA spent about $2,000 from the federal Superfund making inspections and analyzing the chemical.

"Our attorneys will review the file information and make a determination if it would be feasible to pursue trying to recoup the money," Kopotic said.

The Superfund was established by Congress to pay for cleanups of hazardous wastes. Under Superfund regulations, the EPA can use money in the fund and then take legal action to recover the cost from the owner of the materials.

Before Mobay agreed to take the chemical, the EPA had planned to remove the chemicals and take legal action against Bostic to recoup the cost.

Representatives from the state, the EPA, Holly Ridge police and Onslow County Emergency Management department were at the site to oversee the removal.

Bostic, a developer, paid a brief visit to the site. His son, Marty, remained during the removal.

Stout said removing and reprocessing the chemical would cost his company about $30,000, but he said it was a good public relations move, since the chemical is a byproduct of a dye his company once produced.

"We probably won't break even, but we do not want chemicals to stay in places where they should not be," Stout said.

By 11:30 a.m. Wednesday, barrels had been packed in the lar
er drums and placed in one of t
trucks carrying the material. T
second truck, carrying the rema
ing 40 barrels, left around 3:20 p.

Both trucks received courtesy
corts by Holly Ridge police to t
town limits, where Pender Coun
Sheriff's Department deputies to
up the escort until they turned
over to New Hanover County She
iff's Department deputies at t
county line.

State and county officials said
corts were not required, howev
under state regulations for tra
porting the material.

About 12:30 p.m., the first tru
was stopped inside New Hano
County and its bill of lading w
inspected by State Highway Pat
Trooper T.L. Pearce and Dan Su
mers, emergency management
rector for New Hanover County

"I looked at the shipping pap
and everything looked fine fr
them" Summers said.

Pearce said the driver's bill
lading did not require him to hav
permit or an escort.

"The only problems he wo
have is if he turned the truck o
and the contents were to get ou
the barrels," he said.

The barrels were discove
March 2 by Holly Ridge firefight
who responed to a small fire a
warehouse off U.S. 17 north of H
Ridge. None of the chemical burn
but fire officals were unaware t
the chemical was being stored in
warehouse.

The EPA had recently ban
use of the chemical and after
inspection of the warehouse,
federal agency ordered the chemi
removed.

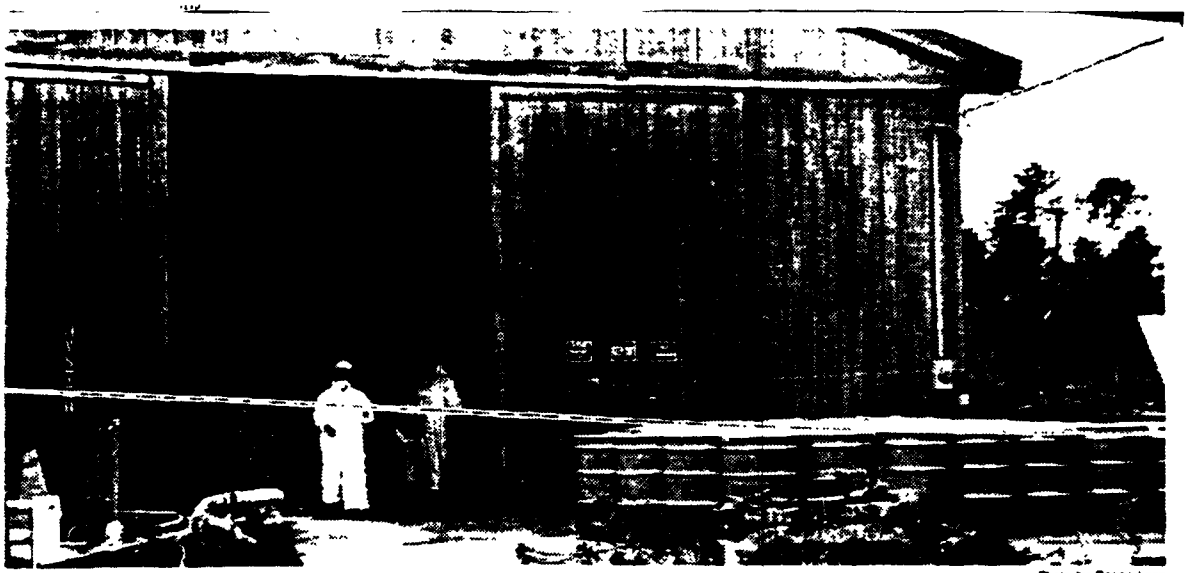


Photo by Donna Long

Mobay Corp. employees work on repacking chemicals into drums at a warehouse in Holly Ridge.

Hazardous chemicals leave Pender site

By Donna Long
Star-News Correspondent

HOLLY RIDGE — Two trucks loaded with 96 barrels of a hazardous chemical left town Wednesday, ending a seven-month effort to remove the barrels from a warehouse here.

The U.S. Environmental Protection Agency had ordered the owner, Marlow Bostic, to remove the chemicals. A chemical manufacturer solved the problem less than two weeks ago when it agreed to take the chemical and reprocess it.

The barrels, containing 2,4-dinitrophenol, a chemical used in preparations for wood preservatives and dyes, were removed by Mobay Corp., a Pittsburgh-based chemical manufacturer. The barrels were taken to Charleston, S.C., for reprocessing.

"We will return it to our plant and purify it to make it a usable dye," said Bob Stout, a chemist with the company.

Stout and four other company workers, dressed in special clothing

Please see HAZARD, 11A

Staff photo by James Moncrief

Dan Summers, emergency management director for New Hanover County (second from right), talks with the driver of a truck carrying hazardous chemicals as the vehicle leaves Pender County Wednesday.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAY 12 1987

RE: 4WD-ERR

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Marlow Bostic
223 Coastal Drive
Sneads Ferry, North Carolina 28460

Re: Storage of 100 drums of 2,4-dinitrophenol
Holly Ridge, North Carolina

Dear Mr. Bostic:

Enclosed is an Administrative Order requiring you to perform certain actions at the above referenced site. This Order is issued pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. §9606, as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law No. 99-499. Failure to respond within five (5) calendar days will constitute a violation of the enclosed order, and EPA will commence whatever action is necessary to protect the public health, welfare, and the environment.

If you have any questions, please contact Mr. James Kopotic or Ms. Elizabeth L. Osheim at 404/347-3931 or 404 347-2641, respectively.

Sincerely yours,

Lee A. Daniels II, acting

Jack E. Ravan
Regional Administrator

Enclosure

cc: Jerry Rhodes
NC-DHR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

IN THE MATTER OF:	)	
	)	
Marlow Bostic	)	DOCKET NO.: 87-11-C
Equipment Garage Site,	)	
Holly Ridge, Onslow County,	)	PROCEEDING UNDER SECTION 106(a) OF THE
North Carolina,	)	COMPREHENSIVE ENVIRONMENTAL RESPONSE,
	)	COMPENSATION AND LIABILITY ACT OF 1980
	)	42 U. S. C. §9606(a), AS AMENDED BY THE
	)	SUPERFUND AMENDMENTS AND REAUTHORIZATION
	)	ACT OF 1986.

ADMINISTRATIVE ORDER

This Administrative Order is issued to Marlow Bostic (Respondent) pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U. S. C. §9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law No. 99-499. This authority was delegated to the Administrator of EPA by Executive Order 12580, 52 Federal Register 2923 (January 23, 1987), and has been further delegated to the Regional Administrator of Region IV, EPA. Notice of the issuance of this Order has been given to the State of South Carolina.

EPA has determined that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of the release or threat of release of hazardous substances as defined in Section 101(14) of CERCLA, 42 U. S. C. §9601(14), as amended, from the following location:

> Marlow Bostic equipment garage located 1.5 miles north of Holly Ridge, Onslow County, North Carolina. Warranty Deed: Book 540, page 177.

This Order directs you to undertake action to protect the public and the environment from the endangerment.

FINDINGS OF FACT

1. The site consists of approximately 100 rusty, deteriorating drums containing dinitrophenol, located in an equipment garage 1.5 miles north of Holly Ridge in Onslow County, North Carolina. The Respondent, Mr. Marlow Bostic, owns the equipment garage and property on which it is located. Reportedly, the drums of dinitrophenol have been located at the site for seven (7) years.

2. Dinitrophenol is a listed "hazardous waste" as defined by Section 1004(5) of RCRA, 42 U. S. C. §6903(5), and is a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U. S. C. §9604(14). Dinitrophenol is flammable and explosive. It can be ignited easily and will burn very vigorously. Burning produces toxic gases. It is considered very poisonous to humans if inhaled or ingested. Fumes given off by the powder are considered toxic, and can be absorbed through the skin. Prolonged contact can be fatal to humans.

3. The drums of dinitrophenol were discovered on March 3, 1987 when the Onslow Fire Department responded to a fire at the garage.

4. The North Carolina Department of Human Resources (NC-DHR) conducted an emergency inspection of the site on March 4, 1987. Mr. Marty Bostic, son of Mr. Marlow Bostic, was given verbal notification by NC-DHR that the storage of drums constituted illegal storage of a listed hazardous waste and was advised that he had thirty (30) days to properly dispose of the material.

5. On March 31, 1987, NC-DHR issued a Notice of Violation to Mr. Marlow Bostic concerning the illegal storage of the dinitrophenol and established a compliance schedule for proper disposal. The document was returned unsigned by Mr. Marlow Bostic to NC-DHR.

6. On April 21, 1987, NC-DHR issued a second Notice of Violation, that was to be hand-delivered. The NC-DHR was unable to contact Mr. Marlow Bostic to deliver the Notice.

7. On April 20, 1987 the NC-DHR requested EPA's assistance in responding to the drums of dinitrophenol. On April 23, 1987, Mr. James Kopotic of EPA conducted an inspection of the site. During the site inspection, Mr. Marty Bostic stated to Mr. Kopotic that the material was dinitrophenol, and might be from an older site located in Holly Ridge.

8. At the time of Mr. Koptic's April 28, 1987 inspection, the physical appearance of the material and labels on the drums also identified the material as dinitrophenol. The drums were in a very rusty, deteriorated condition. Numerous drums were rusted through with evidence of the material on the garage floor, and visible inside the drums. Dinitrophenol had escaped some of the drums and is unconfined and exposed to the air.

9. The dinitrophenol is stored inside a heavy equipment garage. Welding is done on the premises. Other flammable materials (e.g., gasoline, diesel fuel, and solvents) are also stored in the garage.

10. The potential migration pathways of the material from the garage into the environment include transport on or by workers and/or equipment, wind dispersal, rainwater runoff, fire or explosion and constitute both an actual and threatened release of hazardous substances.

11. There is an immediate risk to public health and the environment at the site due to the deteriorated condition of the drums containing dinitrophenol, a material which is toxic, ignitable, corrosive and reactive.

CONCLUSIONS OF LAW

1. The site is a facility within the meaning of Section 101(9) of CERCLA, 42 U. S. C. §9601(9).

2. The Respondent is a person as defined in Section 101(21) of CERCLA, 42 U. S. C. §9601(21).

3. Dinitrophenol (2,4-dinitrophenol) is a listed hazardous waste (P048) due to the its ignitability, corrosivity, and reactivity; and dinitrophenol is a hazardous substance within the meaning of Section 101(4) of CERCLA, 42 U. S. C. §9601(4).

4. The hazardous substance described above is stored at the facility in such a manner that there is both an actual release and threatened release of hazardous substances into the environment within the meaning of Sections 101(22) and 106(a) of CERCLA, 42 U. S. C. §§9601(22) and 9606(a).

DETERMINATIONS BY REGIONAL ADMINISTRATOR

Based on the foregoing Findings of Fact and Conclusions of Law, and the entire record of this proceeding, the Regional Administrator has determined that:

(1) The release and threat of release of hazardous substances from the facility may present an imminent and substantial endangerment to the public health or welfare or the environment;

(2) In order to protect public health or welfare or the environment, it is necessary that action be taken to mitigate the release and threat of release of hazardous substances from the facility into the environment; and

(3) The actions required in this Order are consistent with the National Contingency Plan, 40 C. F. R. Part 300.65.

ORDER

Based on the foregoing findings, and conclusions, and determinations, it is hereby ordered that the Respondent shall undertake the following activities pursuant to Section 106(a) of CERCLA, 42 U. S. C. §9606:

1. Respondent shall advise EPA in writing no later than five (5) days after receipt of this Order as to its intentions, and the intended use for the dinitrophenol.

2. Within fifteen (15) days after receipt of this Order, the Respondent shall submit a disposal plan to EPA describing how the material will be disposed of in accordance with all applicable federal, state, and local laws and paragraph (3) below.

3. Respondent shall initiate no later than twenty-one (21) days after receipt of this Order, and complete within forty-five (45) days after receipt of this Order the following measures, which shall be undertaken at the direction of EPA through its On-Scene Coordinator (OSC) and consistent with the National Contingency Plan, 40 C.F.R. Part 300.65:

   a. Remove the 100 drums of dinitrophenol from the Bostic equipment garage, Holly Ridge, North Carolina;

   b. Transport and dispose of the hazardous substances at an approved hazardous waste treatment, storage or disposal facility (TSDF); written notice must be given to EPA addressing all phases of the disposal, including the TSDF to which the wastes are transported; and

   c. Sample and analyze containers of unknown waste, if any, and if OSC deems necessary, transport and dispose of such wastes to an EPA approved hazardous waste treatment, storage, or disposal facility.

4. All actions carried out by the Respondent pursuant to this Order shall be performed in accordance with all applicable federal, state, and local laws.

