U.S. ENVIRONMENTAL PROTECTION AGENCY

ON/SCENE COORDINATORS REPORT
BATTLE OF BULL RUN
MANASSAS, VIRGINIA MARCH, 1980
MAJOR POLLUTION INCIDENT

ON-SCENE COORDINATOR'S REPORT

BATTLE OF BULL RUN

MANASSAS, VA. MARCH, 1980

MAJOR POLLUTION INCIDENT

U. S. Environmental Protection Agency
Middle Atlantic Region III
6th and Walnut Streets
Philadelphia, PA 19106

TABLE OF CONTENTS

MANASSAS, VA
MAJOR POLLUTION INCIDENT
MARCH, 1980
FEDERAL PROJECT NO. 05-100-108-80

VOLUME I

TABLE OF CONTENTS (continued)

MANASSAS, VA
MAJOR POLLUTION INCIDENT
MARCH, 1980
FEDERAL PROJECT NO. 05-100-108-80

VOLUME I

SECTION 1

FOREWORD

FOREWORD

This report is submitted in accordance with procedures outlined in the National Oil and Hazardous Materials Contingency Plan. The primary thrust of the Plan is to provide a coordinated Federal response capability at the scene of an unplanned or sudden discharge of oil or hazardous substance that poses a threat to the public health or welfare. The provisions of the National Contingency Plan were implemented by Environmental Protection Agency, Region III, Philadelphia.

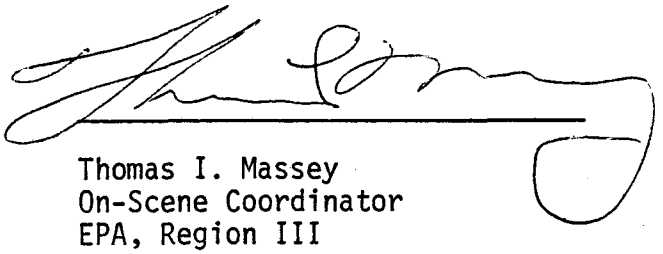
Special thanks are extended to the many agencies and groups who participated in the Federal Removal Activity. This well coordinated team effort on-scene and the assistance and support from the Regional Response Team enabled a timely and efficient cleanup which prevented major contamination of drinking water supplies for 700,000 citizens in Fairfax County, Virginia.

The Commonwealth of Virginia, through the efforts of Ernie Watkins, State Water Control Board, and William Whitehead, Office of Emergency and Energy Services, displayed outstanding abilities coordinating the State's resources during the cleanup activities. Selby Jacobs of Prince William County, Fire and Rescue Service displayed quick and professional resources to initially contain the spread of spilled kerosene. Special appreciation is given to Dr. Thomas Grizzard of the Occoquan Watershed Monitoring Laboratory for his dedication and many long hours spent on-scene.

The Federal agencies I directed on-scene are due special recognition for the professional manner they displayed during the emergency. The United States Coast Guard Atlantic Strike Force Team, Commander D. Jenson and EPA's Environmental Response Team, Steven Dorrler and their respective personnel who aided in establishing site control and coordination of the

scientific communities were outstanding. The Departments of the Army and the Navy and the Fish and Wildlife Service played an important role with their personnel, equipment and expertise which minimized threats to public health and environmental damage.

The continuity of operations, through resources marshalled to deal with changes under emergency conditions, required extra effort by my staff and other Federal, State and local authorities. I wish to thank all of the persons who contributed to the successful response and commend them on their professional and expert handling of this major pollution incident.



Thomas I. Massey
On-Scene Coordinator
EPA, Region III

SECTION 2

INTRODUCTION

INTRODUCTION

In early March, 1980, near highway 234, north of Manassas, Prince William County, Virginia and near highway 611, in Orange County, Virginia, 34 miles away, Colonial Pipeline Company experienced two simultaneous breaks in their 32-inch products pipeline. This resulted in Virginia's largest inland oil spill where approximately 416,000 gallons of kerosene and No. 2 oil spilled into the watersheds of Bull Run and Rapidan River. The spills constituted substantial threats to drinking water plants in Fairfax County and Fredericksburg, Va., and to the sensitive fish and wildlife habitats in those areas.

The spill in Manassas was approximately 326,000 gallons of aviation kerosene of which approximately 252,000 gallons were recovered. In Fredericksburg, on the Rapidan River, approximately 90,000 gallons of No. 2 oil was spilled. Approximately 26,000 gallons were recovered.

The United States Environmental Protection Agency, Region III, acting under Section 311 of the Federal Water Pollution Control Act responded on-scene and directed Federal Removal Activities of the National Contingency Plan. This report includes accounts of the activity in Bull Run, Manassas. The accounts of the spill in the Rapidan River, which were received 48 hours after the initial oil spill report in Manassas, are addressed in a separate OSC report since those activities were conducted independently of the activities described in this report.

Manassas Background

The city of Manassas was founded in the middle 1700's and was primarily a farming community, located about 25 miles southwest of the District of Columbia, and 85 miles northwest of Richmond, Virginia. Today, it is primarily a residential community of people employed in Washington, D.C. and by a growing number of local industries.

Manassas, is in Prince William County, which between 1960 and 1970 exhibited the fastest county growth rate in the United States. The present population of Manassas is 15,000. The population within a surrounding 10 mile radius is 50,000.

The primary water supply for the area is the Occoquan Reservoir. Water is drawn from the reservoir to the Fairfax County Water Authority's Treatment Plant for treatment and distribution. This plant serves approximately 700,000 people, approximately 25 percent of the Washington, D.C. metropolitan area.

Bull Run passes through Manassas, and flows into the Occoquan Reservoir. These water bodies provide a natural habitat for a variety of fish and wildlife. Bull Run Regional Park, a family recreational area is located on the northern side of Bull Run.

SECTION 3

ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS

SECTION 3 - ROSTER

Agencies, Organizations, Individuals
Federal Project 05-100-80
Manassas, Virginia

Names and Addresses	Contact	Brief Description of Work	Personnel on Site
U.S. EPA Region III Environmental Emergency Branch 6th & Walnut Streets Philadelphia, PA 19106	Thomas I. Massey Jeff Hass	OSC RRT Chairman	4
U.S. EPA Environmental Response Team Edison, NJ 08817 Cincinnati, OH 45268	Steve Dorrler Dr. J. Lafornara R. Turpin R. Cilbuskis T. Sell J. Gilbert R. Nadeau	Scientific support coordination organized sampling and stream profiling activities; coordinated on-site mobile lab for analysis on stream samples	7
U.S. EPA Region III Public Information Office 6th & Walnut Streets Philadelphia, PA 19106	George Bochanski	Press liason & Public Spokesperson; coordinated media inquiries	1
U.S. EPA Environmental Photographic Interpretation Center Warrenton, VA 22186	Gordan Howard	Aerial photograhy	2
U.S. EPA 401 M. Street, S.W. Washington, D.C. 20460	Robin Woods Luke Aster Peter Acly Alan Humphrey	Press liason and public spokesperson	4

Names and Addresses	Contact	Brief Description of Work	Personnel on Site
U.S. EPA Oil & Hazardous Material Spill Lab Edison, NJ 08817	Kevin Hoogerhyde Devin Vasilik	Mobile lab activities	2
U.S. Coast Guard 5th District 431 Crawford Street Portsmouth, VA 23705	Comdr. G. Moran William Gregory	RRT Representative Contracting Officer, advised OSC on 311 funding procedures	2
U.S. Coast Guard Atlantic Strike Team Elizabeth City, NC 27909	Comdr. D.S. Jensen Commanding Officer Chief Wayne Jackson	Various site coordination and equipment support activities; supervised work crews at Marina site, provided on-scene command post. Coordinated cleanup logistics	10
U.S. Navy Environmental Protection Division Pentagon Washington, DC 20350	Carl B. Irwin NRT DOD Rep.	Provided manpower and equipment to aid in clean-up operations	1
U.S. Navy Cheasapeake Division Naval Facilites Engineering Command Washington, D.C. 20350	Wayne Wilcox RRT Representative	Provided manpower and equipment to aid in clean-up operation.	10
U.S. Navy Public Works Norfolk, VA 23511	Commander Dillman	Provided Navy 3001 skimmer on-scene	8
U.S. Army Quartermaster School Petroleum & Field Services Dept. 240th Quatermaster Battalion Ft. Lee, VA	Col. Joe Volpe	Provided manpower and equipment to aid in clean-up operations. Provided large amount of men and materials needed to quickly contain and remove kerosene. Provided contingency to recover kerosene (bladder bag).	75
U.S. Army Corps of Engineers P.O. Box 1715 Baltimore, MD 21203	Mordecai Bennett	RRT Representative	1

Names and Addresses	Contact	Brief Description of Work	Personnel on Site
U.S. Army Corps of Engineers 803 Front Street Norfolk, VA 23510	Rodney McCormack	RRT Representative	2
U.S. Fish & Wildlife Services One Gateway Center Newtown Corner, MA 02158	Allen Jackson	RRT Representative Advised OSC on environmental impact of spill on wildlife and habitat of Bull Run and associated waterways.	4
U.S. Food & Drug Administration Dept. of Health, Education & Welfare 701 W. Broad Street Falls Church, VA 22046	Gerald Miller	RRT Representative Fish tissue analysis, advised OSC on impact of spill on recreational fishing.	3
U.S. Dept. of Transportation Materials Transportation Bureau 400 Seventh Avenue S.W. Washington, D.C. 20590	Lance Heverly	RRT representative Investigation of cause of pipeline failure. Assessed chances of repeat of incident.	1
VA State Water Control Board 5515 Cherokee Avenue Alexandria, VA 22313	Ernie Watkins	State support - manpower and technical assistance to aid in clean-up operation. Governor's representative on-scene. OSC representative on-scene.	11
VA Office of Energy and Emergency Services	William Whitehead	Coordination between Governor's Office and OSC. Through respective county offices, provided office staff support.	2
VA State Health Department Division of Water Programs Culpepper, VA 22701	Edmund Lewis	Coordination between water treatment plant and OSC. (Key coordination for protection of drinking water supply.)	8
VA Commission of Game & Inland Fisheries 4010 W. Broad Street Richmond, VA 23230	J.W. Berry, Jr.	Survey of fish and wildlife damage. Expert assistance on restoration of wildlife and habitat. Coordination of public volunteer effort.	2

Name and Addresses	Contact	Brief Description of Work	Personnel on Site
Sea Land Environmental Engineering P. O. Box 45, Woodmont Station Milford, CT 06460	Edward Dodge	Provided back-up containment and cleanup at Bull Run Marina under 311 activity.	5
VEPCO 1900 N. Beauregard St. Bldg. 5 Alexandria, VA 22311		Provided electrical service to Command Post at Bull Run Marina.	
Prince William Electric Cooperative 10323 Lomond Drive Manassas, VA 22110		Provided electrical service to Command Post installed in Holiday Inn parking lot, Manassas.	
J. Sam Woods Electric Service 14216 Essex Drive Woodbridge, VA 22191	J. Sam Woods	Connected electrical service to Command Post at Bull Run Marina.	
Continental Telophone Company 9401 Peabody Street Manassas, VA 22110		Provided telephone service to Command Post at Holiday Inn, Manassas, Va.	
C & P Telephone Company P. O. Box 27272 Richmond, VA 23272		Provided Telephone service to Command Post at Bull Run Marina.	
Woodward - Clyde Associates 3 Embarcadero Center Suite 700 San Francisco, CA 94111	Bob Castle	Extent of contamination survey on environment impacted by spill. (Rockwell International Task 12 Under ERT Function)	

Names and Addresses	Contact	Brief Description of Work	Personnel on Site
Prince William County Fire and Rescue Service 9300 Lee Avenue Manassas, VA 22110	Selby Jacobs	Initial containment by local fire company. Coordination of citizens concerns. Installed first booms in tributary and Bull Run. Provided command post office support.	17
Prince William County Public Works Department 9258 Lee Avenue Manassas, VA 22110	James Payne	Coordinated incineration of contaminated debris, eliminating need for interim storage considerations.	4
Fairfax County Office of Energy and Emergency Services 4100 Chain Bridge Road Fairfax, VA 22030	David Watkins	Liason between Fairfax County and OSC (Bull Run is dividing line between Fairfax and Prince William Counties).	1
Fairfax County Water Authority 8560 Arlington Blvd. Merrifield, VA 22116	Henry Gay	Feasibility studies to determine ability of water treatment plant to handle kerosene. Activated carbon filtration, odor threshold. Operators of water supply threatened by spill.	3
Occoquan Watershed Monitoring Lab P. O. Box 773 Manassas, VA 22110	Dr. Thomas Grizzard Dr. Baron Weand	Sampling and analysis assistance Expert recommendations on on-scene analysis procedures for kerosene in water. Recommendations on stream profiling.	8
Technical Assistance Team Ecology & Environment, Inc. 8021 North Crescent Blvd. Pennsauken, NJ 08110	John J. Walsh	Technical assistance operations coordination.	4
Ag Rotors P. O. Box 578 Gettysburg, PA 17325	Ken Wymer	Helicopter support Crucial for observing progress of cleanup effort. Aided identification of areas of pooled kerosene. Inaccessibility of Bull Run to land transportation.	3

SECTION 4

SUMMARY OF EVENTS

SECTION 4 -- SUMMARY

a. Cause of Incident

The pipeline rupture at Manassas, occurred on March 6, 1980 at 1536 hours. Causes of the rupture were corrosion of the pipe and abnormally high line pressure.

The pipeline is owned and operated by Colonial Pipeline Company and is part of a supply network which runs from Greensboro, North Carolina to Linden, New Jersey. The pipeline operation is automated and is monitored by company controllers at the Central Control Center in Atlanta, Georgia. However, the rupture did occur under a high pressure condition which is attributed to human error. The events leading to this human error are as follows:

At 1522 hours on March 6, 1980 startup was initiated on the pipeline from Greensboro to Linden, with kerosene in the line at the point where the Bull Run break occurred. The Controller, following standard procedures, was to start the first pump unit at Greensboro and start each succeeding pump station, travelling north (down-stream) on the pipeline on a pressure-time basis. For unknown reasons, the Controller fell behind in the startup sequence on stations in Maryland. When he started Conowingo Station in Northern Maryland, the pipeline experienced a high suction pressure. The station pump ran for about one minute and then was automatically shut down by protective equipment.

This resulted in a pressure surge travelling south on the pipeline, which sequentially shut down each succeeding station up to and including Chantilly Station, which is 6.3 miles north of Bull Run. When Conowingo shut down due to high line pressure, the Controller should have followed normal procedures for orderly shut down of the Greensboro-Linden segment

and then restarted it under controlled conditions. He erred in attempting an alternate method of controlling the situation by attempting to open the stream into a stub line leading to Fairfax, Virginia. This resulted in a pressure surge in the pipeline in the area of Manassas which resulted in the pipeline rupture.

Separate detailed accident reports from Colonial Pipeline Company and the United States Department of Transportation, Materials Transportation Bureau, are available from On Scene Coordinator's Office, U.S. EPA Region III.

Site of Colonial Pipeline break

b. Initial Situation

Notification of the pipeline rupture in Manassas, to EPA, Region III Environmental Emergency Branch occurred on 3/6/80 at 1650 hours by Mr. Lowe of the Prince William County Fire Department. At this time the estimate of kerosene spilled was 90,000 gallons. The spilled material was entering an unnamed tributary to Bull Run near the point where the tributary passed under Sudley Road.

The spiller, Colonial Pipeline Company, assumed responsibility for the spill by sending their personnel immediately to the site and engaging J & L Industries, a cleanup contractor, to abate the emergency.

The first Federal official on scene was Lt. T. H. Micklas, USCG, Baltimore, Maryland, arriving at 2100 hours on 3/6/80. Tom Massey, EPA On-Scene Coordinator arrived on scene that date at 2330 hours. Also on scene at this time were officials from the Virginia State Water Control Board.

Initial containment by the Prince William County Fire and Rescue Service was attempted shortly after the spill was reported and located. A hay bale dam was constructed in the unnamed tributary near its confluence with Bull Run Marina.

By 0300 hours, 3/7/80, the kerosene had traveled 4 miles down Bull Run. Three containment booms were in place 7 miles downstream at Bull Run Marina. The Marina was chosen as a primary containment site because of its accessibility.

The major concern of the OSC was the protection of public drinking water supply. The intake for the Fairfax County Water Authority is located in the Occoquan Reservoir, 10.5 miles downstream of Bull Run Marina. This

plant supplies water to approximately 700,000 people and did not have a back-up supply available if the plant were to shut down. Additionally, the area provides significant natural wildlife habitat and includes the endangered Bald Eagle.

To aid in supervision and operation phases of the spill cleanup, the OSC requested the services of the USCG Atlantic Strike Team and the EPA Environmental Response Team. Because of the threat to wildlife, personnel from the United States Fish & Wildlife Service were on scene.

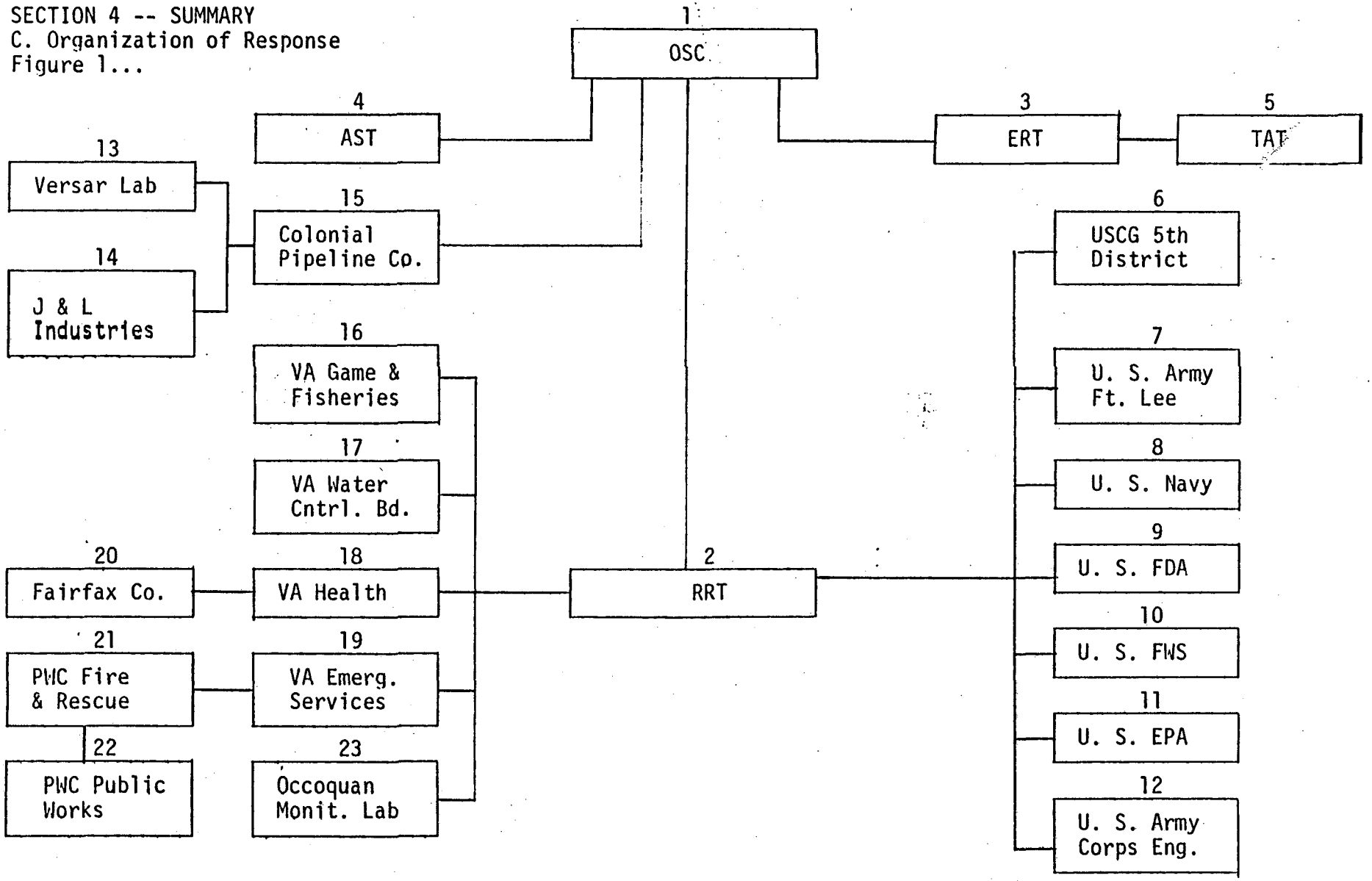
By 2200 hours on 3/7/80 containment booms were placed in 6 locations over a 10 mile stretch of stream. Removal operations were underway and by 2015 hours on 3/8/80, 35,000 gallons of kerosene had been recovered. However, a large quantity of oil remained in Bull Run and presented a threat to the community's drinking water supply.