5. Upon request of the OSC, Respondent shall provide EPA with split samples of any samples collected in accordance with the requirements of this Order.

6. Respondent shall assure access to the site by EPA, and its authorized representatives, contractors and consultants for purposes of the implementation of this Order.

7. All response work performed pursuant to this Order shall be under the direction and supervision of a qualified engineer or Response Manager with expertise and experience in hazardous waste site cleanup. Respondent shall notify EPA as to the identity of such engineer, contractors, or subcontractors to be used in carrying out the terms of this Order in advance of their work at the site.

8. Respondent shall use quality assurance, quality control, chain-of-custody and manifest procedures in accordance with the EPA guidance throughout all activities. Respondent shall consult with EPA in planning for sampling, analysis, transportation and disposal. Respondent shall provide a quality control report to EPA which certifies that all activities have been performed as approved.

9. Respondent shall preserve and retain all records developed pursuant to

following completion of all work conducted by Respondent pursuant to this Order.

10. Nothing herein shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past operations or ownership of the site by the Respondent, its agents, contractors, lessees, successors, or assigns.

11. Notwithstanding compliance with the terms of this Order, the Respondent may be required to take further actions as necessary to abate any endangerment posed by conditions at the site.

12. In the event that the OSC determines that activities implemented are not in compliance with this Order, or any other circumstances or activities are creating an imminent and substantial endangerment to the public health or welfare or the environment, the Regional Administrator of EPA, Region IV, may order Respondent to halt further implementation of this Order for such period of time as necessary to abate the endangerment.

13. Neither the United States nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions of Respondent, its officers, directors, employees, agents, servants, receivers, trustees, successors, or assignees, or of any person, including but not limited to firms, corporations, subsidiaries, contractors, or consultants, in carrying out activities pursuant to this Order, nor shall the United States or any agency thereof be held out as a party to any contract entered into by the Respondent in carrying out activities pursuant to this Order.

14. All submittals and notifications to EPA pursuant to this Order shall be made to Mr. Patrick M. Tobin, Director, Waste Management Division, U. S. Environmental Protection Agency, 345 Courtland Street, N. E., Atlanta, Georgia 30365.

15. This Order is effective upon receipt, notwithstanding any conferences requested by the Respondent. All times for performance of response activities shall be calculated from that date.

16. This Order shall apply to and be binding upon the party to this action, its officers, directors, agents, employees, successors, assigns, and contractors.

OPPORTUNITY FOR CONFERENCE

With respect to those actions required above, you must notify EPA in writing within five (5) days after receipt of this Order whether you intend to comply with the terms of this Order. In addition, if you wish to confer with EPA to discuss this Order, its applicability to you, or the correctness of any factual matters with respect to those actions

five (5) days after receipt of this Order. You may request an informal conference to discuss cleanup plans and scheduling with EPA personnel at the EPA Regional Office located at 345 Courtland Street, Atlanta, Georgia. Such a request must be made in writing or by telephone with written follow-up within five (5) days, after receipt of this Order. Respondent may appear in person or may be represented by attorney or other reprentative at any conference held at their request. Any request for a conference should be made to:

Mr. James D. Kopotic
Waste Management Division
Emergency & Remedial Response Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N. E.
Atlanta, Georgia 30365
404/347-3931

or

Ms. Elizabeth L. Osheim
Assistant Regional Counsel
U. S. EPA - Region IV
404/347-2641

VIOLATIONS OF ORDER

Violation by the Respondent of this Order through failure to comply with any provision herein or otherwise may be enforceable pursuant to Sections 106(b) and 113(b) of CERCLA, 42 U. S. C. §§9606(b) and 9613(b). Failure to comply may also subject Respondent to civil penalties and/or punitive damages in an amount of three times the amount of any costs incurred by the United States as a result of such failure, as provided in Section 106(b) and 107(c)(3) of CERCLA, 43 U. S. C. §§9606(b) and 9607(c)(3). Nothing herein shall preclude EPA from taking such other actions as may be necessary to protect the public health and welfare or the environment and recovering the costs thereof.

By: Lee A. DeHihns III, acting
JACK E. RAVAN
Regional Administrator

Dated this 12th day of May, 1987.

North Carolina Department of Human Resources
Division of Health Services
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor
Phillip J. Kirk, Jr., Secretary

Ronald H. Levine, M.D., M.P.H.
State Health Director

April 21, 1987

HAND DELIVERED

NOTICE OF VIOLATION
Docket 87-433

Mr. Marlow Bostic
P.O. Box 460
Rose Hill, North Carolina 28458

Dear Mr. Bostic:

Re: Storage of Dinitrophenol, Hazardous Waste No P048

On December 18, 1980 the State of North Carolina, Solid and Hazardous Waste Management Branch (State) was authorized to operate the State RCRA hazardous waste program under the Solid Waste Management Act, (Act) N.C.G.S. 130-A, Article 9 and rules promulgated thereto at 10 NCAC 10F (rules) in lieu of the federal RCRA program.

On March 4, 1987, Mr. Richard Gay, Waste Management Specialist with the Branch responded to a request by the Division of Emergency Management to investigate the storage of approximately 100 drums of dinitrophenol in Holly Ridge. These drums were discovered by firemen responding to an alarm. Mr. Gay was informed that these drums were part of the approximately 2000 drums removed from another site in Holly Ridge and that this material was being stored for later use as a wood preservative.

The use of dinitrophenol as a wood preservative is no longer allowed. Further, in 1980, this agency was informed that this material in Holly Ridge was a chemical by-product and a hazardous waste.

> 40 CFR 261.1(a) codified at 10 NCAC 10F .0029 states:
> This part identifies those solid wastes which are subject to regulation as hazardous wastes under Parts 262 through 265 and Parts 270, 271, and 124 of this Chapter and which are subject to the notification requirements of Section 3010 of RCRA

> 40 CFR 261.2(b) codified at 10 NCAC 10F .0029 states:
> Materials are solid waste if they are abandoned by being:
> (3) accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

40 CFR 261.2(e)(2) codified at 10 NCAC 10F .0029 states:
The following materials are solid wastes, even if the recycling involves use, re-use, or return to the original process:
(iii) materials accumulated speculatively.

40 CFR 261.1(c)(8) codified at 10 NCAC 10F .0029 states that a material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year (commencing on January 1) the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period.

40 CFR 261.3(a) codified at 10 NCAC 10F .0029 states:
A solid waste, as defined in Section 261.2 is a hazardous waste if:

1. It is not excluded from regulation as a hazardous waste under Section 261.4(b); and
2. It meets any of the following criteria:

(ii) It is listed in Subpart D and has not been excluded from the lists in Subpart D under Sections 260.20 and 260.22 of this Chapter.

Dinitrophenol is listed in Subpart D as hazardous waste number P048.

It is the determination of this agency that the approximately 100 drums of dinitrophenol, in a garage on US Highway 17, two miles north of Holly Ridge in Onslow County constitutes storage of a listed hazardous waste subject to all applicable requirements of 40 CFR 262 through 265 and 270.

10 NCAC 10F .0032(a) states that any person who treats, stores, or disposes of hazardous waste shall do so in compliance with the standards set forth in this rule, and only after having received a permit from the Department as required by 10 NCAC 10F .0034(b)(1).

The storage of the dinitrophenol described above, is in violation of 10 NCAC 10F .0032(a) in that the site is not a permitted hazardous waste storage facility.

COMPLIANCE SCHEDULE

Comply with 10 NCAC 10F .0032(a).

By May 12, 1987, your site shall no longer store hazardous waste, and all hazardous waste previously on site shall have been shipped to a properly permitted treatment, storage or disposal facility.

As provided by 40 CFR 262.12 codified at 10 NCAC 10F .0030, prior to shipment of the hazardous waste, you shall obtain a provisional EPA Identification Number for this site. You may contact Ms. Margaret Babb with this office at (919) 733-2178 to make provisions for obtaining the I.D. number.

If the above requirements are not met, pursuant to N.C.G.S. 130A-22(a) and 10 NCAC 10G .0701-.0707 an administrative penalty of up to $10,000.00 per day may be assessed for violation of the hazardous waste law or regulations.

If you have any questions concerning this matter, you may contact me or Mack Henderson at (919) 733-2178.

Respectfully,

Jerry Rhodes, Assistant Branch Head
Solid & Hazardous Waste Management Branch
Environmental Health Section

JR:pgb

cc: Richard Gay
Doug Holyfield

6560A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

ACTION MEMORANDUM

DATE: AUG 0 3 1987

SUBJECT: Removal Action at the Bostic Drum Site, Holly Ridge, Onslow County, North Carolina

FROM: James D. Kopotic
On-Scene Coordinator

TO: Jack E. Ravan
Regional Administrator, Region IV

PURPOSE

This request is for authorization to proceed with a Removal Action for $233,750 at the Bostic Drum Site, Holly Ridge, Onslow County, North Carolina. The site consists of approximately 100 rusty and deteriorated drums of dinitrophenol and poses a significant threat to public health and the environment.

BACKGROUND

A. Incident or Site Setting/Description

1. Physical Location - The drums are located inside a heavy equipment garage owned by Mr. Marlow Bostic, which is located approximately 1.5 miles north of Holly Ridge, North Carolina. Several mobile homes are located approximately 600 feet from the site.

2. General Character of Site - The facility operates as a heavy equipment repair shop, and tool storage garage. During an on-site investigation conducted by the OSC on April 23, 1987 approximately 100 drums of dinitrophenol in a very rusty and deteriorated condition were discovered inside the garage.

3. Waste Management - Numerous drums were rusted through with the dinitrophenol visible inside. Around the rusted drums material had spilled out onto the garage floor. No containment measures have been taken to re-containerize the spilled material and to prevent additional spillage from occuring.

B. Quanitity and Types of Substances Present

Approximately 100 drums of dinitrophenol are stored on site. During the investigation conducted by the OSC (April 23, 1987) the physical appearance of the material and drum labels tentatively identified the material as dinitrophenol. Later analysis of the material conducted by Mr. Marlow Bostic confirmed that the material contained approximately 13 percent 2,4-dinitrophenol.

C. Is the Site on the NPL? If so, when is later remedial action expected?

No

THREAT

A. Threat of Exposure to Public and/or Environment

Dinitrophenol is a listed "hazardous waste" as defined by Section 1004(5) of RCRA, 42 U.S.C. §6903(5), and is a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U.S.C. §9604(14). Dinitrophenol is a flammable solid which can be easily ignited, burn very vigorously, and under certain conditions can explode. Once ignited, the combustion process produces toxic gases which can be very poisonous to humans if inhaled for a prolonged time. Fire fighting measures can produce a toxic liquid run-off which is highly toxic to aquatic life and can be fatal to humans if ingested. Fumes given off by the solid waste are considered toxic and prolonged exposure can be fatal.

On March 3, 1987 the Onslow County Fire Department responded to a fire alarm at the garage where the drums of dinitrophenol are stored. Although the fire was extinguished before any of the dinitrophenol became involved, operations at the garage continue to present an imminent fire and explosion hazard. Flammable solvents are stored in the garage. Welding is conducted on site which poses a fire and explosion threat. The material poses a significant exposure threat to the workers and nearby residents, especially to the toxic fumes which would be produced if the material was to burn.

B. Evidence of Extent of Release

During the on-site investigations conducted by NC-DHR on March 4, 1987 and the EPA on April 23, 1987 spillage of the dinitrophenol was noted on the garage floor. The drums are in a very deteriorated condition, and site conditions will worsen if appropriate actions are not taken. No measures have been implemented to prevent further release of dinitrophenol. The potential migration pathways of the material from the garage into the environment include transport by workers and/or equipment, wind dispersal, rainwater run-off, and fire or explosion.

C. Previous Actions to Abate Threat

None

D. Current Actions to Abate Threat

None

ENFORCEMENT

The North Carolina Department of Human Resources (NC-DHR) issued the site owner, Mr. Marlow Bostic, two Notice of Violation documents dated March 31 and April 21, 1987 for the illegal storage of dinitrophenol, and requested immediate cleanup of the site. Mr. Bostic refused to acknowledge either notice. Upon notification and request for assistance from NC-DHR, the EPA OSC conducted an on-site investigation. Based upon the findings of the investigation an Administrative Order dated May 12, 1987 was issued to Mr. Marlow Bostic (site owner) ordering site cleanup and disposal of approximately 100 drums of dinitrophenol within 45 days following receipt of the Order. Because of the "good-faith" exhibited by Mr. Marlow Bostic during a meeting conducted on June 3, 1987 at EPA this date was extended to July 17, 1987. Current status of the site is unchanged, and Mr. Bostic is in violation of the Order.

PROPOSED PROJECT AND COST

A. Objectives of the Project

The objectives of the project will be to sample and analyze the material to determine chemical composition and concentrations, secure the site, and transport and dispose of the material at an EPA approved disposal facility.

B. Extramural Costs

Cleanup Contractors	$170,000
TAT Costs	$15,000
15% Contingency	$27,750
Total Extramural Costs	$212,750

Intramural Costs

Intramural Direct Costs ($30 x 250 hours/225 Region, 25 HQ)	$7,500
Intramural Indirect Costs (Region hours - $54 x 250)	$13,500
Total Intramural Costs	$21,000
Total Site Budget	$233,750

C. Project Schedule

The project is scheduled to begin the week of August 3, 1987, with disposal completed within one month following approval at an EPA approved disposal facility.

REGIONAL RECOMMENDATION

Because conditions at the Bostic Drum Site meet the NCP Section 300.65 criteria for a Removal Action, I recommend your approval of the Removal request. The estimated total project costs are $233,750 of which $170,000 are for extramural cleanup contractor costs. You may indicate your approval or disapproval by signing below.

Approve: Lee A. DeHihns III, acting Date: 8/3/87

Disapprove: ______________________ Date: __________

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

ACTION MEMORANDUM

DATE: AUG 0 3 1987

SUBJECT: Removal Action at the Bostic Drum Site, Holly Ridge, Onslow County, North Carolina

FROM: James D. Kopotic
On-Scene Coordinator

TO: Jack E. Ravan
Regional Administrator, Region IV

PURPOSE

This request is for authorization to proceed with a Removal Action for $233,750 at the Bostic Drum Site, Holly Ridge, Onslow County, North Carolina. The site consists of approximately 100 rusty and deteriorated drums of dinitrophenol and poses a significant threat to public health and the environment.

BACKGROUND

A. Incident or Site Setting/Description

1. Physical Location - The drums are located inside a heavy equipment garage owned by Mr. Marlow Bostic, which is located approximately 1.5 miles north of Holly Ridge, North Carolina. Several mobile homes are located approximately 600 feet from the site.

2. General Character of Site - The facility operates as a heavy equipment repair shop, and tool storage garage. During an on-site investigation conducted by the OSC on April 23, 1987 approximately 100 drums of dinitrophenol in a very rusty and deteriorated condition were discovered inside the garage.

3. Waste Management - Numerous drums were rusted through with the dinitrophenol visible inside. Around the rusted drums material had spilled out onto the garage floor. No containment measures have been taken to re-containerize the spilled material and to prevent additional spillage from occuring.

B. Quanitity and Types of Substances Present

Approximately 100 drums of dinitrophenol are stored on site. During the investigation conducted by the OSC (April 23, 1987) the physical appearance of the material and drum labels tentatively identified the material as dinitrophenol. Later analysis of the material conducted by Mr. Marlow Bostic confirmed that the material contained approximately 13 percent 2,4-dinitrophenol.

C. Is the Site on the NPL? If so, when is later remedial action expected?

No

THREAT

A. Threat of Exposure to Public and/or Environment

Dinitrophenol is a listed "hazardous waste" as defined by Section 1004(5) of RCRA, 42 U.S.C. §6903(5), and is a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U.S.C. §9604(14). Dinitrophenol is a flammable solid which can be easily ignited, burn very vigorously, and under certain conditions can explode. Once ignited, the combustion process produces toxic gases which can be very poisonous to humans if inhaled for a prolonged time. Fire fighting measures can produce a toxic liquid run-off which is highly toxic to aquatic life and can be fatal to humans if ingested. Fumes given off by the solid waste are considered toxic and prolonged exposure can be fatal.

On March 3, 1987 the Onslow County Fire Department responded to a fire alarm at the garage where the drums of dinitrophenol are stored. Although the fire was extinguished before any of the dinitrophenol became involved, operations at the garage continue to present an imminent fire and explosion hazard. Flammable solvents are stored in the garage. Welding is conducted on site which poses a fire and explosion threat. The material poses a significant exposure threat to the workers and nearby residents, especially to the toxic fumes which would be produced if the material was to burn.

B. Evidence of Extent of Release

During the on-site investigations conducted by NC-DHR on March 4, 1987 and the EPA on April 23, 1987 spillage of the dinitrophenol was noted on the garage floor. The drums are in a very deteriorated condition, and site conditions will worsen if appropriate actions are not taken. No measures have been implemented to prevent further release of dinitrophenol. The potential migration pathways of the material from the garage into the environment include transport by workers and/or equipment, wind dispersal, rainwater run-off, and fire or explosion.

C. Previous Actions to Abate Threat

None

D. Current Actions to Abate Threat

None

ENFORCEMENT

The North Carolina Department of Human Resources (NC-DHR) issued the site owner, Mr. Marlow Bostic, two Notice of Violation documents dated March 31 and April 21, 1987 for the illegal storage of dinitrophenol, and requested immediate cleanup of the site. Mr. Bostic refused to acknowledge either notice. Upon notification and request for assistance from NC-DHR, the EPA OSC conducted an on-site investigation. Based upon the findings of the investigation an Administrative Order dated May 12, 1987 was issued to Mr. Marlow Bostic (site owner) ordering site cleanup and disposal of approximately 100 drums of dinitrophenol within 45 days following receipt of the Order. Because of the "good-faith" exhibited by Mr. Marlow Bostic during a meeting conducted on June 3, 1987 at EPA this date was extended to July 17, 1987. Current status of the site is unchanged, and Mr. Bostic is in violation of the Order.

PROPOSED PROJECT AND COST

A. Objectives of the Project

The objectives of the project will be to sample and analyze the material to determine chemical composition and concentrations, secure the site, and transport and dispose of the material at an EPA approved disposal facility.

B. Extramural Costs

Cleanup Contractors	$170,000
TAT Costs	$15,000
15% Contingency	$27,750
Total Extramural Costs	$212,750

Intramural Costs

Intramural Direct Costs ($30 x 250 hours/225 Region, 25 HQ)	$7,500
Intramural Indirect Costs (Region hours - $54 x 250)	$13,500
Total Intramural Costs	$21,000

Total Site Budget	$233,750

C. Project Schedule

The project is scheduled to begin the week of August 3, 1987, with disposal completed within one month following approval at an EPA approved disposal facility.

REGIONAL RECOMMENDATION

Because conditions at the Bostic Drum Site meet the NCP Section 300.65 criteria for a Removal Action, I recommend your approval of the Removal request. The estimated total project costs are $233,750 of which $170,000 are for extramural cleanup contractor costs. You may indicate your approval or disapproval by signing below.

Approve: Lee A. Whitehead, acting Date: 8/3/87

Disapprove: _____ Date: _____

MATERIAL SAFETY DATA SHEET

DIVISION ADDRESS

Mobay Corporation
Organic & Rubber Chemicals Division
Mobay Road
Pittsburgh, PA 15205-9741

ISSUE DATE 2/26/86
SUPERSEDES 1/22/82

TRANSPORTATION EMERGENCY: CALL CHEMTREC
TELEPHONE NO: 800-424-9300; DISTRICT OF COLUMBIA: 202-483-7616

MOBAY NON-TRANSPORTATION EMERGENCY NO.:
(412) 923-1800

I. PRODUCT IDENTIFICATION

PRODUCT NAME.....: 2,4-Dinitrophenol, Moist
PRODUCT CODE NUMBER.....: T-931
CHEMICAL FAMILY.....: Nitrated Phenol
CHEMICAL NAME.....: 1-Hydroxy-2,4-Dinitrobenzene
CAS NUMBER.....: 51-28-5
T.S.C.A. STATUS.....: On Inventory
CHEMICAL FORMULA.....: $C_6H_4N_2O_5$

II. HAZARDOUS INGREDIENTS

COMPONENTS:	%:	CURRENT TLV:
1-Hydroxy-2,4-Dinitrobenzene	Essentially 100	Not Established

This product is considered to be hazardous under the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200

III. PHYSICAL DATA

APPEARANCE.....: Solid
COLOR.....: Dark Yellow
ODOR.....: Slight
MOLECULAR WEIGHT.....: 184
BULK DENSITY.....: 4.4 lbs/gal.
SPECIFIC GRAVITY.....: Approximately 1.4
SOLUBILITY IN WATER.....: 5g/l @ 20°C in H_2O
% VOLATILE.....: 20-40% H_2O

IV. FIRE & EXPLOSION DATA

FLASH POINT °F(°C).....: Not applicable
EXTINGUISHING MEDIA.....: Water, Dry Chemical, CO_2, Foam
SPECIAL FIRE FIGHTING PROCEDURES/UNUSUAL FIRE OR EXPLOSION HAZARDS:
Upon exposure to heat, an explosion hazard exists. Upon decomposition at elevated temperatures, product may emit toxic fumes of oxides of nitrogen. Firefighters should wear full protective clothing including a self-contained breathing apparatus. During a fire, irritating and/or toxic gases from combustion/decomposition products may be generated. If dried, the dust of this product can form explosive mixtures with air.

V. HEALTH EFFECTS DATA

ANIMAL TOXICITY -
ORAL, LD50
(INGESTION).....: 30 mg/kg (Rat)
LD50 DERMAL
(SKIN CONTACT).....: 700 mg/kg (guinea pig)

V. HEALTH EFFECTS DATA - Continued

FISH, LC50 (FISH).....	TLm 96: 10-1 ppm
EYE EFFECTS.....	Severe Irritant
SKIN EFFECTS.....	Severe Irritant
OTHER.....	Causes liver and kidney damage. Product is highly toxic by ingestion, may be fatal if swallowed.
HUMAN EFFECTS OF OVEREXPOSURE.....	Product causes eye and skin irritation. Inhalation of product may cause liver and kidney damage. This product is readily absorbed through the skin and is also highly toxic if ingested.
THRESHOLD LIMIT VALUE....:	Not Established

VI. EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT.....	Flush eyes with plenty of lukewarm water for at least 15 minutes. Contact a physician.
SKIN CONTACT.....	Wash affected areas with soap and water. Remove contaminated clothing and wash before reuse. Contact a physician.
INHALATION.....	Remove to fresh air. If respiratory passages are irritated, contact a physician.
INGESTION.....	If swallowed, induce vomiting by giving two glasses of water and sticking finger down throat. If an emetic such as syrup of ipecac is availabel it should be administered to induce vomiting. Repeat until vomit is clear.NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Contact a physician.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS

EYE PROTECTION.....	Safety goggles, face shield
SKIN PROTECTION.....	High Sleeve, rubber gloves
RESPIRATORY PROTECTION...:	If wet, none is needed. If allowed to dry and dusting occurs, a self-contained breathing apparatus is necessary.
VENTILATION.....	Local exhaust at work place, rubber aprons

VIII. REACTIVITY DATA

STABILITY.....	Stable
POLYMERIZATION.....	Will not occur
INCOMPATIBILITY - (MATERIALS TO AVOID)...:	Heavy metals and their compounds
HAZARDOUS DECOMPOSITION PRODUCTS.....	Burning product may release CO, CO_2 and NO_x

IX. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spills should be taken up with shovels and suitable absorbant as needed, placed in containers and kept wet. Spill area can be washed with water. Collect wash water for approved disposal. Utilize recommended protective clothing and equipment.

WASTE DISPOSAL METHOD: Waste material may be incinerated under conditions which meet Federal, State and Local environmental control regulations. Incineration (1800°F, 2.0 seconds minimum - with adequate scrubbing equipment for removal of NO_x).

X. SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE (MIN./MAX.).....: 40°F(4°C)/100°F(38°C)
AVERAGE SHELF LIFE.....: One year
SPECIAL SENSITIVITY (HEAT, LIGHT, MOISTURE): Do not allow material to dry out.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in a cool, dry place away from food and drink. Store in original containers or similar D.O.T. approved containers. Reseal containers immediately after use. Avoid unnecessary contact.

XI. SHIPPING DATA

D.O.T. SHIPPING NAME.....: Poisonous Solid, N.O.S
TECHNICAL SHIPPING NAME..: 2,4-Dinitrophenol
D.O.T. HAZARD CLASSIFICATION.....: Poison B
UNNA NO.....: UN 2811
REPORTABLE QUANTITY.....: 1000 lbs.
D.O.T. LABELS REQUIRED...: Poison
D. O.T. PLACARDS REQUIRED: Posion
FRT. BULK CLASS.....: N/A
FRT. CLASS PKG.....: Dye Intermediate, NOI (NMFC 60000)
PRODUCT LABEL.....: 2,4-Dinitrophenol, Moist

REASON FOR ISSUE.....: Update to New Form
APPROVED BY.....: J. J. Gerulis
TITLE.....: Manager, Industrial Hygiene & Regulatory Affairs
DATE APPROVED.....: 11/22/85

ACL

ADVANCED CHEMISTRY LABS, INC.

DR. STEVE N. TSOUKALAS
CHIEF CHEMIST

P.O. BOX 88610 • ATLANTA, GEORGIA 30356
TELEPHONE (404) 455-1266

Client: O.H.MATERIALS CORP.
P.O. Box 551
Findlay, Ohio 45839-0551

Attention: Robert Magham

Client Project No.: #5136-S5
ACL Project No.: #1192
Date Received: 8/6/87
Report Date: 8/20/87

STATION: 5136-01
ACL # 4975

PARAMETERS:

2,4-Dinitrophenol ..... 77.3 %
Moisture % ..... 42 %

METALS (ppm)	EP-TOXICITY	TOTAL
Arsenic	< 0.010	< 1.0
Barium	0.116	< 5
Cadmium	< 0.001	0.950
Chromium	0.004	2.20
Lead	0.011	2.9
Mercury	< 0.001	0.060
Selenium	< 0.020	< 2.0
Silver	< 0.001	0.1

Steve Tsoukalas, Ph.D.
Director of Chemistry

RECEIVED SEP 2 ? 1987

ACL

ADVANCED CHEMISTRY LABS, INC.

DR. STEVE N. TSOUKALAS
CHIEF CHEMIST

P.O. BOX 88610 • ATLANTA, GEORGIA 30356
TELEPHONE (404) 455-1266

Client: O.H.MATERIALS CORP.
P.O. Box 551
Findlay, Ohio 45839-0551

Attention: Robert Magham

Client Project No.: #5136-S5
ACL Project No.: #1192
Date Received: 8/6/87
Report Date: 9/4/87 (Revised Report Date 8/20/87)

STATION: 5136-01
ACL # 4975

PARAMETERS:

2,4-Dinitrophenol ..... 77.3 %
Moisture % ..... 22 %

METALS (ppm)	EP-TOXICITY	TOTAL
Arsenic	< 0.010	< 1.0
Barium	0.116	< 5
Cadmium	< 0.001	0.950
Chromium	0.004	2.20
Lead	0.011	2.9
Mercury	< 0.001	0.060
Selenium	< 0.020	< 2.0
Silver	< 0.001	0.1

Steve N. Tsoukalas
Steve Tsoukalas, Ph.D.
Director of Chemistry

from the corresponding nitro derivatives. Stronger agents reduce the azo linkage as well. Sodium sulfide or disulfide are most frequently employed; ammonium sulfide sometimes.