On 3/7/80 the Regional Response Team was activated. The OSC briefed the members on the situation and presented plans of Colonial Pipeline Company. The company proposed total commitment of their resources to abate this spill. At 1430 hours on 3/9/80, almost 70 hours after the spill was first reported, large amounts of oil still remained in Bull Run. If the booms had failed at Bull Run Marina, it was concluded that there would be little chance to contain the oil before it would reach the drinking water intake. The OSC declared a Federal Removal Action on 3/9/80 in order to provide the resources that otherwise would not be available to Colonial Pipeline Company.

c. Organization of Response

When the OSC declared a Federal Removal Activity for the Manassas project, many governmental and private resources could now be utilized to combat the effects of the spill. Figure 1, (next page) identifies these resources and portrays how they reported to the OSC. Section 3, Roster of Agencies, shows how they provided assistance in the Federal Removal Activity.

SECTION 4 -- SUMMARY
C. Organization of Response
Figure 1...



SECTION 4 -- SUMMARY
C. Organization of Response
Table 1...

1.	OSC	On Scene Coordinator	Thomas I. Massey
2.	RRT	Regional Response Team	Jeff Hass, Chairman
3.	ERT	Environmental Response Team	Steve Dorrler, Branch Chief
4.	AST	U. S. Coast Guard	CDR Don Jensen, Commander
5.	TAT	Ecology & Environment, Inc. Technical Assistance Team	John J. Walsh
6.	USCG 5th District	U. S. Coast Guard 5th District Headquarters	CDR Gene Moran RRT Representative
7.	U.S. Army, Ft. Lee	U. S. Army Quartermaster School Petroleum & Field Services Dept. 240th Quartermaster Battalion Ft. Lee, VA	Col. Joe Volpe, Commander
8.	U. S. Navy	U. S. Navy Chesapeak Division Naval Facilities Engineering Command Washington, D. C.	Wayne Wilcox RRT Representative
9.	U.S. FDA	U. S. Food & Drug Administration Dept. of Health, Education & Welfare	Gerald Miller RRT Representative
10.	U.S. FWS	U. S. Fish & Wildlife Service	Allen Jackson RRT Representative
11.	U.S. EPA	U. S. Environmental Protection Agency	George Bochanski Director Regional News Office
12.	U.S. Army Corps Eng.	U. S. Army Corps of Engineers	Rodney McCormack M. Bennel RRT Representatives
13.	Versar Lab	Versar Laboratories	
14.	J&L Industries	J & L Industries	Jim Sussman, President
15.	Colonial Pipeline	Colonial Pipeline Company	Jim Sorrow
16.	VA Game & Fisheries	Virginia Commission of Game and Inland Fisheries	J. W. Berry, Jr., Fish & Game Officer
17.	VA Water Cntrl. Bd.	Virginia State Water Control Board	Ernie Watkins, RRT Representative

SECTION 4 -- SUMMARY
C. Organization of Response
Table 1 (Continued)...

18.	VA Health Dept.	Virginia State Health Department Division of Water Programs	Edmund Lewis
19.	VA Emerg. Services	Virginia Office of Emergency Services	William Whitehead RRT Representative
20.	Fairfax Co. Wtr. Auth.	Fairfax County Water Authority	Henry Gay
21.	PWC Fire & Rescue	Prince William County Fire & Rescue	Selby Jacobs, Director
22.	PWC Public Works	Prince William County Public Works Department	James Payne, Director
23.	Occoquan Monit. Lab	Occoquan Watershed Monitoring Laboratory	Dr. Thomas Grizzard Director

d. Resources Committed

A brief description of resources committed by the agencies and contractors involved in response activities is contained in Section 3, Roster of Agencies. A discussion of the impact of these resources on the cleanup activity is provided in the "Effectiveness of Response and Removal Actions," Section 5 of this report.

The following page shows the costs incurred by the agencies and contractors utilized as a part of the Federal Removal Activity. These expenses are a small fraction of the total expenses, most of which were incurred by the responsible party.

Major Pollution Incident, Kerosene Spill
Colonial Pipeline Company, Bull Run
Manassas, Virginia
Federal Project No. 05-100-108-80

Agency	Number of Personnel Involved	Cost to Date 8/28/80	Ceiling*
U. S. Environmental Protection Agency	15	$ 11,019.05	$ 12,000
U. S. Coast Guard	10	4,207.96	4,500
U. S. Army	75	37,152.51	38,000
U. S. Navy - Surface Weapons Center	10	15,815.00	16,000
U. S. Navy - Naval District Washington	3	2,940.79	3,000
U. S. Navy - Public Works Center	8	19,192.71	20,000
U. S. Fish & Wildlife	4	6,500.00	7,500
Occoquan Watershed Monitoring Lab	5	19,724.09	20,000
Ag Rotors	3	26,740.00	27,000
VEPCO		63.82	100
Prince William Electric Cooperative		231.98	250
J. Sam Woods Electric Service		248.84	250
Continental Telephone Company		1,117.10	1,200
C & P Telephone Company		210.78	250
Sealand Environmental Engineering Co.	5	7,196.80	7,300
Rockwell International		73,200.00	80,000
TOTAL	138	$225,561.43	$237,350

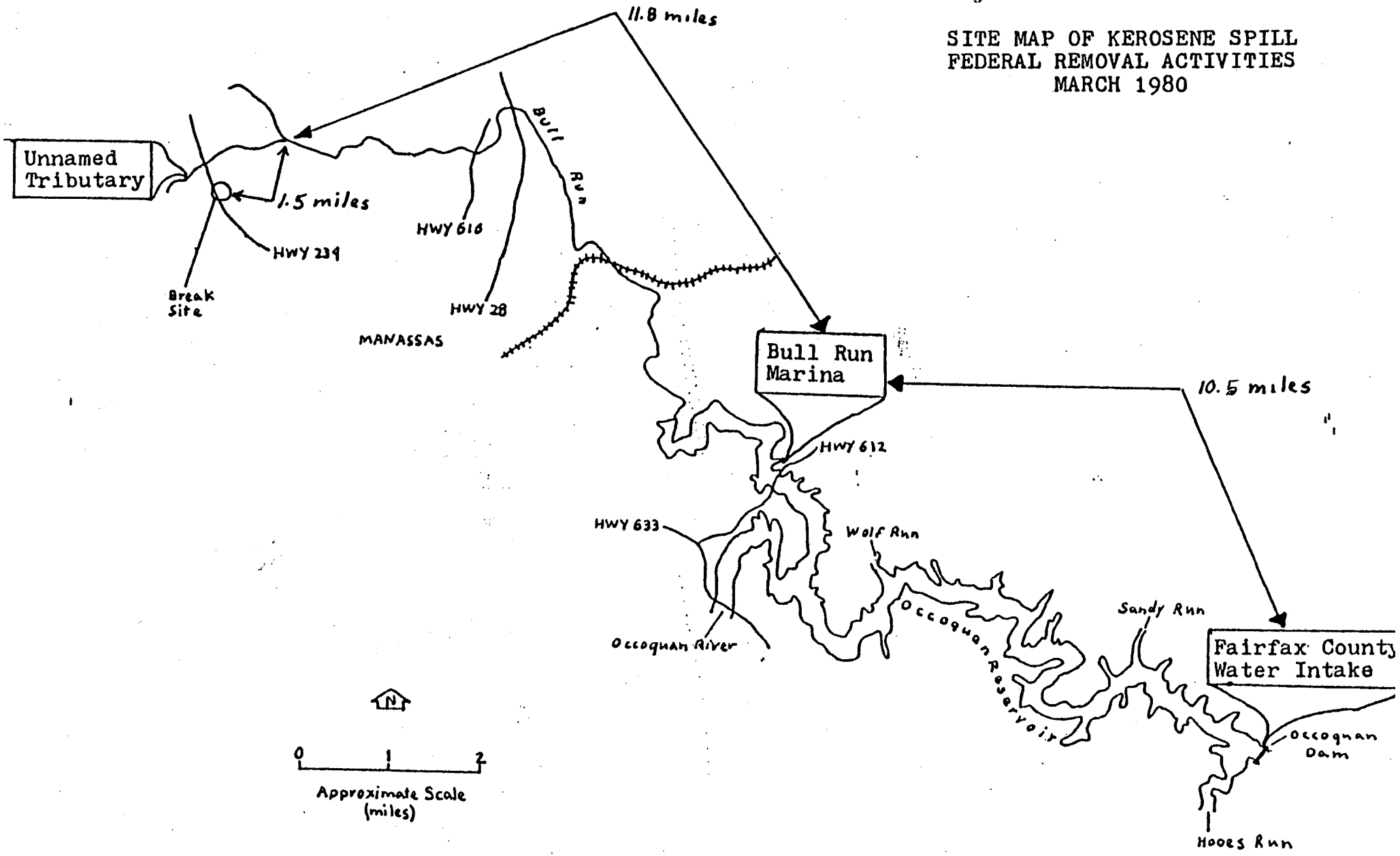
*Note: Total authorized ceiling is $300,000.00

e. Location of Spill (See map, Figure 2)

The spill occurred at the point where the 32-inch pipeline passes under Virginia State Route 234 (Sudley Road) one mile north of Manassas at Latitude 77^{o} 30' 30" North, Longitude 38^{o} 47' 30" West. The spill entered the headwaters of an unnamed tributary to Bull Run. Bull Run is a tributary to Occoquan River and Reservoir, a non-tidal waterway. Occoquan River is a tributary to the Potomac River that flows into the Chesapeake Bay.

Figure 2

SITE MAP OF KEROSENE SPILL
FEDERAL REMOVAL ACTIVITIES
MARCH 1980



f. Details of Federal & State Restoration

A Damage Assessment Task Force has been established to access the environmental damage from the two oil spills from the Colonial Pipeline in Orange County and Manassas, Virginia. Funds for conducting damage assessment studies are available from the United States Environmental Protection Agency under Section 104 of P. L. 92-500. This group, composed of representatives from the U. S. EPA, U. S. Fish and Wildlife Service, Virginia State Water Control Board, Virginia Commission of Game and Inland Fisheries, and the Virginia Department of Planning and Budget, has met and developed a plan of action for studying the impact of these spills on the aquatic and human environments of the two areas.

State and local authorities have been monitoring the amount of oil in Occoquan Reservoir, which is the source of drinking water for most of Northern Virginia. At this time, there is no evidence of detectable amounts of oil in the water column.

An Extent of Contamination Study, funded under Section 311 activities, for areas affected by kerosene spillage, was performed by Woodward and Clyde, Inc., a private consultant under contract to U. S. EPA. A summary of the report is contained in Section 5.

Preliminary restoration work was performed at the expense of Colonial Pipeline Company at the pipeline break site. All contaminated soil was removed and replaced with clean soil. The area was graded and seeded.

At Bull Run Marina, where most oil recovery operations took place, trees removed for equipment access were replaced, new blacktop was placed in the parking lot and all affected ground received new top soil and was seeded. Throughout the park, wood fences, gates, and hiking trails that had been damaged were restored.

g. Details of Threat Abatement Actions

Actions taken to reduce the threats posed by the kerosene were directed at two problem areas.

First was the protection of public safety and health. This encompassed the threat of fire, the threat of contaminating public drinking water, and the threat of poisoning by ingestion of contaminated game and fish.

Second was the protection of the environment directly impacted by the kerosene including the shorelines, streams, recreational areas, and wildlife refuges; and the protection of a diverse variety of aquatic, terrestrial, and ornithological wildlife that included nesting bald eagles.

Protection of Public Health and Safety

1) Fire Hazard

Ignition of kerosene requires direct application of a flame when the material is heated to its flash point of 130°F. As the time of year was early March with weather conditions varying from snow and rain to clear with mild temperatures and access to the spilled material was quite limited, the threat of fire was minimal. Prince William County Fire Department personnel departed the scene shortly after the arrival of the OSC but remained on standby for the duration of the Federal Removal Activity. Cigarette smoking, flame, and spark producing devices were regulated by a site safety standard operating procedure and enforced by OSC representatives. Rest areas were provided for contractor and other personnel on scene.

2) Drinking Water

Protection of the public drinking water supply was by far the most difficult challenge faced by the OSC.

The Fairfax County Water Authority drinking water intake located adjacent to the Occoquan Dam is 23.8 miles downstream from the break point.

The water supplied by this facility serves most of the northern Virginia suburbs of Washington, D.C., or approximately 700,000 people. This is 25 percent of the drinking water supply of the greater metropolitan Washington, D.C. area. Reserve supplies could accomodate only 10 percent of those needs. No established alternative supplies were available.

The first steps taken were to contain the pollutant as rapidly as possible and as far away from the Occoquan Water Inlet as possible and to minimize the dissolution of the pollutant into the water column.

The next step was to develop a treatment strategy. Ceiling limits on kerosene applicable to drinking water quality were ascertained, available treatment methods and access to appropriate supplies and equipment were identified.

An analytical strategy was necessary to determine the concentration of kerosene in the water column, where these concentrations were located (i.e., the leading and trailing end of contaminant). It was necessary to determine the speed at which this contaminant was moving relative to project time frames in order for the treatment strategy to work as planned.

A drinking water Defense Management Task Force was assembled on-scene by the OSC comprising of the following:

Mr. William Whitehead, Virginia Office of Energy and Emergency Services
Mr. Henry Gay, Fairfax County Water Authority
Mr. Edmund Lewis, Virginia State Health Department
Dr. Thomas Grizzard, Occoquan Watershed Monitoring Lab
Mr. Ernest Watkins, Virginia State Water Quality Board
Dr. Joseph Lafornara, U. S. Environmental Protection Agency, Environmental Response Team
Mr. Rod Turpin, U. S. Environmental Protection Agency, Environmental Response Team
Mr. Robert Cibulskis, U. S. Environmental Protection Agency, Environmental Response Team
Mr. Thomas Sell, U. S. Environmental Protection Agency, Environmental Response Team

A drinking water toxicity level of 180 ppb for kerosene was established. Odor threshold and action levels were 100 ppb. A sampling program was established to thoroughly profile the contaminant in the Occoquan River using a series of strategic sampling points and methods. Initially, a spectrofluorimeter was used for the analysis. This method did not yield the desired results. Odor threshold analysis continued to approximate the leading edge of the contaminant dissolved in the water column until analytical methods were modified. The EPA Research and Development Laboratory in Edison, New Jersey provided analytical laboratory assistance. The Occoquan Watershed Monitoring Laboratory with the assistance of Versar Laboratories, Inc., continued and completed the analytical tasks.

It was determined that based on the amount of dissolved kerosene in the water column as determined by analysis, the Fairfax County Water Treatment Plant could remove the kerosene by increasing their existing powdered activated carbon treatment capabilities. With the analysis and treatment carefully coordinated, quality control checks performed by the Virginia State Health Department revealed 350 ppb kerosene in the raw water inlet and no detectable quantity of kerosene in finished water.

3) Edible Sport Fish

In the interests of protecting the public health and safety, a concern was shared by the Virginia State Health Department, the State Game and Inland Fisheries Commission and the State Water Control Board that a minor potential threat existed to persons eating contaminated game fish caught in the Occoquan. A fishing ban was considered, but due to the limited amount of fishing done during that time of year this plan was not implemented. Local citizens were advised against fishing in the Occoquan and eating game fish that smelled of kerosene.

SECTION 5

EFFECTIVENESS OF RESPONSE AND REMOVAL ACTIONS

FACTS AND STATISTICS

Manassas Represents the Largest Inland Oil Spill in Virginia's History

- 336,000 gallons Aviation grade kerosene spilled.
- 200,000 gallons kerosene were recovered.
- 136,000 gallons kerosene were lost to the environment.
- 105.88 tons of oil soaked debris was incinerated at Prince William County landfill.
- 5,000 acres of land were affected by kerosene spilled.
- Animal kill at Bull Run included 16 mammals and 32 birds.

  -- Species involved include:

  - 8 Mallards
  - 15 Wood duck
  - 5 Canadian geese
  - 1 Hooded margansen
  - 3 Gulls
  - 14 Beaver
  - 2 Muskrat

- Cost to Date

  -- Federal Government - $226,000

  -- Colonial Pipeline - Not available

- Number of persons involved (205 total)

  -- Federal: 137

  -- State: 31

  -- Local: 25

  -- Private Contractors: 12

SECTION 5 -- EFFECTIVENESS OF RESPONSE AND REMOVAL ACTIVITIES

a. The Discharger: Colonial Pipeline Company

Colonial Pipeline Company, after initial notification, immediately responded on-scene with top management and technical personnel. A private contractor, previously retained was called to take immediate containment actions. The OSC met on-scene with these officials 8 hours after the rupture occurred to prioritize containment methods and address health concerns. Company officials expressed a very positive attitude in taking necessary emergency abatement actions.

A second major spill occurred on the Rapidan River concurrently with the spill at Manassas. This spill was discovered 23 hours after it occurred. Colonial Pipeline Company immediately divided available resources and called in additional personnel to aid in the second spill activities and to aid in the second spill response. Both spills together created a major concern for protection of drinking water supplies.

By the end of the second day of the Manassas spill, booms were in place at 6 locations along a 10 mile area of Bull Run Creek. This included the stretch to the Bull Run Marina. Removal actions, already underway collected approximately 35,000 gallons of kerosene. After restoring the ruptured pipeline to service an underflow dam was constructed in a tributary of Bull Run. This dam restricted the flow and eased collection of kerosene at this point. However, large amounts of kerosene were still being flushed from the break point, through the tributary and into Bull Run. Tremendous quantities of kerosene were contained in the booms at Bull Run Marina.

A National Weather Service forecast of inclement weather posed several additional problems. It became necessary to remove kerosene rapidly from

the Marina area as river banks downstream were too inaccessible for removal activities. Kerosene escaping from containment booms due to flooding conditions would severely impact the Occoquan Reservoir. The Occoquan Reservoir serves 700,000 residents (25%) of suburban Washington, D.C.

Colonial Pipeline Company, gave total commitment of its resources, but still did not have resources available to deal with pollution incidents of this magnitude. Photointerpretation of aerial photographs provided by EPA/EPIC indicated an estimated 300,000 to 500,000 gallons of kerosene contained within booms at Bull Run Marina. The company could not provide resources to adequately provide protection of drinking water facilities or protect environmentally sensitive natural habitats of fish, waterfowl or other wildlife species. Special treatment techniques were needed to protect public water supplies, fish and wildlife resources from continuing damage.

After 70 hours the On-Scene Coordinator declared a Federal Removal Activity in Fredericksburg and Manassas. This action enabled total company resources to be augmented by resources of the Regional Response Team under the National Contingency Plan.

b. State and Local Forces

Prince William County Fire and Rescue Service provided initial response and containment. This included constructing a hay bale dam in the unnamed tributary to Bull Run, emplacement of a containment boom at the Bull Run Marina, and providing 24-hour firefighting services. In addition the County Fire and Rescue Service also established a hot line at the OSC command post for concerned citizens.

Prince William County Public Works Department provided disposal services and landfill facilities. This provided proper disposal of the 105.88 tons of contaminated material, sorbent and debris generated by cleanup efforts.

The Commonwealth of Virginia employed the resources of several state agencies on-scene. The Virginia office of Energy and Emergency Services provided a direct line from the OSC to the State Governor. The Governor's declaration of a state of emergency provided the OSC with all available Commonwealth resources.

Virginia Water Quality Board provided technical assistance and on-scene supervisory personnel. VA WQB personnel acted as the Governor's representative on-scene, under the National Contingency Plan. VA WQB personnel supervised the construction of filter fences, dams, and cleanup of kerosene in the unnamed tributary to Bull Run. VA WQB personnel worked with U. S. Fish and Wildlife personnel. VA Commission of Game and Inland Fisheries personnel assessed environmental impact to wildlife.

Virginia State Health Department personnel provided coordination between the Occoquan Water Treatment Plant and the OSC. In addition they also provided key coordination for protection of drinking water supplies.