The activity of alkali sulfides in the reduction of nitro compounds is due to the ease with which the former take up oxygen. The more or less idealized reactions may be represented as follows, omitting possible side reactions:

$$4\,RNO_2 + 6\,Na_2S + 7\,H_2O \rightarrow 4\,RNH_2 + 3\,Na_2S_2O_3 + 6\,NaOH$$

$$RNO_2 + Na_2S + H_2O \rightarrow RNH_2 + Na_2SO_3$$

$$4\,RNO_2 + 6\,NaHS + H_2O \rightarrow 4\,RNH_2 + 3\,Na_2S_2O_3$$

m-Nitroaniline. *m*-Dinitrobenzene (168 parts) and water (1600 parts) are placed in a reactor and thoroughly agitated while the temperature is raised to 85°C. A concentrated solution of sodium sulfide (128 parts) and of sodium bicarbonate (140 parts) is added. Stirring is continued at 80–85°C until a test affirms completion of the reduction. The reaction mixture is poured on ice and stirred. The *m*-nitroaniline [*99-09-2*] is then filtered and washed with cold water. Yields of about 37% are obtained by this procedure, according to Vorontzov (41). When using *m*-nitroaniline as an intermediate, a solution of the crude product can be used directly. A distinct loss in yield is obtained when the *m*-nitroaniline is recrystallized from hydrochloric acid solution, the recovery being only 71–73%. The mother liquors may, however, be employed in subsequent purification operations.

5-Nitro-1-naphthylamine. Nitration of naphthalene gives a mixture of 1,5- and 1,8-dinitronaphthalenes. Upon reduction, under controlled conditions with sodium sulfide, the 1,5-isomer is partially reduced selectively while the 1,8-derivative remains substantially unaltered (42). A suspension of 55 parts of the mixture of isomers in 400 parts of water is heated to 90°C, and a solution containing 32.2 parts of sodium sulfide and 6.2 parts of sulfur in 80 parts of water is added. The mixture is stirred for 15 min, then cooled and filtered. The residue on the filter is washed with water and then treated with dilute hydrochloric acid to dissolve any nitroamino compound. The acid mixture is filtered and the residue, relatively pure 1,8-dinitronaphthalene, is washed with water. The filtrate contains 5-nitro-1-naphthylamine [*3272-91-1*] as the hydrochloride.

2-Amino-4-nitrophenol. A mixture of 90 parts of an aqueous solution containing 27 parts of sodium sulfide and 60 parts of ferrous sulfate in 80 parts of water is thoroughly stirred until a suspension of freshly precipitated ferrous sulfide is obtained. Then 20.6 parts of the sodium salt of 2,4-dinitrophenol, dissolved in 160 parts of water, is added and the mixture gradually heated to 60–80°C until the reduction of one nitro group is complete.

The charge is then filtered and the filtrate exactly neutralized with hydrochloric acid. The precipitated 2-amino-4-nitrophenol [*99-57-0*] is filtered.

2-Amino-7-chloroanthraquinone. The corresponding nitro compound can be reduced satisfactorily in alkaline sulfide solutions without appreciable replacement of the chloro substituent. The reduction is carried out by boiling 287 parts of 2-nitro-7-chloroanthraquinone in 5000 parts of water containing 40 parts of caustic soda and 75 parts of sodium sulfide ($9H_2O$), for 1 to 2 h. The 2-amino-7-chloroanthraquinone [*3572-17-1*] is then filtered and washed with hot water.

2,4-DINITROPHENOL

DNP

Common Synonyms	Solid crystal	Yellow	Sweet, musty odor
alpha-Dinitrophenol 1-Hydroxy-2,4-dinitro-benzene Aldifen	Sinks in water		

AVOID CONTACT WITH SOLID AND DUST. Keep people away
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves)
Evacuate area in case of large discharges.
Call fire department
Isolate and remove discharged material
Notify local health and pollution control agencies

Fire

Combustible
May explode if subjected to heat or flame
POISONOUS GAS IS PRODUCED WHEN HEATED
Evacuate surrounding area
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves)
Combat fires from safe distance or protected location

Exposure

CALL FOR MEDICAL AID

DUST
POISONOUS IF INHALED OR IF SKIN IS EXPOSED.
Move to fresh air
If breathing has stopped, give artificial respiration
If breathing is difficult, give oxygen

SOLID
POISONOUS IF SWALLOWED.
Remove contaminated clothing and shoes
Flush affected areas with plenty of water
IF IN EYES, hold eyelids open and flush with plenty of water
IF SWALLOWED, and victim is CONSCIOUS, have victim drink water or milk

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS
May be dangerous if it enters water intakes.

Notify local health and wildlife officials
Notify operators of nearby water intakes

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-poison
Restrict access
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Poison
2.2 **Class:** 6

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Not listed
3.2 **Formula:** $HOC_6H_3(NO_2)_2$-2,4
3.3 **IMO/UN Designation:** 1.0/0076
3.4 **DOT ID No.:** 0076
3.5 **CAS Registry No.:** 51-28-5

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Solid
4.2 **Color:** Yellow
4.3 **Odor:** Musty; sweet

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Self-contained breathing apparatus; butyl rubber gloves; goggles; lab coat; protective shoes.
5.2 **Symptoms Following Exposure:** Liver damage, metabolic stimulant, dermatitis, dilation of pupils.
5.3 **Treatment of Exposure:** Remove victim from contaminated area and wash exposed skin with soap and water. Administer oxygen if respiratory problems develop. Refer to a doctor.
5.4 **Threshold Limit Value:** 0.2 mg/m³
5.5 **Short Term Inhalation Limits:** Data not available
5.6 **Toxicity by Ingestion:** Grade 4; LD_{50} below 50 mg/kg
5.7 **Late Toxicity:** Produces clouding of lens of eye (cataracts) in animals and humans, birth defects in chick embryos.
5.8 **Vapor (Gas) Irritant Characteristics:** Not pertinent
5.9 **Liquid or Solid Irritant Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
5.10 **Odor Threshold:** Data not available
5.11 **IDLH Value:** 5.0 mg/m³

6. FIRE HAZARDS

6.1 **Flash Point:** Data not available
6.2 **Flammable Limits in Air:** Not pertinent
6.3 **Fire Extinguishing Agents:** Water, dry chemical, carbon dioxide, foam
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Vapors are toxic
6.6 **Behavior in Fire:** Can detonate or explode when heated under confinement
6.7 **Ignition Temperature:** Data not available
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Not pertinent
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** Reacts with oxidizing materials and combustibles.
7.3 **Stability During Transport:** May detonate when heated under confinement
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** Data not available

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 200 ppm/0.3 hr/minnow/died/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** Data not available
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Data not available
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Data not available

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

II

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Poison, B
11.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
11.3 **NFPA Hazard Classification:** Not listed

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Solid
12.2 **Molecular Weight:** 184.1
12.3 **Boiling Point at 1 atm:** Not pertinent
12.4 **Freezing Point:** 235°F = 113°C = 386°K
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 1.68 at 20°C (solid)
12.8 **Liquid Surface Tension:** Not pertinent
12.9 **Liquid Water Interfacial Tension:** Not pertinent
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
12.12 **Latent Heat of Vaporization:** Not pertinent
12.13 **Heat of Combustion:** Not pertinent
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

DNP	2,4-DINITROPHENOL

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	INSOLUBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

DINITROBENZENE, SOLID OR DINITROBENZOL, SOLID **4921421**
POISON B **UN1597**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrobenzene, solid is a white or yellow crystalline solid. It is slightly soluble in water. It is toxic by skin absorption and by inhalation (dust,etc). It is combustible. Prolonged exposure of the material to fire or heat may result in the spontaneous decomposition of the material with a resultant explosion. Toxic oxides of nitrogen are produced during combustion of this material.

If material on fire or involved in fire
- Use water in flooding quantities as fog
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Use "alcohol" foam, carbon dioxide or dry chemical

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers

Personnel protection
- Avoid breathing dusts, and fumes from burning material
- Keep upwind
- Avoid bodily contact with the material
- Wear full protective clothing
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water
- Wear self-contained breathing apparatus when fighting fires involving this material

Environmental considerations—land spill
- Dig a pit, pond, lagoon, holding area to contain liquid or solid material
- Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water

Environmental considerations—water spill
- Use natural deep water pockets, excavated lagoons, or sand bag barriers to trap material at bottom
- If dissolved, apply activated carbon at ten times the spilled amount in region of 10ppm or greater concentration
- Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates

DINITROBENZOL, SOLUTION **4921422**
POISON B **UN1597**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrobenzol, solution is the colorless or yellow solution of dinitrobenzene in a suitable solvent. The flammability of the solution depends on the nature of the solvent. The material itself is combustible. It is toxic by skin absorption and inhalation. Prolonged exposure to fire or heat may result in spontaneous decomposition with a resultant explosion. Toxic oxides of nitrogen are produced during combustion of this material.

If material on fire or involved in fire
- Do not extinguish fire unless flow can be stopped
- Use water in flooding quantities as fog
- Solid streams of water may be ineffective
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Use "alcohol" foam, carbon dioxide or dry chemical

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers
- Build dikes to contain flow as necessary
- Attempt to stop leak if without hazard
- Use water spray to knock-down vapors

Personnel protection
- Avoid breathing vapors
- Keep upwind
- Wear self-contained breathing apparatus
- Avoid bodily contact with the material
- Wear full protective clothing
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water

Evacuation
- If material leaking (not on fire), downwind evacuation must be considered

Environmental considerations—land spill
- Dig a pit, pond, lagoon, holding area to contain liquid or solid material
- Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete
- Absorb bulk liquid with fly ash, cement powder, sawdust, or commercial sorbents

Environmental considerations—water spill
- Use natural barriers or oil spill control booms to limit spill motion
- Use surface active agent (e.g. detergent, soaps, alcohols) to compress and thicken spilled material
- Inject "universal" gelling agent to solidify encircled spill and increase effectiveness of booms
- If dissolved, apply activated carbon at ten times the spilled amount in region of 10ppm or greater concentration
- Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates

DINITROCHLOROBENZOL, SOLID OR DINITROCHLOROBENZENE **4921424**
POISON B **UN1577**

Dinitrochlorobenzol, solid is a colorless to yellow crystalline solid with an almond like odor. It is insoluble in water. It is combustible though it may require some effort to ignite. It is toxic by skin absorption or inhalation (dust, etc.). Prolonged exposure to fire or heat may result in spontaneous decomposition with a resultant explosion. Toxic oxides of nitrogen are produced during combustion of this material.

If material on fire or involved in fire
- Use water in flooding quantities as fog
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Use foam, carbon dioxide or dry chemical

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers

Personnel protection
- Avoid breathing dusts, and fumes from burning material
- Keep upwind
- Avoid bodily contact with the material
- Wear boots, protective gloves, and goggles
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water
- Wear self-contained breathing apparatus when fighting fires involving this material
- If contact with the material anticipated, wear full protective clothing

DINITROPHENOL (FLAMMABLE SOLID, POISONOUS, N.O.S.) **4916626**
FLAMMABLE SOLID,POISONOUS **UN1992**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrophenol is a yellow crystalline solid, shipped water wet with at least 15 % water. It is used to make dyes, as a lumber preservative, and to make explosives. When not water wet it is a high explosive. Dry, the material is easily ignited and it will burn very vigorously. The wet material can burn though it may require some effort to ignite. It is slightly soluble in water. Toxic oxides of nitrogen are produced in fires involving this material.

If material on fire or involved in fire
- Dangerously explosive
- Flood with water
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible

Continued on next page

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers
- Keep spilled material wet
- Do not attempt to sweep up dry material

Personnel protection
- Wear boots, protective gloves, and goggles
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water
- Wear self-contained breathing apparatus when fighting fires involving this material
- Wash away any material which may have contacted the body with copious amounts of water or soap and water

Evacuation
- If fire becomes uncontrollable—evacuate for a radius of 5000 feet

Environmental considerations—land spill
- Dig a pit, pond, lagoon, holding area to contain liquid or solid material
- Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water

Environmental considerations—water spill
- Use natural deep water pockets, excavated lagoons, or sand bag barriers to trap material at bottom
- If dissolved, apply activated carbon at ten times the spilled amount in region of 10ppm or greater concentration
- Remove trapped material with suction hoses
- Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates

DINITROPHENOL SOLUTION **4921425**
POISON B **UN1599**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrophenol solution is a yellow colored liquid of the yellow crystalline material dissolved in a suitable solvent. The material itself is very slightly soluble in water. The flammability of the solution depends on the nature of the solvent. Dinitrophenol itself is combustible though it may require some effort to ignite. It is toxic by skin absorption and inhalation. Prolonged exposure to fire or heat may result in the spontaneous decomposition and heating with a resultant explosion. Toxic oxides of nitrogen are produced during combustion of this material.

If material on fire or involved in fire
- Do not extinguish fire unless flow can be stopped
- Use water in flooding quantities as fog
- Solid streams of water may be ineffective
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Use foam, carbon dioxide or dry chemical

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers
- Build dikes to contain flow as necessary
- Attempt to stop leak if without hazard
- Use water spray to knock-down vapors

Personnel protection
- Avoid breathing vapors
- Keep upwind
- Wear self-contained breathing apparatus
- Avoid bodily contact with the material
- Wear full protective clothing
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water

Evacuation
- If material leaking (not on fire), downwind evacuation must be considered

Environmental considerations—land spill
- Dig a pit, pond, lagoon, holding area to contain liquid or solid material
- Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete
- Absorb bulk liquid with fly ash or cement powder

Environmental considerations—water spill
- Use natural barriers or oil spill control booms to limit spill motion
- Use surface active agent (e.g. detergent, soaps, alcohols) to compress and thicken spilled material
- Inject "universal" gelling agent to solidify encircled spill and increase effectiveness of booms
- If dissolved, apply activated carbon at ten times the spilled amount in region of 10ppm or greater concentration
- Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates

DINITROTOLUENE, LIQUID **4963120**
ORM-E **UN1600**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrotoluene, liquid is a yellow colored liquid. It is used to make dyes, explosives, and other chemicals. It is insoluble in water. It is combustible though it may take some effort to ignite. Toxic oxides of nitrogen are produced during combustion of this material.

It weighs 10.6 pounds per gallon.

If material on fire or involved in fire
- Do not extinguish fire unless flow can be stopped
- Use water in flooding quantities as fog
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Solid streams of water may be ineffective
- Use foam, carbon dioxide or dry chemical

If material not on fire and not involved in fire
- Keep sparks, flames, and other sources of ignition away
- Keep material out of water sources and sewers
- Build dikes to contain flow as necessary

Personnel protection
- Avoid breathing vapors or dusts
- Wear boots, protective gloves, and goggles
- Do not handle broken packages without protective equipment
- Wash away any material which may have contacted the body with copious amounts of water or soap and water
- Wear self-contained breathing apparatus when fighting fires involving this material

Environmental considerations—land spill
- Dig a pit, pond, lagoon, holding area to contain liquid or solid material
- Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete
- Absorb bulk liquid with fly ash or cement powder
- Apply "universal" gelling agent to immobilize spill

Environmental considerations—water spill
- Use natural barriers or oil spill control booms to limit spill motion
- Use surface active agent (e.g. detergent, soaps, alcohols) to compress and thicken spilled material
- Inject "universal" gelling agent to solidify encircled spill and increase effectiveness of booms
- Remove trapped material with suction hoses
- If dissolved, apply activated carbon at ten times the spilled amount in region of 10ppm or greater concentration
- Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates

DINITROTOLUENE, SOLID **4963115**
ORM-E **UN1600**
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-1000/454)

Dinitrotoluene is a yellow crystalline solid. It is used to make dyes, explosives, and other chemicals. It is insoluble in water. It is combustible though it may take some effort to ignite. Toxic oxides of nitrogen are produced during the combustion of this material.

If material on fire or involved in fire
- Do not extinguish fire unless flow can be stopped
- Use water in flooding quantities as fog
- Cool all affected containers with flooding quantities of water
- Apply water from as far a distance as possible
- Solid streams of water may be ineffective
- Use foam, carbon dioxide or dry chemical

(2) U.S. Environmental Protection Agency, *Nitrophenols: Ambient Water Quality Criteria,* Washington, DC (1980).
(3) U.S. Environmental Protection Agency, *4,6-Dinitro-o-Cresol,* Health and Environmental Effects Profile No. 90, Washington, DC, Office of Solid Waste (April 30, 1980).
(4) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 2,* No. 5, 54-59, New York, Van Nostrand Reinhold Co. (1982).
(5) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 4,* No. 1, 62-66, New York, Van Nostrand Reinhold Co. (Jan./Feb. 1984).
(6) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety,* Third Edition, Vol. 1, pp 635-36, Geneva, International Labour Office (1983).
(7) United Nations Environment Programme, *IRPTC Legal File 1983,* Vol. I, pp VII/216-18, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

2,4-DINITROPHENOL

- Hazardous substance (EPA)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: There are six isomers of dinitrophenol, $C_6H_3(NO_2)_2OH$, of which 2,4-dinitrophenol is the most important industrially. It is an explosive, yellow crystalline solid, melting at 114° to 115°C.

Code Numbers: CAS 51-28-5 RTECS SL2800000 UN 0076 (solution: 1599).

DOT Designation: Dry—explosive, poison; solution—Poison B.

Synonyms: DNP.

Potential Exposure: 2,4-DNP is used in the manufacturing of dyestuff intermediates, wood preservatives, pesticides, herbicides, explosives, chemical indicators, photographic developers, and also in chemical synthesis.

Incompatibilities: Heavy metals and their compounds.

Permissible Exposure Limits in Air: There is no Federal standard for DNP. A useful guideline of 0.2 mg/m³ is based on data for dinitro-o-cresol.

Permissible Concentration in Water: To protect freshwater aquatic life—230 µg/ℓ on an acute toxicity basis for nitrophenols as a class. To protect saltwater aquatic life—4,850 µg/ℓ on an acute toxicity basis for nitrophenols as a class. To protect human health—70.0 µg/ℓ. This compares to a limit of 30 µg/ℓ set in the U.S.S.R.

Determination in Water: Methylene chloride extraction followed by gas chromatography with flame ionization or electron capture detection (EPA Method 604) or gas chromatography plus mass spectrometry (EPA Method 625).

Routes of Entry: Percutaneous absorption and inhalation of dust and vapors.

Harmful Effects and Symptoms: *Local* – DNP causes yellow staining of exposed skin. Dermatitis may be due to either primary irritation or allergic sensitivity.

Systemic – The isomers differ in their toxic effects. In general, DNP disrupts oxidative phosphorylation (as in the case of DNOC) which results in increased metabolism, oxygen consumption, and heat production. Acute intoxication is

characterized by sudden onset of fatigue, thirst, sweating, and oppression of the chest. There is rapid respiration, tachycardia, and a rise in body temperature. In less severe poisoning, the symptoms are nausea, vomiting, anorexia, weakness, dizziness, vertigo, headache, and sweating. The liver may be sensitive to pressure, and there may also be jaundice. DNP poisoning is more severe in warm environments. If not fatal, the effects are rapidly and completely reversible. Chronic exposure results in kidney and liver damage and cataract formation. Occasional hypersensitivity reactions, e.g., neutropenia, skin rashes, peripheral neuritis, have been seen after oral use.

Points of Attack: Skin, liver, central nervous system.

Medical Surveillance: Consider skin, eyes, thyroid, blood, central nervous system, liver and kidney function, as well as general health in preplacement and periodic examinations. DNP can be measured in urine as such or as an aminophenol.

First Aid: Flush eyes with water. Wash contaminated areas of body with soap and water. Use gastric lavage if swallowed followed by saline catharsis.

Personal Protective Methods: Because of its wide use in agriculture, lumbering, photography, as well as in the petrochemical industry, worker education on the toxic properties of dinitrophenol is important. Spills and splashes that contaminate clothing require the worker to immediately change clothes and wash the area thoroughly. Workers should have clean work clothes on every shift and should be required to shower prior to changing to street clothing.

Respirator Selection: Fullface masks with organic vapor canisters or air supplied respirators are necessary in areas of high concentration of dust or vapor.

Disposal Method Suggested: Incineration (1800°F, 2.0 seconds minimum) with adequate scrubbing equipment for the removal of NO_x.

References

(1) U.S. Environmental Protection Agency, *Nitrophenols: Ambient Water Quality Criteria,* Washington, DC (1980).
(2) U.S. Environmental Protection Agency, *2,4-Dinitrophenol,* Health and Environmental Effects Profile No. 91, Washington, DC, Office of Solid Waste (April 30, 1980).
(3) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 2,* No. 2, 25-27, New York, Van Nostrand Reinhold Co. (1982).
(4) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 3,* No. 2, 38-41, New York, Van Nostrand Reinhold Co. (1983).
(5) See Reference (A-60).
(6) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety,* Third Edition, Vol. 1, pp 636-37, Geneva, International Labour Office (1983).
(7) United Nations Environment Programme, *IRPTC Legal File 1983,* Vol. II, pp VII/510-12, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

2,6-DINITROPHENOL

- Carcinogen (Suspected) (NIOSH) (1)
- Hazardous Substance (EPA)

Description: $C_6H_3(NO_2)_2OH$ is a yellow crystalline solid melting at 63°-64°C.

Code Numbers: CAS 573-56-8 RTECS SL2975000

DOT Designation: Poison Class B.

Synonyms: DNP.

Potential Exposure: Those involved in dye manufacture, picric acid manufacture, photographic chemicals.

Permissible Exposure Limits in Air: 0.20 mg/m^3 (1).

Permissible Concentration in Water: 0.001 mg/ℓ (1) on a taste-imparting basis.

Routes of Entry: Skin contact, inhalation of dust.

Harmful Effects and Symptoms: Dermatitis results from skin contact. Cataracts may be produced. A fatal dose in adults is 1 to 3 g by mouth. Symptoms include headache, loss of appetitie, vomiting, abdominal pain, diarrhea, fever, chest pains, dizziness, fatigue, jaundice, leg cramps, cyanosis, anxiety, pulmonary edema, convulsions.

Personal Protective Methods: Safety goggles or face mask, butyl rubber gloves and boots.

Respirator Selection: Self-contained breathing apparatus.

Disposal Method Suggested: Incineration.

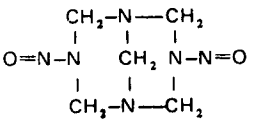
References

(1) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 3,* No. 2, 41-44, New York, Van Nostrand Reinhold Co. (1983).

(2) United Nations Environment Programme, *IRPTC Legal File 1983,* Vol. II, pp VII/510-12, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

DINITROSOPENTAMETHYLENETETRAMINE

Description: This compound has the formula



It is a light yellow solid which decomposes at 207°C.

Code Numbers: CAS 101-25-7 RTECS XA5250000

DOT Designation: —

Synonyms: 3,7-dinitroso-1,3,5,7-tetrazabicyclononane; DNPT.

Potential Exposure: DNPT is used as a blowing agent in rubbers and plastics. Natural and synthetic unicellular rubber, which is made using DNPT, is used as carpet underlay, weatherstripping, insulation, shoe lining, and cushioning. DNPT is also an effective blowing agent for polyvinyl chloride plastisols and epoxy, polyester, and silicone resins.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Fainting, dizziness, cyanosis and convulsions have been reported by DNPT production workers.

(1) Accession Num 7216692
(2) CAS Registry Number: 51-28-5
(3) SIC Code: 2815; 2815
(4) Material Name: $$$ 2,4-DINITROPHENOL $$$
(5) Synonyms: .ALPHA.-DINITROPHENOL; ALDIFEN
(7) Chemical Formula: (C5H3OH)(NO2)2
(8) Species in Mixture: 100% PURE
(9) Common Uses: DYES; WOOD PRESERVATIVE; ANALYTICAL INDICATOR
(10) Transport, Rail (%): 40.3
(11) Transport, Barge(%): 47.8
(12) Transport, Truck (%): 11.9
(17) Production Sites: ALLIED CHEM., LOCK HAVEN, PA;
AMERICAN ANILINE PROD., BUFFALO, NY;
SOUTHERN DYESTUFF CO., SODYECO, NC;
(24) Detection Limit (Field; Techniques,Ref) (ppm): .001, PHENOLS, (GISAAA 0008)
(25) Detection Limit (Lab; Techniques,Ref) (ppm): .001, GAS CHROMATOGRAPHY, (BNW31* 0016)
(26) Standard Codes: EPA 311; NFPA - 3,2,3; ICC - (SOLUTIONS) CLASS B POISON, POISON LABEL, 65 LBS IN AN OUTSIDE CONTAINER; NO USCG; IATA - (DRY) EXPLOSIVE, NOT ACCEPTABLE PASSENGER OR CARGO, (<15% WET) FLAMMABLE SOLID, YELLOW LABEL, 12 KG PASSENGER AND CARGO, (SOLUTION) POISON B, POISON LABEL, 1 LITER PASSENGER, 30 KG CARGO; SUPERFUND DESIGNATED (HAZARDOUS SUBSTANCES) LIST.
(27) Flammability: MODERATE. COMBUSTION PROBABLE.
(30) Toxic Combustion Prod.: HIGHLY TOXIC, ENTER WITH GREAT CAUTION.
(34) Explosiveness: MODERATE WHEN EXPOSED TO HEAT REACTIVE AT HIGH TEMPERATURE OR PRESSURE.
(37) Melting Point (C.): 112 TO 114
(38) Melting Characteristics: 112 TO 114 DEGREES CELSIUS; SUBLIMES WHEN CAREFULLY HEATED. (MERCK* 83/WIN) UPDATED 3/84
(41) Solubility (ppm @ 25C): 195
(42) Solubility Characteristics: 109 DEGREES CELSIUS
(43) Specific Gravity: 1.683
(46) Vapor Density: 6.35
(49) Biochemical Oxygen Demand Text:

(Lb/Lb)	%Theo	Days	Seed	Method	Reference
< 1	7.7%	.94	PURE BACTERIAL CULTURE		C10*** 0001

(50) Persistency: APPEARS MODERATELY RESISTANT TO BIODEGRADATION.
(51) Potential for Accumulation: HIGHLY TOXIC NATURE OF MATERIAL UNDER CHRONIC EXPOSURE CONDITIONS SUGGESTS ACCUMULATIVE EFFECTS.
(58) Fresh Water Toxicity Text:

Conc.	Expos (Hr)	Specie	Effect	Test Environment	Reference
200	.3	MINNOW	DIED	NEUTRAL	CWQPAV 0001
30		MINNOWS	MLD		"
6		DAPHNIA	TOXIC	23 DEGREES	"
35-38	6	MINNOWS	OVERTURN	HARD	"
40		SCENEDESMUS	TOXIC	24 DEGREES	"
.5-1	6	MINNOWS	OVERTURN	DISTILLED	"
> 100		E COLI	TOXIC	27 DEGREES	"
100		LYMNAEID SNAILS	<100% LETHAL		AJVRAH 0001

(62) Salt Water To ıty Text:

Conc.	Expos (Hr)	Specie	Effect	Test Environment	Reference
10	3	LEMON SHARK	NO TOXIC EFFECT	STATIC	R109** 0001

(64) Animal Toxicity Text:

Value	Time	Species	Param.	Route	Ref.
30		RAT	LD50	ORL	12VXA5 0001
20		"	"	IPR	JWPFA5 0017
25		"	"	SCU	"
13		BRD	"	ORL	"
100		RAT	LD	"	APD*** 0001
50		DOG	"	"	"
30		"	"	"	"
200		RBT	"	"	"
700		GPG	"	SKN	"
25		DOG	"	SCU	"
30		RBT	"	"	"
50		DOG	"	"	"
30		"	"	IVN	"

(71) Chronic Waterfowl Toxicity Limit (ppm): 25

(72) Chronic Waterfowl Toxicity Limit (Reference): (E188** 0001)

(79) Major Species Threatened: ALL SPECIES

(86) Direct Contact: IRRITANT - ALLERGEN SKIN.