Fairfax County Water Authority conducted feasibility studies for assessing ability of the water treatment plant to effectively remove kerosene. This system featured powdered activated carbon absorption.

Coordination by state and local forces was of paramount importance in effectively protecting public drinking water supplies and mitigating adverse effects on wildlife.

c. Federal Agencies and Special Forces

Six organizational elements within the U. S. Environmental Protection Agency functioned under the Federal Removal Activity. The OSC and the RRT Chairman were from the Region III office in Philadelphia. EPA Region III established a regional public information office on scene. This was staffed with personnel from the National Public Information Office, EPA

headquarters on Washington, D.C. The EPA's Environmental Photographic Interpretation Center in Vint Hill Farms, Virginia, provided aerial photography and photointerpretation of this material. This service saved valuable time locating pockets of contaminants from the ground.

The EPA's Environmental Response Team coordinated all the scientific support forces and their functions. They organized sampling and stream profiling and established methodologies. Analytical laboratory support, was coordinated through EPA's Oil and Hazardous Materials Spill Laboratory with additional aid from Versar, Inc., and the Occoquan Watershed Monitoring Laboratory sponsored by Virginia Polytechnic Institute.

The United States Coast Guard supported the OSC with representatives from COTP Baltimore. COTP arrived on scene shortly before the OSC and remained on scene to assist the OSC during the mobilization phase. The Fifth Coast Guard District provided RRT representation, purchasing support, and 311 Funding contract support at Fifth District Headquarters. The U. S. Coast Guards Atlantic Strike Team established a command post at Bull Run Marina and supervised cleanup personnel on a 24 hour a day basis. AST personnel provided equipment, logistics, and "know how" in directing the workforce in kerosene containment and removal. AST personnel also assisted in coordinating the efforts of other Federal Agency personnel engaged in removal activity.

The United States Army responded with a large detachment of men and equipment from the Petroleum and Field Services Department of the Army Quartermaster School in Fort Lee, Virginia. These men, experienced in fuel and petroleum products supply in the field, had never participated in a pollution incident response. Their initial assignment included responding at river's edge with large capacity portable bladder bags to remove kerosene from the water. The kerosene was several inches deep in many places

and the idea here was to remove it from the river and store it in the bladder bags for future disposal. Due to changes in wind direction, the kerosene was moved to another location upstream of Bull Run Marina. Since the onset of Federal Removal Activity, collection efforts at Bull Run Marina had multiplied until collection capabilities were exhausted. Army personnel built filter fences at 50 feet intervals along the unnamed tributary to Bull Run and provided maintainence of sorbent material within. Army personnel were also utilized to assist U. S. Fish & Wildlife Service, VA Game Commission, and VA Water Quality Board personnel in removing accessable dead fish in the affected area.

Three U. S. Navy units responded with manpower and equipment to assist the Federal cleanup effort. The National Response Team, Department of Defense Representative from the Navy Environmental Protection Division at the Pentagon remained on-scene throughout the emergency. His duties included assisting the OSC in coordination of the DOD response effort and serving as the NRT representative coordinating other Federal resources. Navy personnel and equipment from Washington Naval District, Naval Surface Weapons Command, and Naval Facilities Engineering Command deployed booms in several locations downstream from Bull Run Marina. These locations included the Occoquan Reservoir and the Occoquan Water intake. They positioned medium and large skimmers downstream to provide backup support if efforts at Bull Run Marina failed. U. S. Navy personnel assisted U. S. Coast Guard AST in cleanup planning, logistics, and supervision.

The U. S. Fish and Wildlife Service provided valuable services to the OSC to protect the natural environment and impacted wildlife (See 4. h. Details of Threat Abatement Activities).

d. Contractor, Private Groups, Volunteers

The Occoquan Watershed Monitoring Laboratory and Versar Laboratories, Inc. assisted the EPA Environmental Response Team in the coordination of kerosene analysis stream profiling. Their efforts were critical for the effective treatment of drinking water supplies.

The Oil and Hazardous Materials Technical Assistance Team from Ecology & Environment, Inc., functioned as the operations staff for the OSC. They provided logistical support, documentation photography, technical support of planning and operations, assisted in evaluating and implementing cleanup strategies, and monitoring cleanup efforts on scene.

J & L Industries, hired by Colonial Pipeline Company, was the primary cleanup contractor. J & L provided the bulk of the manpower and equipment for containment and removal efforts.

Sea Land Environmental Engineering was hired by the Federal Government and as the primary Federal contractor provided additional manpower and equipment.

One particularly noteworthy aspect of the Federal Removal Effort was the manner in which the National Contingency Plan (40 CFR 1510) was followed. This Spill is considered to be a textbook example of the utilization of the National Contingency Plan. All response and support activities functioned in the manner in which they were intended.

The final results of these coordinated cleanup efforts show the successful removal of 257,000 gallons of kerosene vs. 336,000 gallons spilled into Bull Run. Most important of all, however, is the realization that none of the 700,000 residents who depend upon these supplies for their daily domestic and drinking water needs were without clean water at any time.

e. Extent of Contamination Survey

Before the Colonial pipeline rupture was brought under control, approximately 330,000 gallons of kerosene were released into the environment. Spill control and clean-up activities successfully recovered an estimated 200,000 gallons of product. To determine the extent of contamination from the approximately 130,000 gallons remaining, and to suggest recommendations for remedial actions, Woodward-Clyde Consultants, was retained by the U. S. EPA.

Methods employed include visual observation, to determine obvious residual sheen on the water, and Chromatographic analysis (TLV with Fluorescence) to quantity kerosene.

Three major areas were examined to determine the extent of contamination. These include the following:

- The break site
  - -- Surface soil contamination
  - -- Subsurface soil contamination
- Shoreline contamination
- Bottom sediment contamination

1) The Break Site

a. Surface Contamination

Studies show backfill at the breakpoint to be uncontaminated, however, varying amounts of oil were found below the surface area. Leaching effect and shallow ground water will probably flush oil into surface drainage where weathering will promote degredation. Kerosene in swampy areas will flush out and aquatic life in these areas appear to be recovering.

No further actions except occassional visual inspection are recommended for this area at this time.

b. Subsurface Contamination

Due to prevailing geologic conditions, the majority of the spill was restricted to the surface area where the break occurred. Surface drainage carried product via the unnamed tributary and into major drainage channels.

No further action is recommended for subsurface areas as little deep subsoil and groundwater penetration has occurred.

2) Shoreline Contamination

Amounts of kerosene remaining in shorelines are extremely small. Recommendations for these areas include the following:

a. No action is recommended for shorelines along the unnamed tributary as residual kerosene will be removed by seasonal flooding conditions.

b. Monitoring is recommended at the area marked Site A (see attached map).

c. Visible sheens at shoreline segments in the area of Bull Run Marina will be asthetically unpleasing. Ecologically, the significance of these sheens is uncertain. It is recommended that near shore contaminated sediments be removed.

d. No action is recommended at the backwater area north of the Marina but conditions of vegetation should be monitored.

3) Bottom Sediment Contamination

Characterization of bottom sediments is incomplete at this time. It is, therefore, recommended that reservoir water quality be monitored to determine degradation of water quality or ecology.

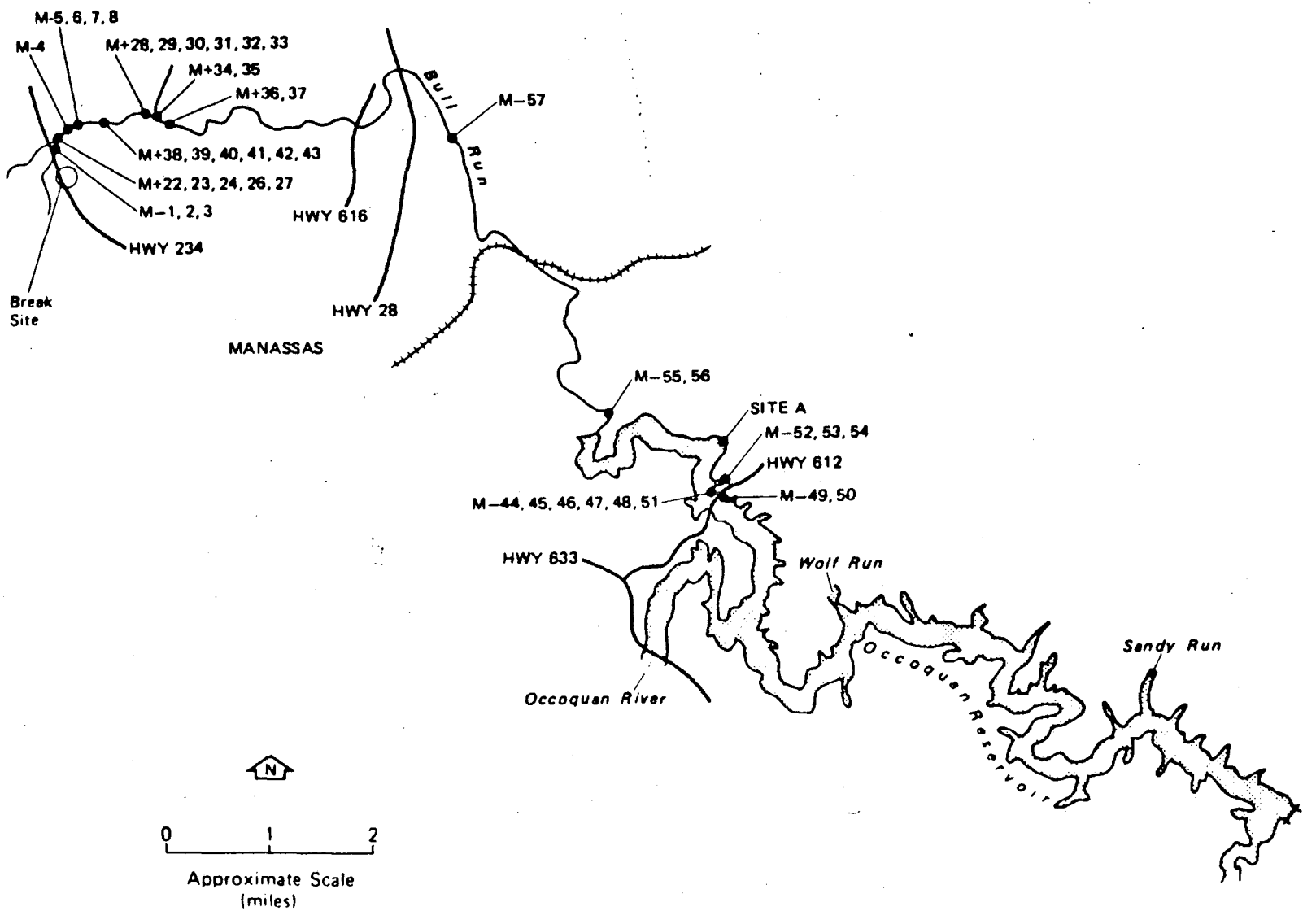


Figure 5. TLC SAMPLE LOCATION

SECTION 6

PROBLEMS ENCOUNTERED

SECTION 6 -- PROBLEMS ENCOUNTERED

a. Problems Encountered

1) As explained in Section 5a, Colonial Pipeline Company even with a total commitment of its resources, did not have the necessary resources, or personnel available to effectively deal with a pollution incident of this magnitude. (i.e., protection of the public drinking water supply, protection of public health and safety, protection of wildlife and environmentally sensitive areas, and dealing positively with the press, media, and public.)

The ruptured pipeline was aggressively repaired and operational within a short period of time. Equipment to construct an underflow dam to contain the kerosene in the unnamed tributary of Bull Run was not a company priority. This resulted in additional product escaping into the main stream of Bull Run. Additionally, Colonial did not give the OSC adequate assurances that kerosene would be removed from the existing booms at Bull Run Marina in a timely fashion. Also the company could not provide additional back-up booms that would be placed in the Occoquan Reservoir if the kerosene escaped the last containment at Bull Run Marina. The OSC decided that additional resources were needed to augment company resources on-scene immediately to protect public drinking water. A Federal Removal activity was declared 70 hours after the initial report of the spill incident.

2) POLREPS were not transmitted to appropriate organizations on a timely basis due to insufficient administrative support available to the Regional Response Center, EPA Region III. It is recommended that either appropriate administrative support be provided to the EPA Region III Regional Response Center during emergency situations or administrative resources for dissemination of POLREPS be provided by USCG through memorendum of understanding (MOU).

3) The OSC requested the presence of a contracting officer from the Coast Guard 5th District Headquarters. This request was turned down, despite contractural problems on-scene. A mechanism should be available to the OSC to provide contracting support from respective Coast Guard Districts or provision for immediate contracting support from EPA.

4) Laboratory analysis of kerosene dissolved in the water column initially proved unreliable. It took one week to provide the first accurate data. The initial method utilized was fluorescence spectrophotometry. If this worked, it would have provided easy and rapid test results. This technique apparently was not thoroughly tested and accurate data under field conditions was not obtainable. Analytical methods were changed to utilize gas chromatography with solvent extraction. This yielded accurate and consistent test results. Recommendations here would be to test new techniques under actual or simulated field conditions to establish a reliability factor prior to an emergency.

SECTION 7

RECOMMENDATIONS

a. Prevention of Recurrences of This Incident

1) Throughout the emergency, there was a significant amount of public concern for the fact that the pipeline ruptured and caused the largest inland oil (kerosene) spill in Virginia history. This concern also included some question as to the integrity of the pipeline and its compliance with pipeline safety regulations. In reviewing the reports submitted by both Colonial Pipeline Co. and Department of Transportation Office of Pipeline Safety, it appears (though it is not specifically stated) that the pipeline had met all the performance criteria for compliance with safety regulations. The pipeline ruptured at a pressure which was below hydrostatic test pressure conducted in 1963. A degree of external corrosion evident in the ruptured pipe section was one contributing cause of the failure. A second major contributing factor in this rupture was an error in human judgement made by the controller. A recommendation by the NRT through the DOT representative could state that the DOT Office of Pipeline Safety review appropriate safety regulations for pipelines in service and include provisions for periodic testing and recertification.

2) The seriousness of this incident was highlighted by the fact that the Fairfax County Water Authority did not have alternate raw or finished water supplies. This is one example of the potential effects of natural and manmade disasters impacting public drinking water supplies. Appropriate agencies and program elements should pre-plan alternate or emergency drinking water resources for municipal drinking water supplies.

b. Improvement of Response Actions

1) The U. S. Coast Guard Atlantic Strike Team is a highly skilled and professional organization which has again proven itself to be an invaluable asset to the OSC. The U. S. Coast Guard should consider additional training for strike force personnel to more effectively assist EPA on-scene coordinators in dealing with threats to public safety and health, protection of public drinking water supplies, protection of a natural wildlife, and related response activities. The Coast Guard could provide this training in-house, EPA could provide instructors for inland spills response to the Coast Guard, or EPA could provide this training in-house with attendance by Strike Team personnel encouraged.

2) Contract support on-scene during a Federal Removal Activity should be given a high priority. There are no clear guidelines for EPA, OSC's to follow in managing non-BOA type contracts. It is recommended that EPA develop a stream-lined emergency contracting procedure for EPA OSC's to follow.

SECTION 8

INITIAL SPILL REPORT AND ELEMENTS OF CIVIL PENALTY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

October 9, 1980

Commander (mep)
5th CG District
431 Crawford Street
Portsmouth, VA 23705

Re: EPA Case No. VA-80-040
Fed. Project No. 05-100-108-80

Gentlemen:

Enclosed for your information is an EPA letter response from Colonial Pipeline Company concerning a spill of approximately 326,000 gallons of Kerosene into an unnamed tributary of Bull Run, near Manassas in Prince William County, VA. Bull Run is a tributary of Occoquan River which flows into the Potomac River and Chespeake Bay, a navigable water of the United States.

This spill caused a visible film and sheen upon the surface of Bull Run, a harmful quantity of oil as defined by 40 CFR 110.3. The incident was a violation of section 311 (b) (3) of the Federal Water Pollution Control Act.

It is recommended that civil penalty action pursuant to Section 311 (b) (6) of the FWPCA be considered in this case.

Federal Removal Activity was declared in this incident. A complete On Scene Coordinators report will be submitted by me in the near future. If there are any questions, or if we can provide additional assistance, please call me at (215) 597-9898.

Sincerely,

Thomas I. Massey
On Seene - Coordinator

Enclosure

cc: Office of Water Enforcement
Enforcement Division (EN338)

EEB - 1 (Rev. 3/78)

Case # VA-80-041

(O,HM)_____

SPCC #_____

(N,T)_____

INCOMING SPILL REPORT

Received By: Phil Retallick Date: 6MAR80 Time: 1650 Hours

Reported By: Mr. Lowe

Organization: Prince William Co. Fire Dept. Phone: 703-368-0800

Address: Prince William County, Virginia

Spiller Name: Colonial Pipeline ~~Phone~~: 301-795-1390

Address:

Location Locality: Sudley Road

Address: Sudley Manor Drive, Manassas

County: Prince William County State: Virginia

Stream (Nearest): Bull Run -- 1/2 mile away

Spill Data Date: 6MAR80 Time: 1610 Hours

Material: No. 2 Oil

Source: Pipeline Cause: Rupture

Total Spilled: 90,000 Gal. In Stream: Not Yet Escaping:

Countermeasures Containment: Clean-up:

Notification (Name, #, Date, Time)

ENF: A&H:

Front Off: Pub. Aff:

OTS: Field Off:

USCG: State/Local:

WSB: Other:

HQ's: Regions:

Basin Comm: S&A:

Comments (reverse)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

Colonial Pipeline Corp.
3390 Peachtree Rd. NE
Atlanta, GA 30326

Certified No. 4370847

May 2, 1980

Re: VA-80-040, 3-6-80, Manassas, VA

Gentlemen:

This office has received notification that your facility discharged oil or hazardous materials in harmful quantities in violation of Section 311(b)(3) of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1321(b)(3) as referenced above. You are hereby requested to submit to EPA the following information:

(a) Time and date of discharge: March 6, 1980 @ 3:36 p.m. EST

(b) Material(s) discharged: Domestic aviation grade kerosine

(c) Description of the vehicle or facility from which the material was discharged (i.e., pipeline, tank, well, etc.):
32" dia pipeline

(d) Name and address of the owner/operator of the vehicle or facility described above in (c):
Colonial Pipeline Company
3390 Peachtree Road N.E.
Atlanta GA 30326

(e) Name and address of the operator of the vehicle or facility described above in (c) and, if different from (d) above, describe the relationship between the owner and operator (i.e., employee, subcontractor, lessee, etc.):
Same as above

(f) Location of the discharge, including county and state:

Near Manassas in Prince William County, Virginia.

Pipeline crossing of State Highway 234.

(g) Quantity of material discharged from the facility or vehicle.

336,000 gals.

(h) Did the material reach any water or sewer (Yes or No): Yes

(1) If Yes, describe the first water reached and the location of this water: An unnamed tributary. The tributary crosses Highway 234 North of Manassas and South of I-66.

(2) State the quantity of material reaching the water described above in (h)(1): 98% or 329,000 gals.

(3) State the quantity of material reaching the shoreline of the water described above in (1) which did not reach the water: 2% or 7,000 gals.

(4) Was the water described above in (h)(1), at the time of the spill, a tributary of, or physically connected to, any part or tributary of a riverine, hydrological or creek system? (Yes or No): Yes.

(5) If the answer to (4) is Yes, describe or name the waterways to which the waters in (h)(1) connect or flow:

Unnamed tributary → Bull Run → Occoquan River

(6) If the answer to (4) is No, does the water described above in (h)(1) periodically connect with or flow into any tributary or part of any riverine, hydrological or creek system? If Yes, describe the flow and connection:

(i) Did the material cause any film, sheen, discoloration or irridescent appearance on the adjoining shorelines of, or surface of, any water described above in (3), (4), (5), or (6)? If Yes, describe: Yes. Heavy film of kerosine on the unnamed tributary and Bull Run to the point of final containment and removal at the Occoquan Marina.

(j) Did the material cause any sludge or emulsion to be deposited on the adjoining shorelines of, or beneath the surface of, the waters described above in (3), (4), (5), or (6)? If Yes, describe: None known.

(k) Did the discharge violate any applicable water quality standards, e.g., NPDES or State Standards? If Yes, describe: Yes. State and federal oil spill regulations.

(l) Date and time of discovery that the discharge was reaching the waterway: 3/6/80 @ 4:00 p.m.

(m) Describe in detail what actually caused the discharge: Pipe failure in a 32" pipeline. See attached description.

(n) Describe any observed damage to animal life or vegetation: Vegetation dead in the pipeline failure area. Animal and fish kill reported by agents of the state and federal authorities.

(o) Describe steps taken to contain and clean up the spilled material and mitigate environmental damage: Extensive efforts by Colonial and its contractors successfully contained and recovered the spilled o
:h only minor assistance from the US Coast Guard and other agencies.

(p) List the federal and state agencies, if any, to which the owner or operator reported the discharge. Show the agency, its location, the date and time of notification of the official contacted: 3/6/80 between 4-6 P.M. - Va. Water Quality, US DOT, U.S. Coast Guard and U. S. EPA.

(q) List the State and local officials who were on scene at the spill during or after cleanup: Estimated to be over 100 -- too numerous to list. Attendance list available from RRT meetings.

(r) List the names and addresses of persons believed to have knowledge of the facts surrounding this incident: J. S. Sorrow, Colonial Pipeline Company, 3390 Peachtree Road N.E., Atlanta, GA 30326 404/261-1470

(s) List the type of oil and total storage capacities at the facility for any oil related products. Describe the storage tanks at the facility, e.g., above ground, underground, etc.: No tanks involved.

(t) Describe action taken or proposed to prevent a recurrence of this type of spill. System being operated at a lower rate until a detailed analysis of the pipe failure is received, any needed system revisions will then be made.

(u) Does the facility have a Spill Prevention Control and Countermeasures (SPCC) Plan certified and implemented in accordance with 40 CFR 112? None. Transportation related cross country pipeline.

(v) List any other information you wish to bring to the attention of the federal government: Colonial successfully contained and removed the oil from the Bull Run and continues to monitor the oil spill area to date. 257,460 gals. of kerosine were recovered and returned to the pipeline.

The above information should be mailed to:

U.S. Environmental Protection Agency
Region III
Environmental Emergency Branch (3SA30)
Sixth & Walnut Streets
Philadelphia, Pennsylvania 19106

If your company cannot answer this letter by May 17,1980 or if there are any questions on this matter, you may call John Harsch at 215-597-9898.

Sincerely yours,

Jeffrey W. Hass, Acting Chief
Environmental Emergency Branch

J. W. Hass

I hereby certify the above to be true and accurate to the best of my knowledge.

SECTION 9

POLREPS, PHOTOGRAPHS, NEWSARTICLES

POLREP 1 - MAJOR POLLUTION INCIDENT
COLONIAL PIPELINE CO., BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (0300 HR.) 3/7/80

a. Colonial Pipeline reported oil spill from 32-inch pipeline, Prince William County, Virginia near Manassas (Route 234 0.5 mile south of I-66).

b. OSC on scene 2330 hrs., March 6. MSO Balt. personnel on scene 2100 hrs.

c. Company officials preliminary estimate approximately 250,000 gallons of product (kerosene) lost from pipeline.

d. Kerosene reached unnamed trib of Bull Run and is now approximately 4 miles downstream.

e. Booms placed 7 miles downstream.

f. Drinking water intake located approximately 10.5 miles downstream from break (Fairfax County Water Authority).

2. ACTION TAKEN

a. OSC requested Colonial Pipeline Company to take all necessary containment actions to mitigate spill incident.

b. Virginia Water Control Board on scene to aid in state actions and coordinate drinking water sampling.

c. OSC advised on scene personnel that kerosene highly toxic and has potential for mixing in water column.

d. OSC cordinating with Virginia WCB to assure all safety precautions are taken to safeguard public drinking water quickly.

e. OSC request Atlantic Strike Force on scene ASAP.

f. OSC request MSO Balt. personnel (Lt. Mickles) to remain on scene until further notice.

3. FUTURE PLAN

a. Helicopter overflight to be made by on scene personnel.

b. Additional booms and other containments to be constructed at daylight.

c. Drinking water personnel to meet on scene to determine worst case condition.

d. OSC to convene RRT as soon as practicable .

Tom Massey, OSC
Manassas, Va.

POLREP 2 - MAJOR POLLUTION INCIDENT
COLONIAL PIPELINE CO., BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (2200 HRS.) 3/7/80

a. OSC considers drinking water quality a major concern.

b. RRT convenes on-site (see POLREP 3).

c. Colonial Pipeline revises spill estimate, reduced from 250,000 gallons to 170,000 gallons (4000 bls).

d. If any kerosene reaches drinking water intake servicing 660,000 people in Occoquan Reservoir it will take 2-3 days, according to estimates by Henry Gay, Fairfax County Water Authority.

e. After initial 24 hrs. leading edge of kerosene located nine miles downstream in Bull Run.

f. Booms placed at six locations over ten miles of stream.

g. Product is aviation crude kerosene, S.G. approcimately seven-tenths, drinking water toxicity standard is 180 PPB. Ignition requires heating to 130 degrees F and application of flame.

h. EPA Emergency Response Team and EPA Oil and Special Materials control division personnel providing on-scene support. U.S. Coast Guard Atlantic Strike Team on scene at 1300 hrs.

2. FUTURE PLANS (See POLREP 3).

Tom Massey, OSC
Manassas, Va.

POLREP 3- MAJOR POLLUTION INCIDENT
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION

a. Regional Response Team (RRT) convened on-scene (1900 hrs.) 3/7/80

b. Members present:

Jeffrey Hass, EPA Region III, RRT Chairman
Tom Massey, EPA Region III, OSC
Mordecai Bennett, Corps of Engineers, Baltimore
John Dietrick, U.S. Food and Drug Administration
Carney Moran, Federal Emergency Management Agency
Domenick Ciccone, U.S. Fish and Wildlife Service
Robert King, National Transportation Safety Board
Norman Mctague, Virginia Office of Emergency and Energy Service
Ray Boles, Virginia State Water Control Board
John Capito, Virginia State Health Department
Henry Gay, Fairfax County Water Authority
Dr. Robert Dean, Prince William County Health Department
Thomas Grizzard, Occoquan Watershed Monitoring Laboratory
Jim Sorrow, Colonial Pipeline Company

c. Tom Massey, OSC, briefed members of present situation and proposed plans. OSC required that Colonial Pipeline present an aggressive containment and removal plan. Colonial Pipeline continues to take full responsibility for cleanup and costs incurred.

d. RRT advised OSC of the following plans:

1. State of Virginia Department of Health to coordinate with Virginia Office of Emergency and Energy Services on emergency action if worst case scenario develops.

2. Fire danger assessment shows minimal chance of explosion or fire on Bull Run. No security will be necessary.

3. RRT Chairman, Jeffrey Hass, directed all press releases to go through on-scene press officer.

4. Sampling program for drinking water quality to be coordinated between EPA, Occoquan Watershed Monitoring Laboratory, and Colonial Pipeline Company. EPA, Virginia State Water Control Board, and Colonial P-L to investigate local laboratories for quick GC analysis.

5. U. S. Fish and Wildlife concerned about Bull Run and Wetlands below Occoquan. Large fish kill anticipated in Bull Run over next two to three days. Nesting bald eagles and other wildlife to be monitored by Fish and Wildlife personnel.

6. Fairfax County Water Authority to initiate treatability study using activated carbon. Good capability for kerosene treatment exists at Occoquan Water Supply.

Jeffrey Hass, RRT Chairman
Manassas, Va.

POLREP 4 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (2015 HR.) 3/7/80

a. Drinking water quality in Occoquan Reservoir still a concern.

b. Ken Biglane, EPA National Response Team Chairman and Russ Wyer, EPA Headquarters, on-scene for briefing and helicopter over-flight. Warm weather and dry. Upstream wind in Bull Run has trapped oil pools in river bends for three miles above Bull Run Marina, nine miles downstream of source. No visible kerosene has reached Bull Run Marina.

c. Virginia Game Warden reported several beavers and ducks in Bull Run being impacted by oil, necessitating the relocation of some animals. U. S. Fish and Wildlife Service concerned about exotic fish species below Bull Run Marina, as well as other wildlife in impacted area.

d. Colonial Pipeline continues to take all clean-up responsibilities. Containment is presently adequate. Total kerosene recovered to date is approx. 35,000 gallons pure product, according to Colonial Pipeline.

2. ACTIONS TAKEN

a. Five sampling points have been established in the Bull Run-Occoquan River area to monitor water quality. First sample set is being analyzed.

b. Helicopter support again contracted for aerial surveillance to oversee clean-up operations and river conditions.

c. Aerial photos supplied to EPA Photographic Interpretation Center in Warrenton, Va., show locations of greatest oil concentrations.

3. FUTURE PLANS

a. Corps. of Engineer representatives to be consulted concerning gaining access to pooled kerosene above the Bull Run Marina. Colonial Pipeline personnel to assess the possibilities of improving access at scene site.

b. U. S. Fish and Wildlife Service and Virginia State Game Dept. to conduct wildlife survey of impacted area by canoe on March 9. Hastening operations and other emergency measures to protect wildlife to be investigated by Fish and Wildlife Services.

c. Virginia Water Pollution Control Board to survey Bull Run-Occoquan area to ascertain magnitude of fish kill.

d. Overflight photos and helicopter observations to continue.

e. Wind direction and rainfall will dictate any changes in containment operations.

Tom Massey, OSC
Manassas, VA

POLREP 5 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/9/80

a. Potential still exists for disruption of Occoquan Reservoir Water Supply. 450 barrels of kerosene removed from pooled area on Bull Run last night for total of approximately 60,000 gallons recovered to date, as reported by Colonial Pipeline.

b. Due to change in wind direction (now downstream), oil escaping pooled areas upstream of Bull Run Marina. Oil passing Marina forming a sheen at boom 1/4 mile downstream.

c. State Fish & Game and U. S. Fish and Wildlife reports fish kill of approximately 25,000, concentrated in 3-mile area upstream of Bull Run Marina. Two stressed beavers were relocated and one dead beaver found. Three dead mallards also found.

d. Quantity reaching Occoquan River & Occoquan Reservoir not known. Sample analysis of hydrocarbon content not yet determined.

e. Colonial Pipeline has completed repairs at line break located adjacent to Rt. 234, 1/2 mile south of Rt. 66 in Manassas.

f. Still major concern over wildlife impact, especially downstream of Bull Run Marina.

g. Presently about 100 private cleanup contractor personnel on scene. Booms located between spill site and Bull Run Marina.

h. No work or activity performed at heavy pooled area near confluence of unnamed tributary and Bull Run.

2. ACTIONS TAKEN

a. Due to Colonial Pipeline's limited resources available on scene, OSC declared a Federal Removal action at 1430 hrs., 3/9, to provide necessary actions to mitigate pollution incident.

b. OSC requests additional support from US Army, Fort Lee, US Navy, Navy Yard, Washington, D.C. and Richmond, Va. and USCG Strike Team, Elizabeth City, NC. Will provide additional expertise, vehicles, and cleanup equipment.

c. OSC requires priority cleanup to contain pooled oil located at confluence of unnamed tributary and Bull Run as soon as possible.

d. OSC requests additional EPA-ERT support from Edison, N.J..

3. FUTURE PLANS

a. Federal assistance will supplement present efforts of Colonial Pipeline, Navy, US Army, and additional USCG support to arrive on scene early 3/10. Additional private contractor, Sealand, to arrive early 3/10.

POLREP 5 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

b. EPA aerial photography to continue. EPA lab equipment to arrive on-scene, 3/10, for sample analysis. EPA Annapolis Lab, to be on standby.

c. Va. Water Control Board to continue estimate of fish kill. US Fish & Wildlife Service, with aid of Army personnel, will remove dead fish and other affected wildlife.

Tom Massey, OSC
Manassas, Va.

POLREP 6 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/10/80

a. Majority of pumping efforts continue at Bull Run Marina with Federal & private equipment & personnel. Two smaller sump pump sites located upstream of Bull Run Marina.

b. Sheen has appeared at second boom in Bull Run below Bull Run Marina. Sorbent boom has been placed below the Marina.

c. Early morning overflight shows cleanup efforts yielded approx. 50% reduction in quantity of pooled kerosene in 3 mile stretch above Bull Run Marina since previous day.

d. US Fish & Wildlife survey shows minimum number of affected waterfowl. Propane cannons being transported to Bull Run Marina in case migratory waterfowl population increases. Total of six oiled beavers picked up, only one survived.

e. Army & Navy personnel arrived on scene during early morning, 3/10. Sealand cleanup contractor also on scene.

f. Colonial Pipeline reports a total of 116,000 gallons pure kerosene recovered as of 1230, 3/10.

2. ACTIONS TAKEN

a. RRT mtg. held at 1415, 3/10. OSC requests 5th CG District ASAP.

b. State Health Dept. Rep gave results of threshold odor test done on Occoquan River samples. Preliminary results show kerosene odor detected in 2 of 6 samples tested. Treatability studies also done using powdered activated carbon. Still concern over public water supply.

c. RRT recommended that State Health Dept. consider a 60 day fishing ban in Occoquan Reservoir.

d. Army personnel and cleanup contractors placing filter fences every fifty feet in unnamed tributary. Containment and removal actions proceeding at confluence of unnamed tributaries required by OSC.

e. Dr. Joseph Lafornara, EPA ERT member, outlined sampling program in Occoquan River area. Cited 100 ppb as kerosene odor threshold, as well as action level. Presence of kerosene, rather than particular hydrocarbon components, will be pursued, using spectrofluorimeter.

POLREP 6 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

3. FUTURE PLANS

a. OSC to develop accurate estimate of recovered product through actual federal resources.

b. Pumping site to be established at confluence of unnamed tributary and Bull Run, with construction of dam there.

c. Sorbent Navy booms to be placed in Occoquan Reservoir. Sorbent booms also to be placed around water intakes.

d. State Water Control Board to collect healthy sport fish in Occoquan Reservoir. Will be analyzed by US Food & Drug Adminis. for hydrocarbon content. Results to be forwarded to State Health Dept. to assist in fishing ban decision.

Tom Massey, OSC
Manassas, Va.

POLREP 7 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/11/80

a. Still concerned over potential contamination of Occoquan Reservoir a major drinking water source. Fairfax County Water Authority odor tests detect leading edge of kerosene in water column approx. 7 miles from raw water intake at south end of Occoquan Reservoir. Kerosene concentration not yet known.

b. Bull Run Marina remains primary recovery site. Contained oil slick at Marina covers approx. nine surface acres, according to EPA Vint-Hill aerial photo interpretations. Small quantity of oil has been removed from secondary containment booms 1/2 mile below Marina.

c. Wild life damage today, as reported by Fish & Wildlife Representatives: 7 beavers, 2 distressed, 5 dead. Also, 10 waterfowl, 7 dead, 3 alive. Propane cannons are operating, may be discontinued due to several resident complaints about noise. VWCB estimate of fish kill remains at 5,000.

d. Over 30 filter fences in unnamed tributary are effective. Additional Army manpower required to herd oil pools and remove saturated sorbent.

e. Latest aerial photos from EPA, Vint Hill, show small kerosene pools remain in coves and hugging shorelines. Vint Hill Photo Interpretor is assisting cleanup personnel in identifying residual areas of kerosene.

2. ACTIONS TAKEN

a. Recovery operations at Bull Run Marina are intensifying to ensure kerosene is removed ASAP. Several booms above Marina being removed to push oil out of upper reaches, to be secured and removed at marina. Dake skimmers and pump are operating 24 hrs. per day at marina. Additional secondary containments are being located at Fountainhead Marina and Sandy Point in Occoquan Reservoir. Equipment at each site includes 1000 foot Navy boom, skimmer, and inflatable barge.

b. Changing wind direction is pushing dead fish to bottom of Bull Run. Dead fish pickup by Army & Fish & Wildlife personnel will be temporarily suspended.

c. Local and State of Virginia Air Quality officials give approval to incinerate oil-soaked debris at Prince William County Landfill. Federal EPA approval must be granted before project can begin.

d. VWCB and US Fish & Wildlife Service is coordinating Federal and State preliminary damage assessment of Occoquan Watershed area.

3. FUTURE PLANS

a. Fairfax County Water Authority to begin 10 ppm application of powdered activated carbon at Fairfax County Water Treatment Plant located at south end of Occoquan Reservoir to ensure system is functioning properly.

b. Sampling and analysis efforts to determine if threat to water supply exists will continue utilizing local, state & federal lab equipment and personnel.

c. Prince William County Fire and Rescue Services to coordinate all calls from local citizens regarding wildlife damage with U.S. Fish & Wildlife Service. Prince William County Dept. of Emergency Services and Prince Wm. Co. Public Works Dept. to coordinate disposal of contaminated debris at Prince Wm. Co. Landfill.

Tom Massey, OSC
Manassas, Va.

POLREP 8 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/12/80

a. Va. Governor declares State of Emergency, Manassas, VA. Gov's Rep on scene reports no complaints from state concerning present response operation.

b. Latest odor analysis of Occoquan Reservoir shows leading edge of kerosene in water column has reached a point approx. 6 miles from water intake at Fairfax County Treatment Plant. Treatability studies using power activated carbon indicate all contaminated reservoir samples can be reduced to below harmful kerosene levels in drinking water using PAC treatment capabilities already available.

c. Navy booms have been deployed at Fountainhead and Sandy Point in Occoquan Reservoir as precautionary measure.

d. Helicopter overflight at 1200, 3/12, indicates surface slick area at Bull Run Marina has been reduced to approx. 4 acres in size. As of 1800, 3/12, approx. 149,000 gals. of oil/water have been removed from spill site downstream to Bull Run Marina.

e. 2 additional beavers have been found dead plus 2 muskrats. Wildlife officials indicate fur bearing animals most heavily impacted by spill. Death toll to date: 9 beaver, 2 muskrats and 26 waterfowl.

2. ACTIONS TAKEN

a. OSC requests that 311 (k) fund ceiling be increased to $100,000.

b. Construction of dams at confluence of unnamed tributary and Bull Run continues. Any significant quantities of kerosene appearing behind dam to be removed.

c. Likelihood of heavy rain/snow in next 36 hrs. prompting consideration of using large 3001 Navy skimmer as part of Occoquan Reservoir Contingency Plan. Possible launch sites in Reservoir area being investigated. Launch by helicopter ruled out. By end of 3/12, use of 3001 skimmer determined not feasible.

3. FUTURE ACTIONS

a. Recovery of small amount of remaining kerosene to continue at Bull Run Marina. Cleanup in unnamed tributary continues, with state WCB rep. organizing cleanup priorities from spill site down to dam at confluence of Bull Run.

b. Funds needed to provide supplies at private wildlife rehab. center.

POLREP 8 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

Dead beavers being transported to National Zoo for necropsy.

Tom Massey, OSC
Manassas, Va.

POLREP 9 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/13/80

a. Area of boomed oil reduced to approx. 150 feet x 50 feet on surface at Bull Run Marina. Approx. 200 gallons of product remaining at Marina. Several small pools herded downstream to recovery site.

b. Tank soundings by USCG personnel at Colonial Pipeline indicate approx. 200,000 gallons product recovered as of 1800, 3/13. Recovered product to be chemically treated to enhance water separation. OSC requires Colonial to recalculate estimate of material spilled and report to OSC ASAP.

c. Unofficial count of 400 dead fish in unnamed tributary, in addition to 5,000 previously reported in Bull Run. Northern Va. Park Authority on alert to report any fish kills to Va. WCB.

d. Helicopter overflights grounded due to poor visibility and icy conditions.

2. ACTIONS TAKEN

a. Dam completed at confluence of Bull Run and unnamed tributary. Four large filter fences positioned just above dam. Debris removed from west side of Rt. 234 to free trapped residual oil. Army personnel continue assistance in cleanup of unnamed tributary.

b. Oily debris and saturated sorbents being transported to Prince Wm. County Landfill. Burning has begun with approval from all Local, State and Federal Authorities.

c. Analysis of water samples taken at 5 sampling locations from water intake and upstream in Occoquan Reservoir not yet available. Samples taken at depths of 0, 2, 10, 20 feet and bottom. EPA testing being performed in cooperation with Occoquan Watershed Monitoring Lab.

d. Dept. of Trans. Rep indicates pipeline break being investigated by Office of Operations and Enforcement. No conclusion yet.

e. Mtg. between OSC and Local and State agencies to discuss shift of responsibility for supervision of final cleanup from Federal to State and Local agencies.