(87) General Sensation: CAN BE ADSORBED THROUGH SKIN. INCREASES METABOLISM CAUSING RISE IN TEMPERATURE, SWEATING, COLLAPSE AND DEATH. MAY CAUSE DERMATITIS, CATARACTS, WEIGHT LOSS, GRANULOCYTOPENIA, POLYNEUROPATHY, OF EXFOLIATIVE DERMATITIS. CAN DAMAGE LIVER AND KIDNEYS. PUPILS DILATE AFTER INGESTION.

(102) Recommended Drinking Water Limits (ppm): .001

(103) Recommended Drinking Water Limits (Reference): (C12*** 0001)

(104) Body Contact Exp. (ppm): .01

(105) Body Contact Exp. (Reference): PHENOL (34DZAP 0001)

(106) Prolonged Human Contact (ppm): .001

(107) Prolonged Human Contact (Reference): (SALT) (E188** 0001)

(108) Personal Safety Precautions: FULL GASTIGHT PROTECTIVE CLOTHING AND SELF-CONTAINED BREATHING APPARATUS REQUIRED.

(109) Acute Hazard Level: THRESHOLD DOSES IN RATS .031 MG/KG AND .6 MG/L VAPORS AT 40 MG/M3 HAVE PROVED FATAL. HIGHLY TOXIC VIA ALL ROUTES. IRRITANT AND ALLERGEN. EMITS HIGHLY TOXIC VAPORS WHEN HEATED TO DECOMPOSITION. THRESHOLD CONCENTRATION FOR FISH, FRESHWATER - 1 PPM, SALT - 5 PPM AS PHENOL (E188** 0001).

(110) Chronic Hazard Level: BOATING OR FISHING LEVEL SHOULD BE < 10 PPM. HIGHLY TOXIC VIA ALL ROUTES WITH CHRONIC EXPOSURE AT SUBLETHAL LEVELS. IRRITANT AND ALLERGEN. IF SOLID IS SPILLED, MAY STAY ON BOTTOM AND RELEASE EQUILIBRIUM LEVELS FOR EXTENDED PERIOD OF TIME.

(111) Degree of Hazard to Public Health: HIGHLY TOXIC VIA ALL ROUTES (ACUTE AND CHRONIC). IRRITANT AND ALLERGEN. EMITS HIGHLY TOXIC VAPORS WHEN HEATED TO DECOMPOSITION.

(112) Air Pollution: HIGH

(113) Action Levels: NOTIFY AIR AND FIRE AUTHORITY. EVACUATE AREA. ENTER FROM UPWIND. REMOVE IGNITION SOURCE. WARN CIVIL DEFENSE OF POTENTIAL EXPLOSION.

(114) In Situ Amelioration: DREDGE SOLIDS. FOR SOLUTIONS, TREAT WITH

ACTIVATED CAR. OR PEAT. SOLUTIONS MAY REQUIR EUTRALIZATION WITH ACETIC ACID. SEEK PROFESSIONAL ENVIRONMENTAL ENGINEERING ASSISTANCE THROUGH EPA'S ENVIRONMENTAL RESPONSE TEAM (ERT), EDISON, NJ, 24-HOUR NO. 201-321-6660.

(115) Beach/Shore Restoration: DO NOT BURN

(116) Aval. of Countermeasure Material: CARBON - WATER TREATMENT PLANTS, SUGAR REFINERIES; PEAT - NURSERIES, FLORAL SHOPS.

(117) Disposal Method: 1) POUR ONTO SODIUM BICARBONATE OR A SAND-SODA ASH MIXTURE (90/10). MIX IN HEAVY PAPER CARTONS AND BURN IN INCINERATOR. MAY AUGMENT FIRE WITH WOOD OR PAPER. 2) BURN PACKAGES OF NO. 1 IN INCINERATOR WITH AFTERBURNER AND ALKALINE SCRUBBER. 3) DISSOLVE IN FLAMMABLE SOLVENT AND BURN IN INCINERATOR OF NO. 2.

(118) Disposal Notification: CONTACT LOCAL AIR AUTHORITY.

(119) Industrial Fouling Pot.: MAY BE EXPLOSIVE HAZARD WHEN CONFINED IN BOILER FEED OR COOLING SYSTEM WATER.

(120) Effects on Water Treatment Process: AT 100 PPM, CAN PRODUCE 50% INHIBITION OF OXYGEN UTILIZATION PHENOLS CAN BE CHLORINATED AT WATER TREATMENT INTAKES AND PRODUCE UNACCEPTABLE TASTES AT LOW CONCENTRATIONS.

(121) Major Water Use Threatened: ALL USES.

(122) Probable Location and State of Material: YELLOW CRYSTALS. WILL SINK AND DISSOLVE INTO WATER SLOWLY. MAY BE SHIPPED IN SOLUTION.

(125) Color in Water: YELLOW.

(126) Adequacy of Data: FAIR

(1) Accession Numb 7800119
(2) CAS Registry Number: 573-56-8
(3) SIC Code: 2865; 2869; 2892
(4) Material Name: $$$ 2,6-DINITROPHENOL $$$
(5) Synonyms: O-DINITROPHENOL; .BETA.-DINITROPHENOL; DNP
(6) Tradename (Company): DNP
(7) Chemical Formula: C6H3OH(NO2)2
(8) Species in Mixture: COMMERCIAL PRODUCT IS USUALLY A MIXTURE OF THE 2,3-, 2,4-, AND 2,6- ISOMERS.
(9) Common Uses: DYES, ESPECIALLY SULFUR COLORS; PICRIC ACID; PICRAMIC ACID; PRESERVATION OF LUMBER; MANUFACTURE OF PHOTOGRAPHIC DEVELOPER DIAMINOPHENOL HYDROCHLORIDE; EXPLOSIVES MANUFACTURE.
(10) Transport, Rail (%): 14.8
(11) Transport, Barge(%): 79.6
(12) Transport, Truck (%): 5.6
(15) General Storage Procedure: KEEP CONTAINERS TIGHTLY CLOSED, AVOID HEAT, AND AVOID STORAGE WITH LESS THAN 15% WATER. PROTECT FROM PHYSICAL DAMAGE.
(16) General Handling Procedure: AVOID CONTACT WITH THE MATERIAL. WEAR SAFETY GLASSES, SELF-CONTAINED BREATHING APPARATUS, PROTECTIVE CLOTHING, BUTYL RUBBER GLOVES AND PROTECTIVE SHOES.
(17) Production Sites: AMERICAN HOECHST CORP., INDUSTRIAL CHEMICALS DIV., ORGANIC INTERMEDIATES DEPT., NORTH HOLLYWOOD, CA.
(20) Binary Reactants: INCOMPATIBLE WITH REDUCING AGENTS.
(26) Standard Codes: EPA 311; TSCA; IATA WITH LESS THAN 15% WATER, EXPLOSIVE, NO LABEL REQUIRED, NOT ACCEPTABLE PASSENGER OR CARGO; WITH NOT LESS THAN 15% WATER, FLAMMABLE SOLID, FLAMMABLE SOLID LABEL, 12 KGS PASSENGER, 12 KGS CARGO; SOLUTIONS POISON CLASS B, POISON LABEL, 1 LTR PASSENGER, 32 KGS CARGO; CFR 49 POISON CLASS B, POISON LABEL, 1 QT PASSENGER, 65 LB CARGO; CFR 14 CAB CODE 8; NOT LISTED NFPA; AAR, BUREAU OF EXPLOSIVES STCC 4921425; SUPERFUND DESIGNATED (HAZARDOUS SUBSTANCES) LIST.
(27) Flammability: COMBUSTIBLE, WILL SUPPORT ITS OWN COMBUSTION.
(30) Toxic Combustion Prod.: DISSOCIATION INTO IRRITATING NITROGEN OXIDES.
(31) Extinguishing Method: USE APPROPRIATE MEDIA TO SUPPRESS EXPOSURE FIRE. WATER MAY BE USED ON MATERIAL ITSELF, REMOTE FIRE FIGHTING TECHNIQUES ARE ADVISED.
(34) Explosiveness: SALTS OF DNP EXPLODE WHEN HEATED. DRY STATE IS ALSO EXPLOSIVE.
(37) Melting Point (C.): 63 TO 64
(38) Melting Characteristics: 63 TO 64 DEGREES CELSIUS (MERCK* 83/WIN) UPDATED 3/84
(42) Solubility Characteristics: SLIGHTLY SOLUBLE IN WATER.
(46) Vapor Density: 6.35
(53) Etiological Potential: WILL STIMULATE BODY CELL METABOLISM WILL EXERT DIRECT ACTION ON THE CEREBRUM AND LOWER BRAIN CENTERS (CONSISTING OF STIMULATION FOLLOWED BY DEPRESSION), MAY PRODUCE A NECROTIZING TUBULAR INJURY OF THE KIDNEYS (I60*** 0001).
(54) Carcinogenicity: 2,6-DINITROPHENOL IS A NIOSH SUSPECTED CARCINOGEN (I18*** 0001).
(58) Fresh Water Toxicity Text:

Conc.	Expos (Hr)	Specie	Effect	Test Environment	Reference
46.3-51.6	48	BLUEGILL SUNFISH	TLM	20 DEGREES CELSIUS	CWQPAV 0001

Jim Kopatik
3931

MSDS being sent by Bill Wigrey Emergency Response for Mobay Chemical Co.
412-777-214

(64) Animal Toxici Text:

Value	Time	Species	Param.	Route	Ref.
40		PIGEON	LDLO	IMS	I18*** 0001

(67) Livestock Toxicity (ppm): 1000
(68) Livestock Toxicity (Reference): AS PHENOL, I02*** 0001
(69) Acute Waterfowl Toxicity (ppm): 25
(70) Acute Waterfowl Toxicity (Reference): AS NITROPHENOL (I356** 0001)
(77) Chronic Plant Toxicity Limit (ppm): 50
(78) Chronic Plant Toxicity Limit (Reference): AS PHENOL (I02*** 0001)
(79) Major Species Threatened: FISH AND FISH FOOD ORGANISMS
(80) Taste Imparting Characteristics (ppm): .001
(81) Taste Imparting Characteristics (Reference): AS PHENOL (CWQPAV 0001)
(86) Direct Contact: CORROSIVE TO SKIN AND MUCOUS MEMBRANES (I60*** 0001). MAY PRODUCE DERMATITIS. REMOVE THOROUGHLY FROM THE SKIN WITH HOT SOAPY WATER. MAY BE ABSORBED THROUGH THE SKIN.
(87) General Sensation: CONTACT WILL LEAD TO YELLOW STAIN ON EXPOSED PART OF BODY, MACULOPAPULAR DERMATITIS, HEADACHE, ANOREXIA (LOSS OF APPETITE), NAUSEA, VOMITING, ABDOMINAL PAIN, DIARRHEA, FEVER, PAIN IN CHEST, DIFFICULT BREATHING, PROFUSE SWEATING AND THIRST, DIZZINESS, FATIGUE, JAUNDICE, CRAMPS IN LEGS, CYANOSIS, ANXIETY, PULMONARY EDEMA, CONVULSIONS, CATARACTS, ALBUMINURIA, HEMATURIA, OLIGURIA, URINE MAY BE ORANGE COLORED.
(88) Odor Threshold, Lower (ppm): .021
(89) Odor Threshold, Lower (Reference): AS PHENOL (I251** 0001)
(102) Recommended Drinking Water Limits (ppm): .001
(103) Recommended Drinking Water Limits (Reference): AS PHENOL (I345** 0001)
(104) Body Contact Exp. (ppm): 50
(105) Body Contact Exp. (Reference): I356** 0001
(106) Prolonged Human Contact (ppm): 7
(107) Prolonged Human Contact (Reference): I356** 0001
(108) Personal Safety Precautions: PROTECT AGAINST BOTH INHALATION AND CONTACT WITH THE SKIN. MUST WEAR PROTECTIVE CLOTHING INCLUDING NIOSH APPROVED BUTYL RUBBER GLOVES AND BOOTS, SAFETY GOGGLES OR FACE MASK, AND SELF-CONTAINED BREATHING APPARATUS. PRECLUDE FROM EXPOSURE THOSE INDIVIDUALS WITH THYROID, LIVER, OR KIDNEY DISEASES. CARE MUST BE EXERCISED TO DECONTAMINATE ALL EQUIPMENT AFTER USE.
(109) Acute Hazard Level: DINITROPHENOL IS RAPIDLY ABSORBED THROUGH INGESTION, INHALATION, AND SKIN CONTACT. THE FATAL DOSE IN ADULTS IS ABOUT 1-3 GRAMS BY MOUTH, AND 3 GRAMS HAS PROVEN FATAL EVEN IN DIVIDED DOSES OVER A PERIOD OF 5 DAYS. UNLIKE RATS AND RABBITS, MAN DOES NOT DETOXIFY OR ELIMINATE DINITROPHENOL RAPIDLY. THE METABOLISM OF ALL BODY CELLS IS STIMULATED BY CONTACT WITH DINITROPHENOL. IT IS CORROSIVE TO THE SKIN AND MUCOUS MEMBRANES, EFFECTS THE BRAIN BY STIMULATION FOLLOWED BY DEPRESSION (I60*** 0001). FATAL CASES HAVE BEEN REPORTED FROM THE INHALATION OF 40 MG/CU M. THERE WILL BE LIVER AND KIDNEY DAMAGE (I13*** 0001). THE 48 HOUR TLM TO BLUEGILL SUNFISH IS 46.3-51.6 PPM, AS O-NITROPHENOL (I05*** 0001).
(110) Chronic Hazard Level: ON PROLONGED CONTACT THERE IS A CHANCE OF LIVER AND KIDNEY DAMAGE, AS WELL AS POSSIBLE DEVELOPMENT OF CATARACTS (I160** 0001). REPEATED DAILY EXPOSURES MAY CAUSE INDIVIDUALS TO COMPLAIN OF LASSITUDE, HEADACHE, AND MALAISE,