3. FUTURE PLANS

a. Once all oil has been removed at Bull Run Marina several USCG and Navy booms will be removed from Occoquan Reservoir. Will remain on 24 hr alert until all sheens removed from Bull Run. River inspections continue to locate trapped oil in river bends.

b. Prince Wm. County Fire and Rescue Service to be contact point between citizens with property damage and Colonial.

c. OSC indicates operation will not be phased out if any question of public health threat remains.

d. Sampling analyses to reveal latest location of kerosene in water column in Occoquan Reservoir.

Tom Massey, OSC
Manassas, Va.

POLREP 10 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (2030 HRS.)3/14/80

a. Runoff from storm of 3/13/80 causing high water conditions.

b. Approx. 50 gallons of product presently entrapped at Bull Run Marina collection point.

c. Oil sheen escaping from booms at Bull Run Marina being contained at collection points further downstream.

d. Large amounts of debris being washed into Bull Run due to storm.

e. Dam at confluence of unnamed tributary and Bull Run maintaining its integrity.

f. Colonial personnel reporting 265,547 gallons of oil/water mixture collected as of 3/14/80. OSC still recognizing USCG value of 200,000 gallons product recovered as of 3/13/80.

2. ACTIONS TAKEN

a. Scientific Committee recommends Fairfax County Water Treatment Plant begin 25 ppm application of powdered carbon to ensure protection against possible kerosene contamination of raw water supply.

b. Joint sampling effort between EPA personnel and Versar Inc. begun on 3/14.

c. Water samples taken of influent and effluent flows at Fairfax County Water Treatment Plant. Samples flown to EPA Lab, Edison, N.J. for analysis of kerosene content.

d. Sorbent boom placed above and below Bull Run Marina to increase capture of oil sheen.

e. Work crews dispatched to remove debris caught in booms.

f. 3,000 gallons of oil/water removed from collection point at dam located at confluence of unnamed tributary and Bull Run.

g. Interceptor trench being constructed east side of Rt. 234 to provide collection of oil still remaining in ground downslope of pipe break.

h. 13,000 pds. of oil soaked absorbent and debris incinerated on 3/13 at Prince Wm. County Landfill.

POLREP 10 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

3. FUTURE PLANS

a. Continue sampling and analysis program at and upstream of Fairfax Co. Water Treatment Plant.

b. Begin phase out of Coast Guard, Army and Navy personnel.

c. State and Local officials begin transition phase towards taking over management of final cleanup operations.

d. Occoquan Watershed Monitoring Lab to investigate feasibility of ultraviolet absorption method for sample analysis.

e. Colonial Pipeline officials state that redetermination of amt. of kerosene spilled will be available at 1200 hrs. on 3/16.

f. FDA fish tissue analysis will be completed 3/17.

g. Continue aerial photography and helicopter overflight operations.

Thomas Massey, OSC
Manassas, Va.

POLREP 11 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (2045 HR.) 3/15/80

a. High water conditions continuing due to runoff from storm of 3/13/80.

b. Analysis of samples sent 3/14 to EPA Lab, Edison, N.J., revealed no detectable amount of kerosene in intake or discharge from Fairfax County Water Treatment Plant.

c. Leading edge of kerosene determined to be approx. 2,500 ft. from Water Treatment Plant intake.

d. Oil soaked debris entrapped in cove areas upstream of Bull Run Marina.

e. Necropsy of oiled beaver confirms liver damage due to kerosene ingestion as cause of death.

f. Eagles spotted in spill area; however, US Fish and Wildlife officials anticipate no problems involving eagles due to kerosene spill.

2. ACTIONS TAKEN

a. All Army personnel have now returned to Ft. Belvoir.

b. Two Navy booms have been removed from service.

c. Colonial requested to repair Siphon Dam located on unnamed tributary just west of Rt. 234.

d. Approx. 31,000 lbs. of contaminated material trucked to Prince Wm. County Landfill.

e. Guidelines established for sampling and analysis program between EPA and Versar, Inc.

f. Fairfax County Water Treatment Plant now operating at 50 ppm carbon addition.

g. New sorbent boom placed just upstream of harbor boom at Water Treatment Plant intake.

3. FUTURE PLANS

a. EPA to continue fluorescent analysis to evaluate water column contamination.

b. Coast Guard to regauge recovered product storage tanks on 3/17.

c. FDA fish tissue analysis to be completed 3/17.

d. No further aerial photography expected to be performed at this time.

e. Helicopter support to remain on scene.

f. Damage Assessment Task Force to be set up to evaluate environmental damage due to kerosene spill.

Tom Massey, OSC
Manassas, Va.

POLREP 12 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION

a. High water conditions abating.

b. Sampling and analysis program by EPA and Versar continuing.

c. Fairfax Co. Water Treatment Plant still operating with 50 ppm activated carbon addition. This is a 2 to 3 safety factor.

d. Colonial Pipeline personnel report reestimate of total kerosene spilled as 336,000 gallons. (This is an increase of 169,000 gallons over the Co.'s previous estimate for Manassas).

e. Colonial estimates total product recovered to date is 240,000 gals.

f. Leading edge of kerosene appears to have moved past the Occoquan Dam.

g. OSC to leave site, return to Phila. at 1430 hrs.

2. ACTIONS TAKEN

a. Work crews have begun removal of oil soaked debris in large cove upstream of Bull Run Marina.

b. USCG AST Mobile Command Post removed from spill site due to more urgent need for use at oil spill in Mississippi River.

c. OSC, Fredericksburg, Va., contacted to request Mason and Hanger Command Post trailer be transferred to Manassas once no longer needed at Fredericksburg.

d. Strike Team and State WCB personnel evaluating locations for static booms for long term recovery process.

e. Fairfax Co. Water Authority has set up special account for costs incurred due to kerosene spill.

f. 4 filter fences in unnamed tributary removed by Colonial personnel.

g. Third siphon dam completed on east side of Rt.234.

h. OSC representative has advised Colonial officials that unless a much improved effort is put forth towards cleaning large cove upstream of marina, cleanup of this area will be taken over as part of pollution fund cleanup effort.

POLREP 12 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

3. FUTURE PLANS

a. ERT evaluating possibility of sediment analysis for contamination due to kerosene spill.

b. State WCB personnel to evaluate who will perform future fish tissue analysis, State or FDA.

c. 6 to 12 sea gulls which have eaten contaminated dead fish will be captured and sent to Patauxent Wildlife Research Lab in Laurel, MD for study on effects of ingestion of these fish.

d. ERT to compile all lab data collected to date by various parties. Two VAC trucks to remain at Bull Run Marina 24 hrs. per day until further notice.

f. Geologist from State WCB to arrive 3/17 to evaluate extent of ground contamination in area of pipe break.

g. RRT meeting tentatively scheduled for 3/20 in Manassas.

Tom Massey, OSC
Manassas, Va.

POLREP 13 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.)3/17/80

   a. Intermittent light rain continuing throughout the day.

   b. Sampling and analysis program by EPA and Versar continuing.

   c. Most recent lab data from both EPA and Versar indicates kerosene slug has already begun to pass Occoquan Dam.

   d. Samples taken by State Health Dept. of influent and effluent at Fairfax Co. Water Treatment Plant revealed 350 ppb kerosene for influent and not detectable for effluent.

   e. OSC has requested increase in ceiling of pollution fund for Manassas, VA of 300,000 dollars.

2. ACTIONS TAKEN

   a. Cleanup operation at large cove upstream of Bull Run Marina has improved markedly. Aid in this operation has been requested of the Northern VA Regional Park Authority.

   b. Static boom locations have been established at 5 points along Bull Run and Occoquan Reservoir for long term recovery operation.

   c. Joint effort by Strike Team and Colonial personnel to gauge product recovery tanks produced value of 288,120 gals. of product recovered to date.

   d. State WCB geologist is evaluating potential for groundwater contamination due to the kerosene spill.

   e. Coast Guard boom at intake of Water Treatment Plant taken out and replaced by Colonial owned boom.

   f. 5.6 tons of contaminated material trucked to Prince Wm. County Landfill.

3. FUTURE PLANS

   a. Prince Wm. Co. officials, in conjunction with State officials, to perform canoe trip from confluence of unnamed tributary and Bull Run to Bull Run Marina. Purpose is to note present wildlife situation and any unidentified pockets of oil and oil entrapped debris.

   b. State WCB is on alert for possible fish kill downstream of Occoquan Dam.

c. Aerial photos of spill site to be taken 3/19 so as to be available for RRT meeting on 3/20.

d. FDA fish tissue analysis to be available 3/19.

e. Damage Assessment Task Force conference involving all interested organizations to be held 3/18.

Tom Massey, OSC
Manassas, Va.

POLREP 14 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR) 3/18/80

   a. Predicted overnight rainfall did not develop therefore no high water conditions.

   b. Cleanup operation at large cove 90% complete.

   c. 1 helicopter still on scene.

   d. Remaining USCG Strike Team personnel to pull out on 3/19.

   e. Incineration operation for disposal of contaminated material continuing at Prince Wm. County Landfill.

   f. Colonial personnel state that failure of pipeline at Manassas was due to corrosion.

2. ACTIONS TAKEN

   a. State WCB geologist is setting up monitoring program for groundwater contamination using existing privately owned wells and drilling new wells as needed.

   b. Management of final phase cleanup operations to be turned over to State WCB personnel as of 3/19.

   c. Damage assessment conference held today, objectives of study put forth and committee assignments made.

   d. Strike Team and State WCB personnel set up program for long term monitoring and cleanup operations.

   e. 15.8 tons of contaminated material taken to Prince Wm. Co. Landfill today. Total contaminated material hauled to landfill to date is 63.79 tons.

3. FUTURE PLANS

   a. OSC returning to Manassas on 3/19.

   b. RRT meeting to be held in Manassas on 3/20.

   c. FDA fish tissue analysis to be available 3/19.

   d. Aerial photos to be taken 3/19.

   e. Daily helicopter overflights to continue.

Tom Massey, OSC
Manassas, Va.

POLREP 15 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/19/80

a. Weather continuing favorable for cleanup operations. No rain expected until Thursday evening (3/20).

b. Cleanup operations at isolated cove areas continuing. Expect all activities except static boom placement to be complete as of COB 3/20/80.

c. One helicopter on scene. Expect to terminate helicopter support at COB 3/20.

d. USCG AST personnel departed scene 0900, 3/19.

e. Incineration of contaminated material continuing at Prince Wm. County Landfill. 7.32 tons of material delivered today, bringing the total to 71.11 tons.

2. ACTIONS TAKEN

a. County and State Officials accompanied by delegates to State Legislature surveyed Bull Run by canoe, finding no sheen or odor from the spill site to the first boom (Gun Club). There were no signs of dead waterfowl. Sheen varying from slight to heavy was visible from the Gun Club downstream to Bull Run Marina.

b. Aerial photos taken today, expect no additional photography unless situation changes.

c. Sampling program continuing at Occoquan Watershed Lab. results continue to show kerosene slug has passed Occoquan Dam.

d. Preliminary FDA fish analyses show no detectable kerosene at 1 ppm detection limit. Tests to confirm these results are being run today, expect results 3/20.

3. FUTURE PLANS

a. RRT meeting to convene in Manassas on 3/20, 1400 hrs. OSC to receive input from RRT on 311 fundable activities remaining on scene.

b. Prince Wm. County Health Dept. to assist VA WCB in groundwater investigation.

c. Colonial Pipeline and VA WCB to meet with property owners affected by spill to discuss property restoration, where needed, along stream bank.

Tom Massey, OSC
Manassas, Va.

POLREP 16 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1800 HR.) 3/20/80

a. RRT convened on scene 1400 hr., 3/20.

b. *Members present:*

Jeffrey Hass, EPA Region 111, RRT Chairman (by phone)
Commander Gene Moran, 5th CG Dist., Vice Chairman (by phone)
Tom Massey, EPA Region 111, OSC
Mordecai Bennett, Corps of Engineers, Baltimore
John Dietrick, US Food and Drug Administration
Al Jackson, US Fish and Wildlife Service (by phone)
Robert King, National Transportation Safety Board (by phone)
William Whitehead, VA Office of Emergency Services
Al Willet, VA WCB
Monte Lewis, VA State Health Dept.
Henry Gray, Fairfax County Water Authority
Tom Gizzard, Occoquan Water Shed Monitoring Lab
Jim Payne, Prince Wm. County Public Works Dept.
Jerry Paisley, Colonial Pipeline Company
Selby Jacobs, Prince Wm. County Emergency Services
Ernest Watkins, VA WCB
Wayne Wilcox, Naval Facilities Engineering Command
Jim King, Prince Wm. County Health Dept.

2. ACTIONS TAKEN

a. RRT was appraised by VA WCB, OSC, and other cleanup personnel that the cleanup operation is 99% completed. Continuing chemical analysis of Bull Run/Occoquan Reservoir will confirm the concentration of kerosene remaining in the water column.

b. OSC tasked VPI Occoquan Watershed Monitoring Lab to continue sample analysis as long as needed.

c. Fairfax County Water Authority considers the drinking water threat passed.

d. Approx. 260,000 net gals. of product were recovered, according to latest estimates from Colonial Pipeline.

e. Fish and Wildlife Service requested 2 gals. of reclaimed oil to perform toxicity tests on waterfowl.

POLREP 16 - MAJOR POLLUTION INCIDENT, KEROSENE SPILL
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

f. EPA to provide National Transportation Safety Board with any necessary information required for any NTSB investigation into the pipeline break.

g. ERT to advise OSC regarding EPA involvement in the Damage Assessment Study (See POLREP 14, Item (2) (c). Al Willet to coordinate Damage Assessment Study involvement for VA. WCB.

h. The next RRT meeting expected to formally deactivate the RRT for this project will be convened by telephone within 2 weeks.

i. OSC has designated Ernest Watkins, VA WCB, as OSC Representative on scene.

Tom Massey, OSC
Manassas, Va.

POLREP 17 - MAJOR POLLUTION INCIDENT
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1600 HRS.) 3/26/80

   a. 5 boom locations still being maintained in Bull Run.

   b. Dam at confluence of unnamed tributary and Bull Run effectively containing sheen.

   c. A light sheen noticeable just upstream of Bull Run Marina.

   d. Sampling and analysis program continuing.

   e. Incineration operations for oil soaked debris continuing at Prince William County Landfill.

2. ACTIONS TAKEN

   a. State Water Control Board personnel monitoring boom location on a once per day basis.

   b. OSC authorized State WCB to contact all affected or interested local agencies for their opinion on removal of all booms from Bull Run and the Occoquan Reservoir.

   c. Colonial Pipeline Co. has contacted people whose property was adversely affected by the kerosene spill or the subsequent cleanup operation regarding restoration.

3. FUTURE PLANS

   a. If no objections from concerned local parties, boom removal to begin 3/27/80.

   b. Fairfax Co. Water Treatment Plant to consider ending activated carbon addition.

   c. Tom Massey, OSC, and John Walsh, TAT, to attend NRT meeting, Washington, DC at 1000 hrs. 3/27/80.

Tom Massey, OSC
Phila., Pa.

POLREP 18 - MAJOR POLLUTION INCIDENT
COLONIAL PIPELINE COMPANY, BULL RUN, MANASSAS, VA.
FED PROJECT NO. 05-100-108-80

1. SITUATION (1000 HRS.) 3/28/80

   a. Several booms remain in place in Bull Run.

   b. Colonial's estimate that 336,000 gals. spilled from pipeline, 257,000 gals. removed and stored at local tank farm. Colonial to dispose of recovered material by selling to rerefining co.

   c. Some small traces of sheen in Bull Run. Bulk oil removed. Removal considered complete.

   d. Drinking water quality (raw water) has stabilized. Contaminated water column considered downstream from water intake.

2. ACTIONS TAKEN

   a. OSC made site inspection on 3/28 and briefed NRT members 3/27 on spill cleanup activities to date.

   b. Va. WCB established monitoring wells in Prince WM County. (For private drinking water supplies).

   c. Prince WM. Co. reported receiving approx. 96 tons of kerosene soaked debris, including sorbents.

   d. FDA reported no detectable contamination in fish samples.

   e. FDA sending written confirmation to VA. Health Dept. in order to release press info concerning eatability quality of game fish.

3. FUTURE PLANS

   a. OSC authorized ERT to contract and coordinate extent of contamination survey under 311 activities, with Local and State authorities.

   b. Upon notification that this survey shows no additional cleanup activities are warranted the project will be terminated.

   c. OSC to convene RRT prior to termination of 311 activities.

Tom Massey, OSC
Phila., Pa.

1. Site of Colonial Pipeline break.

2. Oil flowing down Bull Run before containment.

3. Oil collected and pooled in cove behind boom on Bull Run above the Marina. 3/8/80

4. Oil collected behind two upstream booms and boom at Bull Run Marina.

5. Weather and terrain hamper operations.

6. Oil contained downstream at Bull Run Marina.

7. Clean up operations at Bull Run Marina.

8. Command post activities include EPA, Army, Navy, Coast Guard and Colonial Pipeline representatives.

9. OSC confers with Mr. Biglane, Mr. Cook and Mr. Grizzard on scene.

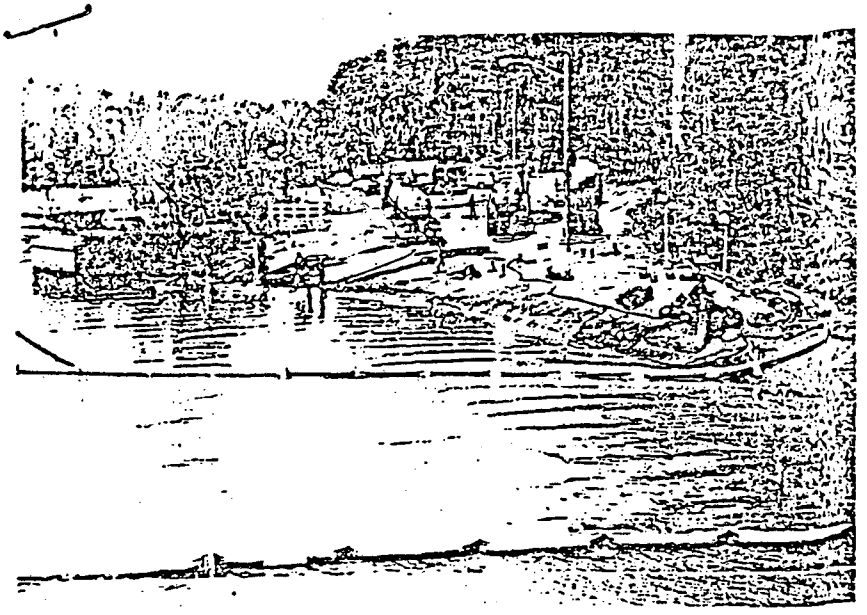
10. Virginia Fish and Wildlife personnel measure oil killed beaver.

11. OSC assesses effectiveness of underflow dam on unnamed tributary.

12. Oil killed water fowl found along Bull Run.

13. Occoquan Reservoir water intake. Boom in place as precautionary measure.

SPRING 1980 Vol. 2, No. 2b
FAIRFAX COUNTY WATER AUTHORITY
pipeline



quick action prevented disaster

In early March, near a major highway north of Manassas, Virginia, a large, interstate oil pipeline ruptured, spilling over 300,000 gallons of aviation kerosene into Bull Run—a tributary of the Occoquan Reservoir.

Swift action on containing and cleaning up the spill by Fairfax and Prince William fire and rescue squads, Virginia State Water Control Board, Environmental Protection Agency (EPA) Emergency Strike Force, military personnel, the pipeline owner and nearly 20 other agencies avoided contamination of Northern Virginia's major water supply. In addition to protecting the water supply, fish and wildlife damage was held to a minimum.

Throughout the emergency, the Authority's concern was to protect drinking water quality. The Authority, assisted by Virginia State Health Department, Occoquan Monitoring Laboratory and EPA, monitored the movement of kerosene on Bull Run and continually tested the reservoir for contaminants commonly found in aviation kerosene.

The Authority also conducted laboratory tests at its water purification plant to study the effectiveness of plans to remove the kerosene from the water should contamination actually occur. The testing was successful, assuring public health officials that the kerosene could be removed.

Approximately four days after the spill occured, very small traces of kerosene were detected at the water supply intake; however, they were easily and effectively treated and removed. Kerosene was never detected in the drinking water leaving the purification plants.

The Authority is indebted to all those persons who contributed to the success of the containment and cleanup operations upstream of the reservoir which eliminated the need to curtail water service to the 700,000 people who depend on the Authority for drinking water.

Washington Post
3/8/80

EPA Is Battling Manassas-Area Kerosene Spill

By Ronald D. White
Washington Post Staff Writer

Ribbons of foul-smelling aviation kerosene from a 250,000-gallon pipeline spill in Manassas coated a 10-mile stretch of Bull Run yesterday, creating what a federal official called "a potentially horrendous situation."

Environmental Protection Agency spokesmen, disavowing earlier statements by local officials that the spill constituted no health hazard, said the kerosene has the potential to contaminate the Occoquan Reservoir, source of drinking water for 660,000 Northern Virginians.

Officials also are "very concerned" about possible damage to fish and wildlife, one spokesman said.

The leak occurred Thursday afternoon after a 32-inch underground pipe owned by the Colonial Pipeline Co. burst at a Manassas fuel depot. The pipeline is a major petroleum transmission route stretching from Texas to New Jersey.

Estimates of the size of the leak, put at 100,000 gallons by local officials on Thursday, were more than doubled by EPA yesterday.

"In a stream bed this size, a spill of these proportions is just horrendous," said Tom Massey, onscene coordinator of a 25-member EPA team overseeing containment and recovery efforts.

By 5:30 p.m., the spill had reached several barriers of floatation collars stationed at Bull Run Marina, roughly 10 miles from the intake ducts of the Occoquan Reservoir, in Southern Fairfax County, according to EPA spokesman George V. Bochanski Jr.

Officials and workers at the scene differed on how effective the collars might be in stopping the flow of the pale yellow, oily kerosene. EPA officials, calling the kerosene extremely toxic, said it was impossible to estimate how much already had entered the water table.

Kerosene could reach the Occoquan Reservoir sometime this weekend if the collars fail to block it, EPA said. In that event, the agency said it would recommend that intake ducts be closed temporarily.

Spill recovery workers from a private Baltimore firm, J and L Industries, Inc., erected floatation collars made of absorbent cotton at four stations along Bull Run, according to J and L superintendent Frank Enos. The collars are capable of absorbing 10 times their weight in oil.

"But the currents were very swift. It's like a river in some places," said Fairfax County Fire and Rescue Services of George M. Alexander. "The kerosene would thicken at the collar site and eventually begin to flow under them."

Eleven Fairfax County firefighters, wading in chest-deep water to help attach the collars Thursday night, sustained chemical burns from the kerosene, said Fairfax County fire spokesman Stephanie Hoover. One of them, 27-year-old Robert Clark, was treated for burns at Commonwealth Doctor's Hospital before being released.

The collars, and a crude dike of blankets and chicken wire fences erected Thursday at Bull Run Park, managed to contain some of the kerosene.

"On a warm day like today, a gallon of oil can spread 200 or 300 feet," Enos said yesterday while rubbing bloodshot eyes after being up all night. "Its a mess, really. It's real thin kerosene, and the thinner it is, the quicker it moves."

Enos said he was convinced the spill would go no further than Bull Run Marina, where five of the floatation collars and a vacuum "skimmer" with a truck capable of holding more than 5,000 gallons was stationed.

"It ain't going no further than here," Enos said. "We've got people from Newport News and Baltimore here on this and some of them are adding more collars further up. The water level is down about a foot from yesterday and a lot of it is covering the banks."

Colonial spokesman Jim Sorrow said his company will assume the entire cost of the clean-up operation.

"We have no idea why the line broke," he said. "We haven't been able to see the hole yet because we haven't reached it. It was 18 feet deep at that point and there are several large rocks that must be removed."

Sorrow said the pipeline normally moved about "26,000 barrels per hour, and there are 42 gallons in a barrel."

sene) will get into the drinking water number of contingency plans for get-

"It's impossible to estimate when the pipeline can be restored," Sorrow said. "But it will not cause an immediate fuel shortage in the North. That kerosene is used in domestic aircraft and there is normally a five-day reserve maintained for emergency situations."

Bochanski, the EPA spokesman, said the suburban Washington area's "scientific community has been canvassed" in order to assess the potential damage to the environment. Massey said the EPA was "very concerned about the possibility that (the kerosens) will get into the drinking water . . . it's very toxic."

Lonnie Watkins, a representative of Virginia's State Water Control Board, told reporters he would be meeting with other officials to determine a number of contigency plans for getting drinking water if the Occoquan is contaminated.

Fairfax County recently bought a large rock quarry next to the reservoir that will be filled with water to act as a reserve in cases of emergency, but it will not be available soon, a Control Board representative said.

Officials said they could also get fresh water in limited amounts from Fairfax County lakes, and that Arlington County and Falls Church could also furnish drinking water.

A long-range plan to develop intake ducts on the Potomac River to supply Northern Virginia will not be completed until 1981, a Fairfax water authority official said.

Even after the spill has been cleared, Bochanski said environmental investigations to assess the long-run damage to wildlife and the environment will continue. "Some will get by the marina. Officials will be trying to determine what wildlife has been affected and in what ways, like a before-and-after comparison," he said.

Washington Star
3/9/80

Fuel Spill Threatens Va. Wildlife

By Howie Kurtz
Washington Star Staff Writer

Federal officials are fearful that the massive spill of kerosene at Bull Run in Manassas has contaminated a large amount of fish and wildlife in what they term the largest freshwater accident in Virginia history.

Some 200,000 gallons of light kerosene used in airplanes is still coating a 10-mile stretch of the waterway after an underground pipeline owned by Colonial Pipeline Co. burst unexpectedly Thursday.

Environmental Protection Agency officials yesterday found several contaminated ducks that had to be destroyed and several beavers also sick from the kerosene. The EPA officials did not see any dead fish during a helicopter tour of the area, but they expressed concern that many dead fish might be submerged beneath the water's surface.

"We expect there will be a rather large fish kill from this accident, although we haven't seen any physical evidence so far," said EPA official George V. Bochansky Jr. "Other ducks, geese and birds seem to have left the area. But there's no doubt it's an extremely serious spill with respect to wildlife."

Officials are optimistic, however, that the kerosene spill won't endanger the drinking water supply for 660,000 Northern Virginians.

The extremely toxic kerosene is about nine miles from the Occoquan Reservoir. Fairfax County officials are prepared to close the reservoir if enough of the foul-smelling material slips past the large flotation collars of absorbent cotton that have been placed in Bull Run Marina.

> 'Other ducks, geese and birds seem to have left the area. But there's no doubt it's an extremely serious spill with respect to wildlife.'

Fairfax officials are using carbon filters to cleanse whatever kerosene reaches the Occoquan Reservoir. But the kerosene is moving slowly and the chances of a projected thunderstorm faded yesterday.

A second spill of 60,000 gallons from the same pipeline was found late Friday in the Rappahannock River, which provides drinking water for 50,000 people in the Fredericksburg area. Fredericksburg officials closed their reservoir as a precaution and decided to rely on the four-day supply in their storage tanks.

Much of the light, soluble kerosene has mixed with the water of Bull Run, making it far more difficult for the 100 cleanup workers on the scene to remove it from the waterway. The cotton flotation collars are absorbing only that fuel which has floated to the surface.

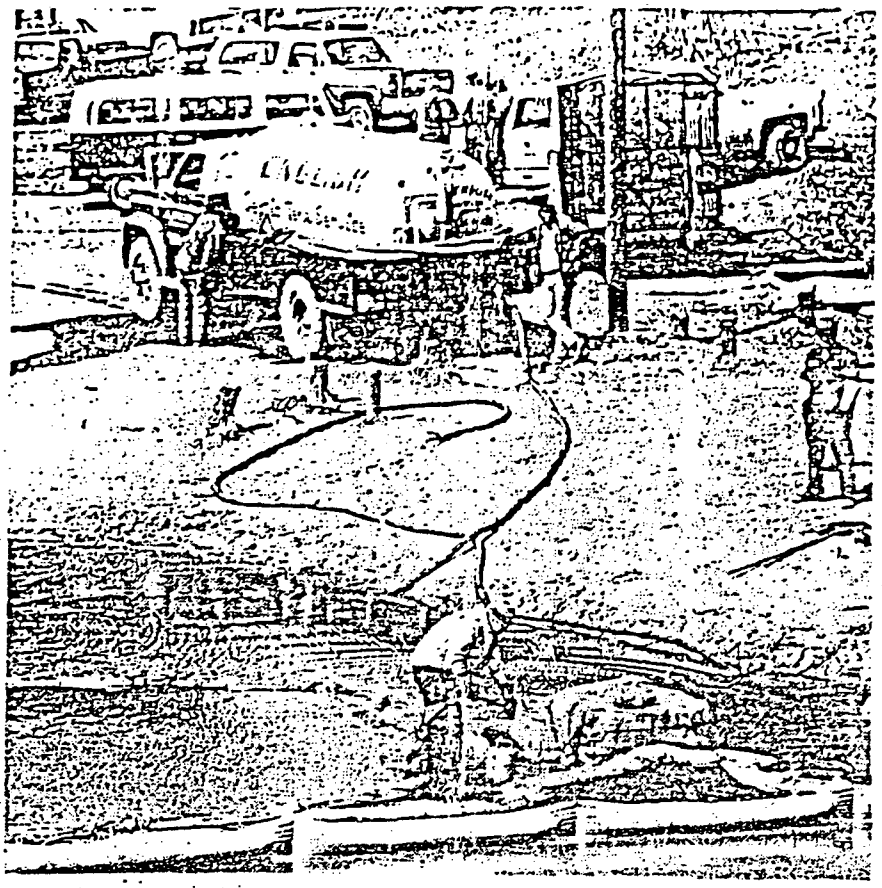
EPA officials say there will be no health hazard unless the kerosene reaches the level of 180 parts per billion. At lower concentrations, officials say, the water will be safe to drink, but could present taste and odor problems and may have to be boiled first.

Jim Sorrow of Colonial Pipeline said the two breaks occurred because pressure built up after several pumping stations were shut down along the line. He said a control valve did not work properly, but he also blamed "human error" for the firm's failure to adjust the pressure.

"This is the worst thing we've ever faced," Sorrow said. The 32-inch pipeline, which stretches from North Carolina to New Jersey, has now been shut down.

Colonial, which will pay the cleanup costs, could face fines of at least $25,000 a day if it is found in violation of safety rules, federal officials say.

3/11/80



Talmadge Rutledge-The Journal Newspapers

Tank trucks pump oil from water at Bull Run Marina

Over 25,000 Fish Believed Killed

By GARY RHODES
JM Staff Writer

A third battle of Bull Run is being waged according to Tom Massey, federal coordinator, as a team of government organizations and private contractors try to contain a major spill of kerosene here that has already killed 25,000 fish.

Since late Sunday, some fuel has moved as much as a mile beyond several booms at Bull Run Marina to another location on the Occoquan where a boom is in place. "There is not a major concern about the quality of the water now," Massey stated, "but if it should rain, the oil could get out of containment. In that event, technology would not be available to control it in some currents." There was no rain in

tion is planned. Vacuuming will continue as well as skimming and booming, which is a device that clears the oil on top of the surface of the water.

A federal fish and wildlife oil spill coordinator on-scene said the fish kill extends from Bull Run Marine three miles upstream. A continued kill is expected for the next few days. There are a number of fish in "distressed condition," according to the official. The kill is believed to be limited to Bull Run with tributaries being "fairly clear."

The fish are the main concern, rather than wildlife. Affected species include crappie, blue gill and red-eyed sun perch. The fate of oil turtles, other aquatic life and water organisms is also of some concern, the federal official said.

It is termed a massive kill. Wildflife

Fish

Continued from A-1

As far as birds go, three dead mallard ducks have been observed. A Canada goose has not been given much chance for survival. The affect on water fowl appears to be minimal because of migation patterns at this tiem of year, the official said.

Helicopter flights are scheduled today for aerial surveillance of the affected areas. A mobile lab was brought in by EPA for analysis of the fuel product.

The Occoquan Watershed Monitoring Laboratory in Manassas and Versar, a laboratory with offices in Reston and Springfield, are conducting tests on water samples.

Massey said that tests will be made on the kerosene where it is the thickest to determine how much of the threat it will be to the drinking water of Prince William and Fairfax counties.

"This is a big battle that is going to be fought like the one a hundred years ago," Massey stated. "If we lose it everybody will lose."

There is reason for concern about wildlife and about the possible presence of dangerous elements in the spillage. A pair of dead beavers has already been spotted in addition to the fish. Other sick animals have been seen too.

Journal Messenger
3/11/80

Federal Officials Step In To Help with Cleaning Up

By MARK BAILEY
JM Staff Writer

Fearing major contamination of the Occoquan Resevoir, its tributaries, and the surrounding environment, the Federal Environmental Protection Agency Sunday stepped in and took control of efforts to contain a kerosene slick making its way down Bull Run. That slick is the result of the release of nearly 250,000 gallons of kerosene from a ruptured pipeline near Manassas last Thursday afternoon.

On Scene Coordinator of the E.P.A.'s emergency strike force, Tom Massey, declared the spill a federal clean-up effort at 2:15 p.m. Sunday when it was determined that efforts by the Colonial Pipeline Co., owners of the ruptured pipeline, had failed to contain the slick at Bull Run Marina.

Such a declaration transfers control of the operation to the E.P.A. and allows for increased use of federal personnel and equipment in the clean-up operation. Late yesterday the Coast Guard began calling for additional equipment including skimmers, absorbent cotton booms to spread across the river's surface, and large rubber bladders in which to store the kerosene.

As of Sunday afternoon the Environmental Protection Agency, the Coast Guard, the Federal Disaster Coordination Agency, the Virginia Commision of Game and Inland Fisheries, the Virginia State Water Control Board, the Virginia Department of Health, as well as Colonial Pipeline and its contractors J&L Industries of Baltimore were all involved in the clean-up effort.

A spokesperson for the E.P.A. said that Sunday's take over of the clean-up in no way reflected discredit on the efforts of Colonial Pipeline Co., but merely allowed for an increased use of federal resources in the effort.

As late as Saturday night officials on the scene had been optomistic that the spill would be contained behind booms spread across Bull Run at the marina about eight miles above the reservoir. At that time a southerly wind was keeping the spill contained above the marina.

During the night, however, the wind shifted and began sending the surface "sheen" toward the reservoir.

Peter Ackly, press spokesman for the E.P.A. on the scene, said yesterday that the situation with regards to contamination of the water source and to a significant wildlife kill is potentially quite serious.

"At this time we have no direct evidence of any significant wildlife damage, but it may be too soon to tell how much damage has been or will be done," Acly said.

Acly noted that some bad taste and smell would probably find its way into the water supply, but that filtration facilities at the Fairfax County Water Authority would remove any potental threats to public health. He noted that the FCWA facility was one of the best technically equipped and scientifically staffed water treatment equipped and scientifically staffed water treatment equipped and scientifically staffed water treatment plants in the country.

He also noted that well water in the area would have to be monitored over the next several days for signs of contamination. He went on to say that a potential for closing off the use of some wells and the water intakes on the Occoquan would exist over the next few days.

Teams from the State Commission on

See "FEDERAL" on A-3.

Continued from A-1

Game and Inland Fisheries were conducting a survey of the contaminated portion of Bull Run by canoe Sunday to determine the extent of the damage to wildlife.

edericksburg City Manager John Nolan declared a local emergency Sunday and closed the city schools and about 20 businesses, including large water users such as laundromats, car washes and some manufacturing plants.

"If our test results show a more serious situation, I shall recommend to Gov. John N. Dalton that he declare a man-made disaster in Fredericksburg, south Stafford County and the Spotsylvania County area adjacent to Fredericksburg."

Nolan said the test results would be known Monday afternoon.

Workmen on Sunday began building an earthen dam across the upper end of a canal that carries water from the river to the holding pond.

Despite the closing of the canal's inlet gates when word of the spill was first reported, officials said kerosene has seeped into the canal.

Water also is being pumped out of the canal in an effort to prevent spillover into the holding pond, Nolan said.

Nolan said neighboring Spotsylvania County is supplying 1 million gallons a day to the city's system and Stafford County has agreed to supply 800,000 g ns a day.

an said that if the holding pond is found to be contaminated, the city will have to depend solely on Spotsylvania and Stafford counties for its water supply.

About 200,000 to 250,000 gallons of domestic aviation kerosene spilled into Bull Run Creek on Thursday, and a simultaneous break in the same pipeline sent another 63,000 gallons into the Rapidan River about 40 miles away, federal officials said.

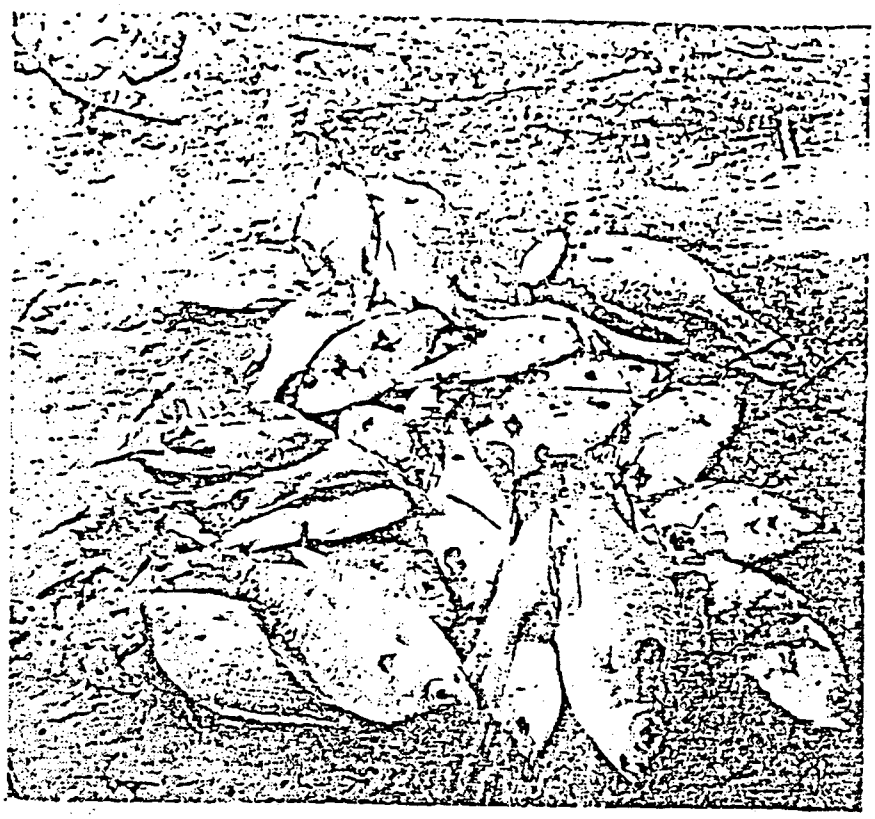
The Bull Run spill then flowed toward the Occoquan Reservoir, which is the water supply source for some 600,000 customers of the Fairfax County Water Authority.

The Rapidan spill moved into the Rappahannock River, which flows through Fredericksburg and supplies that city with water.

Jim Sorrow of Colonial Pipeline Co., which owns the 32-inch pipeline that ruptured, said the two spills occurred at the same time, 3:36 p.m. Thursday, although the Rapidan spill went undetected until about noon Friday.

Sorrow said the cause of the rupture was the unscheduled shutdown of the Conowingo Pump Station in northern Maryland. That shutdown, in turn, ca d a sequential shutdown of an er pump station, which resulted in a pressure buildup on the line, he said.

Federal officials took over cleanup of the Bull Run spill. Ackly some of the kerosene was getting past booms set up at the Bull Run Marina, but other booms had been set up downstream to stop the fuel.



Dead fish taken from contaminated water

tion that funding in all other areas is indeed stringent," Lee stated. "We must work together to manage as efficiently as possible those resources allocated to each program. We must be prepared to set priorities and perhaps reduce or eliminate supplies and services we have had in the past if the inflationary spiral continues in the double digit area throughout 1980-81."

For some time there was confusion about exactly what type of fuel spewed from a broken line Friday at the Sudley Rd. Initially it was identified as number 2 fuel, but was changed later to kerosene, though there is very little difference. Last Friday, the Colonial Company pipeline was severed simultaneously in two spots, at Manassas and in Culpeper County. Aviation-grade kerosene broke here and number 2 fuel that was running behind it escaped in Culpeper County where it drained into the Rappahannock River. The spillage was greater at Manassas, officials said.