WHILE OTHERS ERIENCE A DISARMING SENSE OF BEING, ENERGY AND DRIVE. OVE...ATING EXAGGERATES THE METABOLIC ACTIONS AND SUBSEQUENT TOXICITY OF DINITROPHENOL (I60*** 0001). THE OSHA STANDARD FOR DINITROPHENOL IN AIR IS .2 MG/CU M (I160** 0001).

(111) Degree of Hazard to Public Health: THERE IS AN EXPLOSION HAZARD WHEN DRY MATERIAL IS SHOCKED OR HEATED. IT IS VERY POISONOUS WHEN INGESTED, AND IT WILL PRODUCE TOXIC SYMPTOMS WHEN ABSORBED THROUGH THE SKIN. THE MATERIAL IS ALSO CORROSIVE TO THE SKIN AND MUCOUS MEMBRANES. IT IS A METABOLISM STIMULANT.

(112) Air Pollution: DINITROPHENOL IS VERY TOXIC THROUGH INHALATION OF THE DUST.

(113) Action Levels: AVOID CONTACT WITH THE SPILLED CARGO. NOTIFY LOCAL AIR, WATER, AND FIRE AUTHORITIES OF THE ACCIDENT. EVACUATE ALL PEOPLE TO A DISTANCE OF AT LEAST 200 FEET UPWIND AND 1000 FEET DOWNWIND OF THE SPILL. INCREASE DISTANCE IF FIRE IS IMMINENT.

(114) In Situ Amelioration: DAM STREAM IF POSSIBLE TO REDUCE THE FLOW AND PREVENT FURTHER DISSIPATION BY WATER MOVEMENT. ACTIVATED CARBON MAY BE USED TO ADSORB SOME OF THE DISSOLVED MATERIAL. BOTTOM PUMPS OR UNDERWATER VACUUM SYSTEMS MAY BE EMPLOYED IN SMALL BODIES OF WATER, DREDGING MAY BE EFFECTIVE IN LARGER BODIES TO REMOVE UNDISSOLVED MATERIAL AND ADSORBENT FROM THE BOTTOM. SEEK PROFESSIONAL ENVIRONMENTAL ENGINEERING ASSISTANCE THROUGH EPA'S ENVIRONMENTAL RESPONSE TEAM (ERT), EDISON, NJ, 24-HOUR NO. 201-321-6660.

(116) Aval. of Countermeasure Material: CARBON - WATER TREATMENT PLANTS, CHEMICAL COMPANIES; PUMPS - FIRE STATIONS, ARMY CORPS OF ENGINEERS; VACUUM SYSTEMS-SWIMMING POOL OPERATORS.

(117) Disposal Method: AFTER MATERIAL HAS BEEN CONTAINED, MIX WITH WET SAND, THEN SCRAPE UP MIXTURE AND CONTAMINATED SOIL, AND TRANSPORT TO AN APPROVED SANITARY LANDFILL. ANOTHER DISPOSAL METHOD WOULD BE TO INCINERATE EITHER IN AN OPEN FURNACE OR MORE EFFICIENTLY IN THE FURNACE WITH AFTERBURNER AND SCRUBBER. A SMALL SPILL MAY BE FLUSHED TO THE SEWER WITH MUCH WATER.

(118) Disposal Notification: NOTIFY LOCAL AND STATE HEALTH AUTHORITIES, LOCAL SOLID WASTE DISPOSAL AUTHORITIES, SUPPLIER AND SHIPPER OF MATERIAL.

(122) Probable Location and State of Material: YELLOWISH CRYSTALS WILL SINK AND DISSOLVE SLOWLY.

(124) Water Chemistry: WILL GIVE ACID SOLUTION

(125) Color in Water: COLORLESS TO YELLOWISH

(126) Adequacy of Data: GOOD

(1) Accession Nu r 8400310
(2) CAS Registry Number: 329-71-5
(4) Material Name: $$$ 2,5-DINITROPHENOL $$$
(5) Synonyms: PHENOL, 2,5-DINITRO- (9CI); RTECS NO. SL2900000; 2,5-DNP; PHENOL, .GAMMA.-DINITRO-;
(7) Chemical Formula: C6H4N2O5; (NO2)2C6H3OH
(9) Common Uses: MANUFACTURING OF DYES AND ORGANIC CHEMICALS AND AS A PH INDICATOR. PRESERVATION OF TIMBER AND MANUFACTURE OF PHOTOGRAPHIC DEVELOPER. (14CYAT 2A,81/CLA)
(14) Containers: DOT APPROVED CONTAINERS FOR DINITROPHENOL SOLUTIONS IN PACKAGING REQUIREMENT 173.362A, EXCEPTIONS IN 173.345. MAXIMUM NET QUANTITY PER PACKAGE ON PASSENGER RAILCAR OR AIRCRAFT, 1 QUART. MAXIMUM NET QUANTITY PER PACKAGE ON CARGO AIRCRAFT, 65 POUNDS. (49CFR* 172.101,7-7-83/DOT)
(24) Detection Limit (Field; Techniques,Ref) (ppm): SPOT TEST FOR M-NITROPHENOL, PAGE 56. DETECTION LIMIT 3 .MU.G. (ME005* 66/FEI) SPOT TESTS FOR O-PLUS P-NITROPHENOL, PAGE 589. DETECTION LIMIT 2 .MU.G. (ME005* 66/FEI) EIGHT SPOT TESTS FOR PHENOLS. (ME005* 66/FEI)
(25) Detection Limit (Lab; Techniques,Ref) (ppm): IN WATER (FOR DRINKING, SURFACE, SALINE, DOMESTIC WASTE, INDUSTRIAL WASTE), DERIVATIZE AFTER DISTILLATION, THEN UV/VIS. MEASURES TOTAL PHENOLICS--EPA METHOD 420.3. DETECTION LIMIT 0.002 PPM. (ME014* 78/KOP) IN WASTEWATER, EXTRACTION THEN GC/FID. PRIORITY POLLUTANT METHOD 604, OPTIONAL PFB DERIVATIVE WITH GC/ECD; NOT VALIDATED FOR THIS COMPOUND. (FEREAC 44FR69484, 12-3-79) IN WASTEWATER, EXTRACTION THEN GC/MS. DETECTION LIMIT 0.025 PPM. PRIORITY POLLUTANT METHOD 625. NOT VALIDATED FOR THIS COMPOUND. (FEREAC 44FR69540, 12-3-79)
(26) Standard Codes: SUPERFUND DESIGNATED (HAZARDOUS SUBSTANCES) LIST. NO HAZARDOUS (RCRA) WASTE NO. REPORTABLE QUANTITY (RQ): 1000 LB (STATUTORY SOURCE UNDER CERCLA IS CLEAN WATER ACT SECTION 311(B)(4).) PROPOSED RQ 100 LB (45.4 KG) (CATEGORY B). (FEREAC 48FR23551, 5-25-83) DOT--DINITROPHENOL SOLUTION. HAZARD CLASS: POISON B. UN NO. 1599. LABEL: POISON. PACKAGING REQUIREMENTS, 173.362A; EXCEPTIONS, 173.345. MAXIMUM NET QUANTITY PER PACKAGE ON PASSENGER AIRCRAFT OR RAILCAR, 1 QUART. MAXIMUM NET QUANTITY PER PACKAGE ON CARGO AIRCRAFT. ON PASSENGER AND CARGO VESSELS STOW ON OR UNDER DECK. STOW AWAY FROM HEAVY METALS AND THEIR COMPOUNDS. IF FLASH POINT IS 740 DEGREES FAHRENHEIT OR LESS SEGREGATE SAME AS FOR FLAMMABLE LIQUID. (49CFR* 172.101,7-7-83/DOT) DOT--(LISTED IN THE OPTIONAL HAZARDOUS MATERIALS TABLE) DINITROPHENOL, DRY OR WETTED WITH LESS THAN 15 PERCENT WATER, BY WEIGHT: IMCO CLASS, 1.1D (EXPLOSIVES). UN NO. 0076. LABELS: EXPLOSIVE (1.1D), POISON. DINITROPHENOL, SOLUTION IN WATER OR FLAMMABLE LIQUID. IMCO--CLASS 6.1; UN NO. 1599. LABELS: POISON, FLAMMABLE LIQUID (ONLY IF FLASHPOINT BETWEEN 23 AND 61 DEGREES CELSIUS. PACKAGING GROUP II. FORBIDDEN ON PASSENGER VESSELS. STOW ON OR UNDER DECK ON CARGO VESSELS. STOW AWAY FROM HEAVY METALS AND THEIR COMPOUNDS. SEGREGATE AS FOR FLAMMABLE LIQUID IF FLASHPOINT BELOW 61 DEGREES CELSIUS. DINITROPHENOL, WETTED WITH, BY WEIGHT, AT LEAST 15% WATER: IMCO CLASS 4.1 UN NO. 1322. LABELS: FLAMMABLE SOLID, POISON. PACKAGING GROUP I. STOWAGE SAME AS PREVIOUS ENTRY, EXCEPT FLASHPOINT SPECIFICATIONS. (49CFR* 172.102,10-31-83/DOT)
(27) Flammability: FLAMMABLE (85EWAF 80/DOT)
(31) Extinguishing Method: IN FIGHTING A MASSIVE FIRE IN A CONFINED

SPACE SUCH AS . RGO AREA, USE UNMANNED HOSE H(R OR MONITOR NOZZLES. IF THESE ARE UNAVAILABLE, WITHDRAW AND LET FIRE BURN. DO NOT MOVE CONTAINERS IF THEY HAVE BEEN EXPOSED TO HEAT. RUNOFF TO SEWER MAY CREATE FIRE OR EXPLOSION HAZARD. (85EWAF 80/DOT)

(34) Explosiveness: DRIED-OUT MATERIAL MAY EXPLODE IF EXPOSED TO HEAT, FLAME, OR SHOCK. (85EWAF 80/DOT)

(37) Melting Point (C.): 108

(38) Melting Characteristics: 108 DEGREES CELSIUS. (CHCPDT 61,80/WEA)

(41) Solubility (ppm @ 25C): 680

(42) Solubility Characteristics: 0.068 G/100 ML (680 PPM) AT 35 TO 36 DEGREES CELSIUS. (JPPMAB 11,462,59/HAR) SLIGHTLY SOLUBLE IN WATER OR COLD ALCOHOL; SOLUBLE IN HOT ALCOHOL, ETHER, FIXED ALKALI HYDROXIDES. (MEIEDD 76/WIN)

(43) Specific Gravity: 1.672 TO 1.702 (DENSITIES OF ALL DINITROPHENOLS LIE BETWEEN 1.672 AND 1.702.)(MMIV** 79/KIN)

(50) Persistency: RATED NONBIODEGRADABLE. (LSBCW* 1,81/GEA)

(51) Potential for Accumulation: RAPIDLY ELIMINATED FROM THE BLOOD OF TEST ANIMALS. (JPPMAB 11,462,59/HAR) LOG P OF 2.00 SUGGESTS SOME CAPABILITY FOR BIOACCUMULATION. (ISHOW ONLINE 4/84)

(53) Etiological Potential: MAY COMPLICATE ANEMIA AND HEART DISEASE BECAUSE OF THE FORMATION OF METHEMOGLOBIN.

(64) Animal Toxicity Text:

Value	Time	Species	Param.	Route	Ref.
150		RAT	LD50	IPR	JPPMAB 11,462,59/HAR.

(83) Inhalation Limit (Text): THERE ARE NO OSHA REGULATIONS, NO NIOSH RECOMMENDATIONS, AND NO ACGIH RECOMMENDATIONS.