Scientists are carefully monitoring the water as they look for benzene, a leukemia-causing compound, the suspected carcinogen na

State of emergency' includes Manassas spill

POTOMAC N
3/12/80

By DARIO BERNARDINI
and SARA MORIARTY

As word was received that Virginia Gov. John Dalton had extended a state of emergency to include the Manassas spill, EPA spokesmen expressed optimism that eight skimmers which worked through the night Tuesday had removed the bulk of a heavy scum which rested behind the booms at Bull Run Marina.

Dalton, who was in the Fredericksburg area Tuesday, declared the resources of the state available if needed.

"We appreciate his expression of interest and concern. Members of the governor's staff have been on the scene since the beginning," U.S. Environmetal Protection Agency spokesman George Bochanski said this morning.

EPA overflight photographs show that the switch in the wind has helped sweep pockets of the kerosene toward the booms where they can be more easily collected.

Bochanski said that the state resources probably were not needed at the moment, but said "while we are optimistic, we are also cautious and want to be ready for anything so we are glad to know help is there if we need it."

Bochanski said Tuesday night that special equipment had been brought in from EPA facilities in New Jersey to provide a faster check on the levels of hydrocarbons contained in the reservoir. Some of the hydrocarbons which make up kerosene are highly toxic.

"This machinery will allow us to check the levels of hydrocarbons in the water down to one part per billion parts of water in 15 minutes," said Bochanski. The level of kerosene concentration believed dangerous to humans is 100 parts per billion.

Jim Warfield at the Fairfax Water Authority confirmed that activated carbon is being added to the water but emphasized that it was not because of any contaminants.

"Adding the carbon to the process caused a buildup and shakedown period for the plant and so we are adding about 5 parts per million now so that if we have to add carbon later the system will function smoothly," Warfield said.

At the treatment plant, tests continue on various ways of treating kerosene in water.

"We are finding that the activated carbon works very well," Warfield said, adding that a good supply of the carbon was on hand, but more was being obtained. The carbon is bought by the ton at between $700 and $800.

"We are really pleased at the cleanup effort so far. We are testing here, but all testing is being coordinated through EPA and tests are compared seve times daily," he said.

If the water were contaminated w kerosene, 50 parts of carbon per milli would be added. Carbon is used at oth times for odor control.

Bochanski said propane cannons a still being used to scare birds aw from the area and prevent them fro roosting in the area. He said helic balloons will be used beginning today relieve residents of the constant noi of the cannons.

Prince William County Police h reported Tuesday that the departme had received about six or seven cal inquiring about the cannons.

The toll on wildlife as of Tuesd

-See SPILL, Page A

SPILL

From Page

night was: five beavers and se waterfowl reported dead, while beavers which were sick from kerosene were taken to the Nati Zoo in Washington, D.C., for treatm

Some Army personnel which been dispatched to the area to assi the cleanup were allowed to le Bochanski said, and other troops v moved from the Manassas Ramada to the Vint Hill reservation to cut penses.

"We have been, and will be, tinuing our cleanup operations," Bochanski.

Colonial Pipeline spokesman Sorrow said Tuesday that flushd operations would begin in the u areas of the spill and that Army sonnel would move through, pickin twigs and kerosene-soaked leaves.

Disposal of that debris had not been resolved.

According to Joseph Lafonar chemist with EPA, people probabl drink water with a kerosene centration in excess of the determ safe level without any effect at all.

"Of course, someone could deve chronic problem if they continu drink the water over a long peri time," said Lafonara. "That's we're trying to avoid here."

Lafonara said a person may be nauseated from kerosene tamination, but that vomiting is cure.

"Actually if they vomit they'll ju giving their lungs another dose stuff, and the lungs are the part body that is really affected," Lafonara.

According to Lafonara, the substances in kerosene are ben xylene and certain naphthas.

"Benzene is known to cause leu

POTOMAC NEWS, 3/17/80

'Kerosene no longer a threat'

By DARIO BERNARDINI

The approximately 200,000 gallons of kerosene which spilled from a ruptured oil company pipeline March 6 near Manassas no longer poses any threat to the Occoquan Reservoir, the drinking water supply for much of Northern Virginia, federal officials said Saturday.

U.S. Environmental Protection Agency spokesman Tom Massey, on-site coordinator of the cleanup operations, said the crews have retrieved almost all the kerosene that leaked from a ruptured pipeline owned by the Colonial Pipeline Company.

Massey said traces of the kerosene are being found in the reservoir, which is the drinking water source for 660,000 people in Alexandria, Fairfax County and eastern Prince William County, but the levels are below those considered dangerous to humans. He added that the Fairfax County Water Authority, which operates the reservoir and the water treatment plant there, can remove those traces of kerosene during the treatment process.

The spill occurred March 6 when a combination of human and computer error, according to a Colonial spokesman, caused a major underground pipeline to rupture, sending more than 200,000 gallons of the aviation fuel into Bull Run, one of the reservoir's tributaries.

Another rupture took place simultaneously in the same pipeline in Orange County, spilling about 63,000 gallons of heating oil into the Rapidan River which flows into the Rappahannock River, the drinking water source for the city of Fredericksburg. This spill went undetected for almost 24 hours as officials concentrated on the Bull Run area.

Massey credited a conglomeration of more than 400 people from 40 different agencies with "pulling together to combat this incident. After eight days I feel confident of the success of this team effort.

"I'm optimistic that there's no problem with the water supply. The threat is over for Northern Virginia."

Neither Massey nor Kenneth Biglane, coordinator of the National Response Team which works on major oil spills of this type, were willing to put an exact figure on the cleanup costs which could be as high as $5 million. Colonial has agreed to pay all the costs.

FOUND LEAK — John Bolton, an employee with the Prince William Electric Cooperative, reported the March 6 leak from the ruptured petroleum pipeline located along Va. 234 near Sudley Manor Drive north of Manassas. After noticing the kerosene spewing from the ground and spreading across the road, Bolton had the Co-op call county fire personnel. (Potomac News photo by Clifford Owen.)

An assessment of the total environmental damage was not made, but the toll on fish is expected to be great. Several thousand have reportedly been killed, and will rise to the surface of Bull Run as the water gets warmer. About 35 oiled birds have been killed, according to EPA.

"We're not out of the woods yet," said Massey. "We still have to evaluate some of the damage that has been done."

Massey said the cleanup crew was "lucky" that the weather did not pose a problem. The only significant amount of rainfall occurred last Thursday, and

—See SPILL, Page A-5

SPILL

From Page A-1

...necessarily helped the cleanup effort. "If we had received a lot of rain and it washed some of the kerosene into the reservoir, well, I'd hate to even venture a guess on what would have happened," said Massey.

Massey declared the cleanup effort a federal response action on March 9, opening the way for massive amounts of federal assistance. He said the decision was no reflection on the cleanup efforts of Colonial, which until that point had been responsible for keeping the kerosene from entering the reservoir.

When asked if the comments of Fred Morin, chairman of the water authority, more than one week ago stating his concern over Colonial's cleanup efforts were a factor in his decision, Massey responded: They sure did, they sure did."

Massey heaped a great deal of praise on the state and local offices of emergency services, saying they responded quickly to the crisis.

"Right after the spill occurred the local fire department was out in Bull Run laying booms to trap the kerosene," said Massey. "And, Virginia is a progressive state in regards to having the contingency plans ready to deal with this type of situation."

Absorbent material used in the cleanup is being burned at the Prince William County landfill near Independent Hill. Approval of the burning operation, which began last week, was needed from the Virginia Air Pollution Control Board and the state Office of Solid and Hazardous Wastes Handling.

Though open burning of wastes is prohibited in Northern Virginia, John Doherty, head of the Air Pollution Control Board's regional office in Falls Church, said the operation was allowed on an emergency basis.

"Normally, this would not be approved, but it is not a health hazard or a significant problem in any way," said Doherty.

Doherty explained that the kerosene-soaked material is burned in a deep pit, while a special device blows air into the pit to keep the blaze going.

"That fire is very hot and we keep it that way by blowing the air on it," said Barry Archer, deputy director of the Prince William public works department, which is responsible for landfill operations. "There is almost no smoke coming from it, and the only material left over is some ash,"

"They needed to get rid of the material, and they simply could have placed it in the landfill," said Doherty. "But we're running out of space to put trash, and the only permission involved for this operation was an acceptable method of burning. They have that at Prince William."

After all the material is burned, the ashes will be covered by soil.

The water situation in the city of Fredericksburg has improved during the weekend. Cleanup crews headed by the EPA finished their work, and the city is now waiting for the Rappahannock River to cleanse itself. Until that happens, the city will be waiting for permission from health authorities to begin using the river water again. Conservation efforts are going to continue in the city until that okay is given.

A six-million-gallon canal linking the city's treatment plant to the Rappahannock River was reopened Friday night and was being used. The canal had been closed because of high concentrations of heating oil had been detected in it.

United Press International reported today that City Manager John Nolan said a tanker convoy will continue to haul fresh water from a nearby quarry and dump it into the city's water system.

While the go-ahead from health officials to use the Rappahannock River again could come within a day or two, Nolan emphasized that "the crisis is still here until we get the word the river is clear."

SHOOT

From Page A-1

that a 13-acre tract be rezoned to multi-family (apartments) and townhouses, and a 6.1-acre tract be rezoned to townhouses. The owners are F.S. McCandlish Jr. and Carroll Wright Jr.

Near the site is land zoned for another multi-family complex, the Lancaster

SECTION I

OSC LOG

MANASSAS, VA, OIL SPILL LOG

3/7/80

0030 Tom Massey, OSC, EPA, Region III arrives Manassas, VA. Meeting in Park Authority Building to status him and provide insight.

0100 Jim Sorrow, Colonial Pipeline Co.
Advises OSC that company accepts responsibility and set up plan of attack. OSC requests company get helicopter and lab personnel. OSC requests Health Department personnel on scene.

0700 Strong sheen coming down stream. At Bull Run Marina 3 booms in place counting the one put in by the fire department. One additional boom in place blocking small inlet across from marina. J & L also putting in booms downstream of marina. No product observed behind any of the booms. Helicopter overflight, to make visual report of extent of contaminati

1030 John Walsh reported that a large quantity of oil was trapped about a 1/2 mile upstream of Bull Run. His report was that 3 booms at the marina was not anywhere near enough to contain the quantity upstream. Colonial directed to get in a great deal more booms at the marina as well as place containment booms upstream of marina. Garth Glenn, VA SWCB, reports small pocketing of oil in unnamed sewer line crossing near confluence. Mainstream appeared fairly clear till Rt. 616 where a pocket was contained by several booms. Collection area being constructed. Next oil was sighted at Gun Club. Solid oil from shore to shore from bend below Gun Club down river about 2 miles to small island and bend about 1/4 mile above marina.

1600 Report received that oil was covering over 10 miles of the Rapidan River as of 1230. Health Department and water authorities notified.

1900 RRT Meeting held.

2400 Al Jackson, U.S. Fish & Wildlife Service, Manassas, VA, arrives on scene.

3/8/80

1000 Approximately 200,000 gal. kerosene spilled due to pipe break into tributary to Bull Run, Manassas, VA (trib. to Potomac River). At Fredericksburg concurrent spill due to pipe break approx. 60,000 gal. kerosene into Rappahannick River. Both breaks occurred 3/6/80 at 1536 according to computer records.

Al Willet advised Massey that Ernie Watkins would be State Representative on hand.

Northern Virginia Regional Park Authority (NVRPA) to check Bull Run for dead fish. Heavy sheen across Bull Run bank to bank.

1005 OSC tasked Colonial to get health dept. contact to call OSC ASAP.

1010 VA Health Dept. personnel on scene - told OSC Fredericksburg has 48 hrs. water reserve under normal conditions.

1025 OSC convened strategy meeting with Water Control Board, State Health Dept., EPA and Colonial officials.

3/8/80

1100 Dick Calupca (Colonial) has room 254, 256 of Sheraton in Fredericksburg as command point of that area.

Clean up contractors - called in to establish booms in Rappidan Creek and diversion booms away from intake canal. Second boom in canal and another downstream from intake as pickup point.

No activated carbon capabilities at Fredericksburg. Average draw of 3.5 MGD including outlying areas - approx. 3.0 MGD for Fredericksburg. .7 MGD available from other source. Spotsylvania; 2.3 MGD must be supplied under no ration conditions 2.0 MGD necessary minimum. 1.9 MGD absolute minimum. *"Blue Magoo" can furnish 0.8 MGD so 1.1 MGD must be supplied by other sources.

OSC made decision to go with EERU emergency water treatment. EERU unit requested (Blue Magoo) by OSC to be brought immediately on scene.

OSC directed to accept company's spill volume figures as estimates but will reserve the right to make our own estimates at a later date as indicated. At time of break material was flowing at 26,000 barrels per minute.

U.S. Fish & Wildlife - no info on Rappidan, info will be gathered. Fish kill can be expected over entire length of spill.

1210 VA Game Warden - John Berry
Beaver are being affected. Coats are being coated with oil as the animals come out of the water by licking their coats, animals face danger of being killed by poison and exposure.

* A mobile carbon filtration system

1215 Boom in canal

1220 Colonial Pipeline notified by OSC to secure Fredericksburg intake with booms.

1450 Ag-Rotors on scene with Hughes 500

Occoquan: 5 stations for sampling

1. Catharpin gauging station, upstream of spill site
2. Catharpin gauging station, upstream of the 7 mile boom
3. Bull Run Marina
4. Ryans' Dam - head of reservoir
5. Treatment plant

1900 RRT meeting - John Berry, State Game Warden on scene, expects 20-25 oiled birds and beavers in Bull Run. Dead fish pick-up coordinated with SWCB. Identify sensitive areas for Colonial to boom.

3/9/80

0700 OSC opened command post.

0900 Strategy Meeting. Wind changed 320° from 3/8/80. Oil pooled in cove has been blown across to other side (high bank side) of river. 455 barrels of material removed overnight for a total amount of approx. 40,000 gallons total product removed as of 0800, 3/9/80.

7000 gallons removed from Fredericksburg area as of 0800, 3/9/80. Pipeline repairs completed in Occoquan area.

U. S. Fish & Wildlife Dept. - 2 canoes floating down river looking for damaged wildlife, fish, otter, beaver. Fish kill in excess of 100 reported at 0400 at Marina at head of reservoir.

Lands End Wildlife refuge - boom being placed upstream to collect sheen.

TOC levels up at Fredericksburg in the river. TOC levels at Marina bridge up but kerosene odor noticeable.

12 ea. 10,000 gallon bladder tanks staged and on standby at Ft. Lee, VA, per Morgan Fink, USA COE, Washington District. Additional bladder tanks closer to site being investigated by Army forcecom through DOD NRT.

1330 Strategy Meeting - Emergency Preparedness - Fairfax Water Authority Dept. has 2 portable activated carbon units.

Colonial states that marina is main point of recovery activity.

1400 OSC made decision to aid Colonial Pipeline within the Occoquan area.

USCG to get 5 more Strike Force people; bring in 10 bladders minimum; bring in additional skimmers; bring in additional contractor - possibly IMS, with approx. 20 personnel.

Additional sorbent boom in Occoquan approx. 4,000 ft. Additional booms to be put in at Fountainhead Park.

1430 OSC called Ken Biglane - possible activation of NRT.

U.S. Fish & Wildlife to ascertain critical areas for protection --

1500 Tom Sell, ERT, on scene.

1720 Briefing and strategy meeting

Federal Effort - Booms at water treatment plant intake. Full effort at Bull Run Marina in addition to Colonial Pipeline efforts. Invert dam to be built in unnamed trib. to Bull Run.

Colonial states that as of 1430, 10 booms between Fairfax Rod & Gun Club to the Bull Run Marina. Total Product recovered as of 1800 approx. 60,000 gals.

3/9/80

1720 Bull Run canoe trip reports fish kill and distressed fish (20-25,000) from Marina approximately 3 miles upstream, gulls feeding on these fish. Also noticing fish on the Rappahanock River. Contacted Humane Society for volunteers to clean birds and beaver.

3/10/80

0730 Overflight shows product accumulation in lower most boom below Bull Run Marina. Additional skimmers and booms deployed.

0745 Les Terry and Pete Anastasi U.S. F & WL on scene today. News releases.

0800 OSC instructed all Federal personnel that no press statements should be made. Priority to get invert dam in unnamed tributary. RRT meeting to be held 1400 3/10/80.

CG stated that boom to be placed in reservoir and around the water intake. Continue ops at marina, at Rod & Gun Club and start pumping at unnamed trib.

0830 Joe Lafonara, EPA/ERT arrives on scene.

0900 OSC tasked J. Lafonara with coordinating sampling, analysis and all scientific support.

1000 J. Lafonara requested that HQ OWS send toxicological support.

1030 OSC requested contracting personnel 5th CG Dist. on scene ASAP.

1100 Fluorescence analysis determined to be the best method to provide needed sample analysis. Requested that the appropriate instrument be dispatched to Manassas by the fastest means possible.

1200 Occoquan Water Monitoring Lab to supply space and support for the OHMS branch spectrofluorimeter.

1300 Hugh Hanson from OWS on-board to coordinate action levels for kerosene in drinking water.

1415 RRT meeting. OSC briefed RRT of situation and history of spill.
Booms installed at Reservoir.
Army staff working with Colonial personnel & collecting dead fish.
Approx. 80,000 gal. kerosene estimated in one small cove upstream of Marina.
Wayne Wilcox - U.S. Navy supplying booms and skimmers.
Monte Lewis - VA Dept. of Health - Water authority is using odor threshold test by boat/lab crew - 2 yea, 4 no's are results to date.
Colonial Pipeline states that 115,000 gal oil/water collected at Manassas.
VA SWCB will collect fish (alive) for tissue analysis by FDA. VA Dept. of Health will ask for a temporary restriction on fishing in reservoir.
Reported that sampling would be done by Occoquan Watershed Monitoring Lab (OWML) and Versar. Analysis by odor threshold to be done at water authority, and by fluorimetry at OWML with EPA instrument.
OSC asks RRT to advise on the safety of Colonial Pipeline and possibility of recurrence.

3/10/80

1600 Meeting with EPA-OWML, SWCB, VA O.E. & E.S., VA SHD, Colonial Pipeline. Developed a decision matrix for action. What are we going to do at what concentrations. Hugh Hanson stated that little data was available on kerosene in drinking water. Cited a 180 ppb study for 90 days with no effect. 100 ppb was, therefore, established as a level at which concern would be shown.

Decided:

a. 100 ppb (by odor test or by fluorimetry) at a point 1 day's travel to the Fairfax Water Authority (FWA) Intake would result in advisement to FWA to institute activated carbon treatment.

b. Treatability studies would be conducted by OWML.

c. Colonial to supply kerosene for standard for fluoresence.

d. Colonial Pipeline would continue to have Versar Laboratory analyze using Total Organic/GC method.

e. Hugh Hanson - #2 fuel oil standard tentatively set at 100 ppb.

f. OWML to sample once a day at stations already set up.

1620 OSC meeting.

3/11/80

0900 Spectro fluorimeter on way to aid in analysis.
Statistical analysis shows fish kill within first 2 miles of Marina. Approximately 4,600 dead fish counted to date.
Food chain damage to be assessed in order to determine damage to supporting capacity of stream.

Invert Dam to be put into Trib to Bull Run.

SWCB suggests use of water flushing of bank to remove oil from stream shoreline. Use of sorbents on stream bank to be explored. To be done by USCG.

State to set priorities of clean up in the immediate area of original Pipeline rupture.

Prince William County Authorities asked to coordinate citizen's reports of distressed or dead wildlife.

0915 WTP to start activated carbon plant on 3/13 for primary test.

US F & WL report 5 dead beaver, 2 alive. 10 oiled birds - 2 wood ducks, 3 mallards, 2 gulls - Total 7 dead; 3 alive.

USCG estimates kerosene collected at approx. 96,453 gallons.

1100 J. Lafonara requested that R. Turpin assume sample coordination/ scientific support function.

1200 FWA stated they would initiate activated carbon application as soon as possible and continue until threat of kerosene contamination was

3/11/80

1300 Wm. Blankenship, Region III Water Supply Branch, arrived and stated that no figure had yet been approved as a standard for kerosene in drinking water. Refused to acknowledge the OSC/National Contingnecy Plan Structure.