(86) Direct Contact: MAY CAUSE IRRITATION OR BURNS TO SKIN OR DERMATITIS. ABSORBED READILY THROUGH INTACT SKIN AND RESPIRATORY TRACT. (MMIV** 79/KIN)

(87) General Sensation: MAY CAUSE INCREASE IN METABOLISM OR TEMPERATURE, DERMATITIS, AND EYE AND NERVE DAMAGE. (MMIV** 79/KIN)

(108) Personal Safety Precautions: IN EMERGENCY SITUATIONS, WEAR POSITIVE-PRESSURE BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. (85EWAF 80/DOT)

(109) Acute Hazard Level: POISON. MAY BE FATAL IF INHALED, SWALLOWED, OR ABSORBED THROUGH THE SKIN. (85EWAF 80/DOT) EXPOSURE TO HIGHER TEMPERATURES IN MICE INCREASED TOXICITY. (JPPMAB 11,462,59/HAR)

(110) Chronic Hazard Level: CHRONIC EXPOSURE TO THE HOMOLOG 2,4-DINITROPHENOL CAUSES KIDNEY AND LIVER DAMAGE AND CATARACT FORMATION. NEUTROPENIA, SKIN RASHES, AND PERIPHERAL NEURITIS HAVE OCCURRED OCCASIONALLY AFTER INGESTION. (HTAHC* 81/SIT)

(113) Action Levels: KEEP UNNECESSARY PEOPLE AWAY. STAY UPWIND; KEEP OUT OF LOW AREAS. ISOLATE HAZARD AREA AND DENY ENTRY. (85EWAF 80/DOT)

(114) In Situ Amelioration: SEEK PROFESSIONAL ASSISTANCE FROM EPA'S ENVIRONMENTAL RESPONSE TEAM (ERT), EDISON, NJ, 24-HOUR NUMBER (201) 321-6660. CONTAIN AND ISOLATE SPILL TO LIMIT SPREAD. CONSTRUCT SWALE TO DIVERT UNCONTAMINATED PORTION OF WATERSHED AROUND CONTAMINATED PORTION. ISOLATION PROCEDURES INCLUDE CONSTRUCTION OF DAMS, INTERCEPTOR TRENCHES, OR IMPOUNDMENTS. SEEK PROFESSIONAL HELP TO EVALUATE PROBLEM AND IMPLEMENT CONTAINMENT PROCEDURES. CONDUCT BENCH-SCALE AND PILOT-SCALE TESTS PRIOR TO IMPLEMENTATION OF FULL-SCALE DECONTAMINATION PROGRAM. FOR DENSITY STRATIFICATION AND IMPOUNDMENT, REMOVE PRODUCT FROM BOTTOM LAYER BY PUMPING THROUGH MANIFOLD OR BY

POLYETHYLENE R COLLECTION OR REMOVE CLARIFIE. PER PORTION BY SKIMMERS OR SIPHONING. SOLIDS MAY BE REMOVED IN SETTLING BASINS. TREATMENT IS REQUIRED FOR BOTH CLARIFIED AND CONCENTRATED PRODUCT FRACTIONS. CONTAMINATED WATER MAY BE IMPOUNDED IN A LINED PIT WITH LEACHATE COLLECTION SYSTEM AND DOMED COVER. DILUTE THE SPILL WITH WATER TO FORM A NONFLAMMABLE MIXTURE FOR TRANSPORT TO REMOTE SITE FOR TREATMENT. TREATMENT ALTERNATIVES FOR CONTAMINATED SOILS INCLUDE WELL POINT COLLECTION WITH TREATMENT OF LEACHATES AS FOR CONTAMINATED WATERS AND BENTONITE/CEMENT GROUND INJECTION TO IMMOBILIZE SPILL. PHYSICALLY REMOVE IMMOBILIZED RESIDUES. PLACE IMMOBILIZED RESIDUES IN A LINED PIT WITH LEACHATE COLLECTION SYSTEM AND DOMED COVER. CONTAMINATED SOIL OR IMMOBILIZED RESIDUES MAY BE PACKAGED FOR DISPOSAL. CONFIRM ALL TREATMENT PROCEDURES WITH RESPONSIBLE ENVIRONMENTAL ENGINEER AND REGULATORY OFFICIALS.

(117) Disposal Method: PRODUCT RESIDUES AND SORBENT MEDIA MAY BE PACKAGED IN 17H EPOXY LINED DRUMS AND DISPOSED OF AT A RCRA-APPROVED SECURE LANDFILL. DESTROY BY HIGH TEMPERATURE INCINERATION WITH SCRUBBING EQUIPMENT. CONFIRM DISPOSAL PROCEDURES WITH RESPONSIBLE ENVIRONMENTAL ENGINEER AND REGULATORY OFFICIALS. EXTRACTION WITH ETHER OR BENZENE MAY WORK FOR WATER DECONTAMINATION. HOWEVER, BECAUSE OF THE DANGER INVOLVED, EXTENSIVE BENCH-SCALE STUDIES ARE SUGGESTED BEFORE ACTUAL OPERATION. ALTERNATIVELY, THE CONTAMINATED WATER MAY BE INCINERATED.

(122) Probable Location and State of Material: SLIGHTLY SOLUBLE YELLOW CRYSTALS WILL SINK AND DISSOLVE. (MEIEDD 76/WIN)

(125) Color in Water: COLORLESS AT PH 4.0.; YELLOW AT PH 5.4. (MEIEDD 76/WIN)

MATERIAL SAFETY DATA SHEET

SANDOZCHEMICALS
4000 MONROE ROAD
CHARLOTTE N.C. 28205

2, 4 DINITROPHENOL PASTE (MAROXOL 50)
3-7120-4-100

REVISED DATE: 01/31/87
PAGE: 1

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CHEMTREC: (800) 424-9300

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H M I S

HEALTH	3
FLAMMABILITY	2
REACTIVITY	3
PERSONAL PROTECTION	E

A. PRODUCT IDENTIFICATION

TRADE NAME: 2, 4 DINITROPHENOL PASTE (MAROXOL 50) CAS NO: 51-28-5
SYNONYMS: 2,4-DINITRO PHENOL; 2,4-DNP; DNP
CHEMICAL FAMILY: AROMATIC NITRO COMPOUND
FORMULA: C6H4N2O5

B. HAZARDOUS COMPONENTS

COMPONENT	CAS NO.	%	PEL/TLV
2,4-DINITROPHENOL	51-28-5	85-90	NOT ESTABLISHED

C. PHYSICAL PROPERTIES

BOILING POINT ('F): SUBLIMES
SPECIFIC GRAVITY: 1.68
VAPOR PRESSURE (MM HG): NOT AVAILABLE
PERCENT VOLATILE (BY WEIGHT): 10-15
VAPOR DENSITY (AIR = 1): 6.35
EVAPORATION RATE: NOT AVAILABLE
SOLUBILITY IN WATER: 195 PPM @ 20C
PH (% IN WATER): NOT AVAILABLE
APPEARANCE AND ODOR: YELLOW NEEDLES, SLIGHT ODOR

D. FIRE & EXPLOSION DATA

FLASH POINT ('F): EXPLODES-DRY FLAMMABLE LIMITS: LEL UNKNOWN UEL UNKNOWN
EXTINGUISHING MEDIA: WATER X ALCOHOL FOAM X CO2 X DRY CHEMICAL X
SPECIAL FIRE FIGHTING PROCEDURES:
FIGHT FIRE FROM EXPLOSION-RESISTANT LOCATION. IN ADVANCED OR MASSIVE FIRES THE AREA SHOULD BE EVACUATED. IF FIRE OCCURS IN VICINITY OF THIS MATERIAL, WATER SHOULD BE USED TO KEEP CONTAINERS COOL. WEAR SELF-CONTAINED BREATHING APPARATUS. WEAR GOGGLES IF EYE PROTECTION NOT PROVIDED.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
THIS MATERIAL SUPPORTS ITS OWN COMBUSTION, BURNING WITH A SMOKEY FLAME. TOXIC GASES MAY BE GIVEN OFF. SALTS OF THIS MATERIAL MAY EXPLODE ON HEATING.

E. REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: HEAT AND STORAGE WITH <10% WATER

HAZARDOUS POLYMERIZATION : WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATABILTY:
REDUCING AGENTS, HEAT, STRONG BASES, AND ACETYLENE GAS
HAZARDOUS DECOMPOSITION PRODUCTS :
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON AND NITROGEN.

F. PERSONAL PROTECTIVE EQUIPMENT INFORMATION

RESPIRATORY PROTECTION:
USE NIOSH APPROVED RESPIRATOR OR DUST MASK.

PROTECTIVE GLOVES:
BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:
SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

OTHER PROTECTIVE EQUIPMENT:
DISPOSABLE YELLOW TYVEK SUIT IS RECOMMENDED.

G. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: NONE ON PRODUCT LD50 (ORAL-RAT) 30 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: IRRITATING EYE IRRITATION-RABBIT: IRRITATING

EFFECTS OF EXPOSURE:
EXPOSURE TO DINITROPHENOL CAN CAUSE YELLOW STAINING OF EXPOSED SKIN. DERMATITIS MAY OCCUR FROM PRINARY IRRITATION OR ALLERGIC SENSITIZATION. EXPOSURE TO DINITROPHENOL DISRUPTS OXIDATIVE PHOSPHORYLATION WHICH RESULTS IN INCREASED METABOLISM, OXYGEN CONSUMPTION, AND HEAT PRODUCTION. ACUTE HIGH LEVEL EXPOSURE IS CHARACTERIZED BY SUDDEN ONSET OF FATIGUE, THIRST, SWEATING AND OPPRESSION OF THE CHEST. IN LESS SEVERE EXPOSURE CASES, SYMPTOMS INCLUDE NAUSEA, VOMITING, ANOREXIA, WEAKNESS, DIZZINESS, VERTIGO, HEADACHE, AND SWEATING. DNP IS HIGHLY TOXIC BY INGESTION. ORGANS EFFECTED BY EXPOSURE TO DNP ARE SKIN, EYES, KIDNEY, LIVER, CENTRAL NERVOUS SYSTEM, LUNGS, AND BLOOD SYSTEM. DNP HAS BEEN DETERMINED TO BE MUTAGENIC IN BACTERIAL MUTAGENICITY TESTING. LONG TERM INGESTION OF SMALL QUANTITIES HAS BEEN LINKED TO CATARACTS OF THE EYE. HYPERTHERMIA IS AN ACUTE EFFECT OF INGESTION, INHALATION, OR ABSORPTION THROUGH THE SKIN.
DNP IS RECOGNIZED AS BEING A HAZARDOUS MATERIAL AND IS REGULATED BY DOT IN TRANSPORTATION AND BY EPA UNDER THE CLEAN WATER ACT, RESOURCE CONSERVATION AND RECOVERY ACT, AND UNDER THE "SUPERFUND" LAW.

KNOWN EFFECTS ON OTHER ILLNESSES:
PEOPLE WITH KNOWN ALLERGIES MAY REACT TO THIS CHEMICAL.

LISTED CARCINOGEN: NONE X | OSHA NTP IARC OTHER

H. EMERGENCY AND FIRST AID PROCEDURES

SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. SEEK MEDICAL ATTENTION.

INHALATION:
GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

INGESTION:
WHEN THIS CHEMICAL HAS BEEN SWALLOWED, DO NOT INDUCE VOMITING. REMOVE BY GASTRIC LAVAGE AND CATHARSIS.

NOTE TO PHYSICIAN:
NONE KNOWN

I. SPILL AND DISPOSAL INFORMATION

STEPS TO BE TAKEN IN CASE OF SPILL:
WEAR PROPER RESPIRATORY PROTECTION. MOISTEN SLIGHTLY WITH WATER TO REDUCE DUST. SWEEP UP OR SHOVEL INTO APPROPRIATE WASTE COLLECTION CONTAINERS. CLEAN UP BY SCRUBBING WITH SOAP AND WATER OR REMOVAL OF CONTAMINATED SOILS.

WASTE DISPOSAL INFORMATION:
THIS PRODUCT IS A RCRA HAZARDOUS WASTE WHEN IT BECOMES A WASTE MATERIAL. RECOMMENDED DISPOSAL IS BY APPROVED INCINERATION OR BY LANDFILLING IN APPROVED CHEMICAL WASTE LANDFILL.

RCRA HAZARDOUS WASTE: NO YES X RCRA # P048 CERCLA: NO YES X RQ 10#

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

EMERGENCY TELEPHONE: (704) 827-9651
CHEMTREC: (800) 424-9300

J. OTHER REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBTANCES CONTROL ACT.

CWA: THIS PRODUCT CONTAINS THE FOLLOWING PRIORITY POLLUTANTS AND THEIR CONCENTRATION:
CONTAINS 2,4 DINITROPHENOL AT >0.1%
FDA / USDA: THIS PRODUCT IS REGISTERED WITH FDA / USDA NO X YES FOR USE PER SECTIONS:
NONE

DOT: REGULATED YES X NO RQ NONE UN/NA NO. UN2926

SHIPPING NAME: FLAMMABLE SOLID, POISONOUS, N.O.S. (2,4-DINITROPHENONL)(NMFC 43940 RVNX $1.65/LBS).

HAZARD CLASSIFICATION: FLAMMABLE SOLID

K. SPECIAL PRECAUTIONS

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL DRY LOCATION. DO NOT BREATHE DUST. DO NOT GET IN EYES OR ON SKIN. WEAR PROPER PROTECTIVE EQUIPMENT. KEEP CONTAINER TIGHTLY CLOSED.

OTHER PRECAUTIONS:
CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID ANY UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE. NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. SANDOZ CHEMICALS CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

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