1400 Rich Hoffmann, DOE, on scene

Bill Gregory USCG purchasing acquisition officer on scene.

Permission granted from John C. Doherty, Reg. Dir. State Air Pollution to burn contaminated debris at the Prince William County landfill.

1430 OSC briefed EPA's M. Cook, ADAA for Emergency Response and K. Biglane, Chairman NRT. Related sampling, analysis and water supply protection programs. Toured Bull Run. 7" thick oil behind boom.

1730 Overflight of Bull Run. No activity at the "break" site. Oil observed to be pooled on the ground.

1800 J. Lafornara informed OSC that inadequate action was being taken to remove oil behind booms at Bull Run Marina. And no action was being taken at the "break site".

2015 OSC briefed staff on sampling situation, reported that R. Turpin would assume the "lead and focal" position as scientific support coordinator.

2045 J. Lafornara leaves site to return to Edison, N.J.

3/12/80

1330 OSC meeting

Booms deployed at Sandy Run and Fountain Head with skimmer. 180 ppb kerosene can be consumed for 90 days with apparently no effect on the average. (100 ppb) based on a 10 Kg. baby.

Heavy sheen down to marina, quite a bit of product behind upper booms. 4 skimmers in operation at marina.

Monte Lewis reported slug has moved 6000 feet since yesterday. Still has 6 days to WTP intake.

Controversy over deploying Navy skimmer.

SWCB to be in charge of the Colonial Run cleanup.

U.S. F & WL set up oiled bird rehabilitation center in Fairfax.

Construction of dam is going in phase at break site.

CDR Jensen reports that 96,000 gallons removed on 3/11 and 53,000 gallons on 3/12.

3/13/80

0830 Lab personnel tasked to determine quantity of activated carbon required to minimize kerosene in WTP discharge.

Attempt made to coordinate Federal sampling with Colonial sampling.

Morning overflight indicates operation running smoothly, weather not affecting operation.
150' x 50' collected pocket of oil at Bull's Run Marina

Al Jackson requests API standards for kerosene and any deviation from this std. of actual material spilled.

Once weather clears, VA Game Commission personnel will be out in canoes upstream of marina to recheck entire stream and examine inside Beaver lodges. Estimate 150-200 animals (beaver, mink, alter, muskrat) in affected area of stream.
2 miles upstream of marina large fish kill occurred, fish on bank and laying on bottom 4-6 inches apart for 1.5 miles.

OSC tasked VA State Water Control Board as site coordinator at new dam and upstream.

OSC tasked Selby Jacobs as site coordinator for disposal of clean-up material (ex. absorbent), located in Price William County landfill.

Responsibility for Gun Club Site turned over to state.

1330 Once bulk of oil removed at marina area, remove booms at Sandy Point and Fountainhead, and remove boom at water intake and replace with absorbent boom.

OSC proposed that AST begin demobilizying Friday through Monday, if E. Watkins, SWCB, comfortable AST will leave site on Monday.

U.S.C.G. checking oil storage tank for total oil collected.

Samples being taken at 5 Occoquam Reservoir assigned sampling points.

Monitoring continues on 24 hour basis at invert dam.

4 new filter fences installed in unnamed tributary all old filter fences to be removed.

Clean-up material being stored at PWC landfill, BURNING HAS BEGUN, 2 - 3 WEEKS TO COMPLETE.

No new oiled birds, one oiled beaver sent to National Zoo.

National Zoo will have data on why beavers are dying in 2 - 3 weeks.

OSC will not phase down operation if media projects doubts of completion of clean-up in the public's mind or any question of danger of health effects on public.

3/13/80

1330 OSC tasked R. Turpin with notifying Colonial Pipeline that Colonial/ Versar are not to release lab data to the press.

Army personnel have been taking saturated sorbent out from behind fences and are working on then removing fences and opening stream.

1800 Meeting held between local and State agencies and OSC regarding change over of responsibility for supervision of final clean-up operations.

1930 200 gallons of kerosene remaining to be removed at Bull Marina

197,360 gal. of recovered product determined by U.S.C.G.

Colonial wants to add treatolite to collected product to remove all water, then regauge contained product value.

OSC wants Colonial to recalculate estimate of material spilled and report back to OSC A.S.A.P.

Another siphon dam being built just upstream of Rte. 234.

Lance Heverly - Dept. of Transportation Office of Operation & Enforcement, on scene to investigate safety of pipe line that broke. No conclusions reached, to date.

One live and well beaver captured today.

Gulls going after dead fish below Marina, since no oil in this area, no longer will try to scare birds from area unless they begin going to Marina areas.

No VA Park Authority on alert to report any dead fish reports to SWCB.

Unofficial count of 400 dead fish in unnamed tributary to Bull Run.

Burning of clean-up material will be no problem, approval from all affected regulatory agencies has been given.

No sense of panic or adverse effects in newspaper regarding public health.

Colonial intends to phase down their large no. of vac. trucks. They will continue their sweep of river to force any trapped oil downstream. Will stay on 24 hour alert until all sheens removed from creek.

OSC states "clean-up" costs for oil spills can range from $1 - $20/gal. not including restoration.

Selby Jackson will be contact between citizens with complaints on property damage and Colonial.

Aerial photos to be taken at both Manassas and Fredericksburg spills on 3/14/80.

3/13/80

1930 Scientific committee - recommends 24 mgl - carbon addition at water treatment plant.

F.C.W.A. informed of decision to up carbon addition to 25 mg/l.

3/14/80

0820 Lab data inconclusive, some type of interference ruled out.

At 0530 water treatment plant operating at 30 mg/l powdered carbon addition.

At 1900 hr. 3/13/80, sample pt 6 at surface value was 1800 ppb.

Contamination problem found for data collected on 3/12/80. All data for this day considered to be no good.

Data generated night of 3/14/80 has been analyzed at Edison Lab. They report readings are erroneous, on the high side.

1 gal. sample from intake and 1 gal. sample from effluent of water treatment plant to be analyzed at Edison, N.J.

1930 Mr. Gay has stated that he's confident that his plant can handle any kerosene intrusion into his water intake system.

Hourly monitoring of water plant intake for odor. Once odor noticed at intake monitoring of odor at effluent will begin. If odor detected decision will be made whether to continue supplying water.

Hazleton Labs found as potential back up to Versar.

FDA tissue analysis will be ready on Monday, 3/17/80.

Kerosene 4000' upstream from water plant intake.

Versar states at 180 ppb kerosene people won't drink water because of bad taste.

Aerial photos taken between 1315 and 1445 indicate considerable runoff and sheen about a mile below Bull Run Marina.

No more than 50 gal left at Bull Run Marina site.

Sorbent boom backed by floating boom placed downstream of Bull Run Marina to try and catch sheen.

Absorbent boom also placed just upstream of booms at Bull Run Marina to capture sheen.

Crews are trying to remove debris as it's caught in boom. No large debris noticed.

3/14/80

1930 3000 gal. of wet product removed at Dam site at confluence unnamed creek and Bull Run.
1500 gal. of wet product removed at Dam site just upstream of Rte. 234 before high flows from runoff breached this dam.

State health people are not presently concerned about herring moving upstream in Occoquan and encountering kerosene.

13,000 lbs. of clean-up material burned on 3/13/80. No problems being encountered with burning operation.

By 1200 hr. 3/16/80 Colonial will provide reestimate of total spill volume.

New sorbent boom placed at harbor boom 2000' below Marina.

At water intake new sorbent boom placed in front of harbon boom.

Debris still being removed from booms.

One oiled beaver captured last night. Necropsy of oiled beaver confirms liver damage as cause of death.

3/15/80

1315 As of 1200 hours 203,958 gal oil/water mixture recovery estimate by Colonial.

New sorbent boom placed at harbor boom 2000' below Marina.

At water intake new sorbent boom placed in front of harbor boom.

Debris still being removed from booms.

One oiled beaver captured last night. Necropsy of oiled beaver confirms liver damage as cause of death.

Results of sample sent to Edison N.J. on 3/14 are negative based on detection level of 50 ppb

Sampling program - twice a day, morning & afternoon by team of Versar and water authority. Sampling at 2' and 20' depths.
Versar to do TCO test.
Water authority - taste and odor and TOC tests.
Separate sampling by EPA to do fluorescent analysis to evaluate water column contamination.

Water authority - taste and odor testing reveals leading edge of kerosene 2000 - 3000' from intake. Now using 50 ppm carbon.

Water authority - projecting contaminant hit water intake area at 1700 or 1800 hours. 3/15/80.

Oil soaked debris spotted entrapped in several cove areas 1/2 mile upstream of Bull Run Marina.
By 1600 hours 2 Navy booms will be removed and Army personnel pulled out.

3/15/80

1315 Next sounding of product recovery tanks by U.S.C.G. will be Sunday 3/16/80.

Colonial requested to repair dam just upstream of 234 and remove collected product at dam and place sorbent material at dam.

Unofficial total of 12 dead beavers to date. State Game Commission still projecting total kill of fur bearing animals on river. Two deal oiled birds found yesterday.

Eagles reported in spill area, however no problems expected.

3/16/80

0830 Slug of kerosene moving through the reservoir system reached the water intakes at the dam on Staurday evening - Sunday morning, (3/15-3/16). The data generated by the Health Department at their consolidated labs in Richmond did not coordinate well within the TCO data generated by Versar. However, the concentration of kerosene in the finished water indicated no detectable kerosene either by the State lab or Versar.

Overflight indicates boom at dam just below WTP is damaged and pinned against intake.

Sheen from Gun Club to Marina.

Work needs to be performed in coye immediately above Bull Run marina.

Problem identified with the Versar sampling team in that they were sampling from the most contaminated to the least contaminated sampling stations raising some questions concerning their capabilities and the reliability of their past data.

0900 Meeting
OSC tasks VA Water Control Board and Atlantic Strike Team as on-scene coordinator, in his abscence.

WTP reports no odor in finished water.

WTP using 2 - 3 safety factor for doseage of carbon.

Overflight determined that the area adjacent to the soccer field (approx. 1/4 mile above marina) was top priority clean-up location.

0925 Colonial states product collected to date from Manassas is 240,000 gal.

Peak odors below Fountainhead.

Based on odor test, appears now that for the latest slug of kerosene approaching dam, the head end has gone over the dam with tail end around Marina.

150' x 30' wide shore area just above Marina, still has product trapped in debris.

0925 2 vac. trucks will remain on scene at Bull Run Marina just in case needed.

Atlantic Strike Team Command Post moved out due to oil spill in Miss. River AST now down to 3 personnel.

All booms presently in place to remain.

Oil soaked debris removal has priority over boom replacement.

3rd dam completed on east side of rte 234.

OSC to leave site on 3/16/80.

State geologist to study ground in area of pipe break to establish need for further oil removal.

RRT meeting to be held in Manassas on 3/20.

Sampling protocol worked out and coordination begun with Versar and Carl Lieberman to get them to use the same sampling stations and in fact the same sampling boat. Sampling program consisted of collecting two samples a day at various depths at preselected sample stations.

Scientific coordinator now relying on TCO method as primary method for hard decisions. Taste and odor tests to be used as quick-turnaround relative indication of the presence of the leading edge of the slug of oil as it proceeded through the reservoir system.

VA WCB & AST to determine & maintain long term recovery points. (Placement of static booms & sorbent booms).

Mobile command post to remain for time being.

Damage Assessment Task Force - ERT to coordinate this and determine 311 activities that can be funded for this.

Scope of work to be set up to evaluate available & needed resources.

U.S. F & WL considering performing impact assessment study at Patuxent Wildlife Research Lab, Laurel, MD to assess effect of sea gulls feeding on contaminated fish.

1400 On 3/15 odors noted in raw water supply to water treatment plant

1430 OSC left site to return to Philadelphia.

1500 Contacted Bob Zebulkis, OSC Fredricksburg, informed him that we needed Mason & Hanger command Post Trailer as soon as it was no longer needed in Fredricksburg.

1800 Odor increased and stayed this way through night, however, no odors after carbon adsorption.

Water treatment plant running carbon addition tests. 20 ppm - break-through running 2-3 safety factor at 50 ppm carbon.

3/16/80

1800 Treatment plant now has adequate storage and supply of carbon.
**Water authority has special account set up for costs incurred due to spill.

Health Dept. states that if breakthrough occurs at water plant even after 100 ppm carbon addition immediate considerations will be given to shut down the plant.

Soil sampled around pipe break site.

Colonial begun working cove just upstream of Marina to remove oil trapped debris.

4 filter fences on unnamed tributary removed.

Pit at break site to be pumped out again.

Colonial reports reestimate of 336,000 gal. total spill for 35.6 mile of pipe line. (distance between breaks Manassas & Fredricksburg). This is increase of 169,000 gal. over previous estimate for Manassus.

1830 U.S.C.G., SWCB, & EPA notified Colonial that they expect J & L to provide better performance on clean up of oil entrapped debris in coves upstream of Bull Run Marina or new contractor will be brought in.
Also requested that Colonial have a contingency plan that can be put into effect if J & L crew does not produce positive results by 1000 hrs., 3/17.

3/17/80
0850 EPA lab data now being given in ppb total fluorescent organics.
EPA data for 3/16/80 indicates present slug of kerosene moving downstream towards water treatment plant is already partially past Occoquan Dam.
Versar data also tends to indicate kerosene slug already begun passing dam.

State Lab in Richmond reports that samples taken 3/16/80, 0730 hrs. show influent to WTP plant - 350 ppb kerosene, effluent - not detectable.

Damage assessment task force to meet again tomorrow.

6 - 12 sea gulls that are eating dead fish to be shot today for analysis to assess damage to birds, if any, from eating the contaminated fish.

Weather;raining with heavy rain expected for this afternoon.

Operation at cove greatly improved today. Have requested aid from Dave Brown, Northern Virginia Regional Park Authority, for removal of large wooden debris.

Joint effort today by Colonial & U.S.C.G. to make new gauging of product recovery tanks.

Debris still trapped against booms - removal to continue.

New sorbent material to be placed at all 3 dams on unnamed tributary.

SWCB on alert for possible fish kill downstream of Occoquan Dam

3/17/80
0850

On 3/18/80 canoe trip beginning at unnamed trip confluence will be undertaken to evaluate spill area down to Marina. Will also note wildlife situation and any unidentified remaining pockets of oil or oil entrapped debris.

Last aerial photos to be taken on 3/19 so as to be available for RRT meeting.

Damage Assessment Task Force conference to be held at 0900 on 3/18/80. to define preliminary scope of work.

FDA fish tissue analysis to be available on 3/18.

State WCB geologist on scene evaluating potential groundwater contamination.

Sea gull shooting put off till tomorrow.

Static boom locations:

1) Bull Run Marina - upstream of bridge - harbor & sorbent boom
   - downstream " - sorbent boom

2) 1000' below Marina - leave harbor & sorbent booms presently there in place.

3) Gun Club - sorbent boom

4) Old Centreville Road (616) - sorbent boom

5) Water Plant Intake - harbor & sorbent booms

6) Maintain 3 dams on unnamed tributary.

Federal cost as of 3/14/80 estimated to be $183,000. Using $35/day room & expenses for personnel.

Boom debris removal going real good. Removal operations at cove going real good.

Coast Guard boom being removed, to be replaced by Colonial boom.

Product Recovery:

Colonial Utility Tank	160,566	gallons
Texaco Tank	110,670	"
Chantilly	16,884	"
Total	288,120	"

OSC has requested increase in ceiling of pollution fund for Manassas, VA. to $300,000.

Steve Dorrler and Tom Grizzard recommended that sediment sampling be undertaken.

Dr. Dean, Pr. Wm. Co. Health Dept. advised of local concern for ground water contamination

3/18/80

0815 Geologist for SWCB proposes to set up series of monitoring wells to evaluate groundwater contamination using existing private water supply wells and drill any new wells as needed.

Clean-up of large cove very close to completion.

AST & SWCB to set up program of long term monitoring and operations.

Conference on damage assessment held today encompassing all interested agencies, federal, state and local.

1030 Colonial states that failure of pipeline at Manassas was due to corrosion.

On 3/17/80, 3 loads of contaminated material (5.6 tons) taken to landfill.

1800 Steve Dorrler, ERT, left scene to return to Edison, N.J.

Wayne Jackson reports that Colonial is doing a good job in the big cove.

1550 Overflight reveals that Bull Run apparently returning to pre spill condition, 5 mallards observed swimming in creek.

1700 Wayne Jackson turned OSC responsibilities over to SWCB personnel.

Situation 3/26/80

3/19/80

0900 2000' of boom now in place
2nd largest cove has been cleaned
3rd cove to be cleaned today

Colonial to put up fence which meets PWC reqmts. around dam at confluence unnamed trib. and Bull Run.

Beaver and muskrat carcasses to Patuxent Lab for hydrocarbon analysis.

Canoe trip today.

RRT meeting to be held tomorrow at 2:00.

1700 All 5 static boom locations still being maintained.

Lower dam on unnamed trib still maintaining integrity.

Light sheen noticeable just upstream of marina.

Decision made not to go into cove area with a backhoe and dig out contaminated soil since we could create a worse environmental situation than what we now have.

3/20/80

RRT meeting held to discuss future plans.

Water Treatment Plant requested help on disposing of PAC sludge in treatment plants.

3/21/80

1000 Tom Massey left site to return to Philadelphia,

FDA's John Dietrick called and advised no kerosene detected in fish tissue samples from all 3 stations for detection limit of 1 ppm.

1730 Colonial reports fencing at large dam completed, boom replaced, sorbents changed at all 3 dams.

3/24/80

At Bull Run Marina very little sheen was observed behind the booms. A large site of debris had been pulled from behind the booms.

SWCB advised Colonial that depending on tomorrows overflight and a check with local government, they would probably allow the booms to be pulled out.

3/25/80

Overflight shows downstream of the cove, very strong rainbow. Cove area looked good.

Colonial advised that booms not to be removed until sheen was less strong.

3/26/80

Water authority is still collecting samples although the frequency is now once per day. Versar is not running anything. 20 ppm of PAC is still being added to the treatment plant.

Colonial advised they can remove booms from stream tomorrow but to keep them around for a week because of the Park Authority interest in oiled debris at Fountainhead marina. Also advised to leave in large dam for a couple of weeks.

SWCB contacting local agencies for input on water quality, if no objection static booms and dam to be removed.
SWCB monitoring booms daily.
Colonial has begun contacting people whose property affected due to spill and/or clean-up including No. Va. Park Authority.

Sampling and analysis program continuing
Water treatment plant considering ending activated carbon treatment.

Incineration operation for oil soaked debris continuing at Prince William County Landfill.

3/27/80

State geologist recommend that contaminated soil in spill site area be removed down to 2 inches.

Tom Massey discussed 311 studies and assessment of long term damage.

OSC attended NRT meeting
All containment booms out

3/31/80

Little visible sheen observed at Bull Run Marina.

4/1/80

Woodward & Clyde Associates hired by EPA to assess extent of contamination under Sect. 311 funding.

4/2/80

No sheen noticeable.

Lower Dam staying until contaminated earth around break site removed.

P.W.C. personnel to monitor earth removal and dam stability and water quality marina area.

Occoquan Lab now performing sampling on once a week basis.

Water Treat Plant still adding carbon (20 ppm).

Groundwater contamination study and sediment contamination analysis to be performed.

Shoreline survey for vegetation damage to be studied.

Pitt Oil Inc. has bought recovered product from Manassas
Robb St.
McKees Rock, Pa. 15136
412-777-3900 (Fred Grove)
Started hauling it out on 4/2/80

4/3/80
1350 OSC spoke with Al Willet, RRT rep Virginia WCB concerning Extent of Contamination meeting on 4/9/80.

4/8/80

Colonial in the process of removing soil on the East side of rt 234.

State Health Dept. reports March 22 was the last time FCWA detected an odor at the intake. Also reported March 28 as the date when carbon feed was discontinued.

4/9/80

Field Surveillance shows at west side of Rt 234 oil is still bleeding out, slight sheen is present.

East side of 234 ground had been scraped.

Large pit on west side of 234, oil and water observed, needs to be pumped.

At large dam; a sheen was present.

4/9/80

LOG TERMINATED SUBSEQUENT INFORMATION NOT CONSIDERED PERTINENT TO BASIS OSC LOG ENTRIES DURING INITIAL EMERGENCY.

Thomas I. Massey
Federal On-Scene Coordinator