MYRTLE BEACH OIL SPILL CONTINGENCY PLAN

COMMUNITY RESPONSE HANDBOOK

Prepared By:

The S.C. Department of Parks, Recreation and Tourism

in cooperation with

The City of Myrtle Beach

and

The Myrtle Beach Area Chamber of Commerce

Funding Assistance

This study was funded in part by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, through the cooperation of the S. C. Governor's Office, Division of Natural Resources.

ACKNOWLEDGEMENTS

The project staff wishes to thank the many public officials, businessmen and tourists who responded to the surveys necessary for the development of this plan. Without their cooperation this study would not have been possible. A special thanks goes to the officials of the several communities which have experienced the disaster of a major oil spill and were willing to share with us their insights gained from that experience.

Project Coordination Staff

Dr. William K. Marsh - Project Director

Ralph B. Eckles - Recreation Planner

Contract Consultants

The Research Planning Institute

in association with

Wilbur Smith & Associates - Rogers, Golden & Hapern

MYRTLE BEACH OIL SPILL CONTINGENCY PLAN

INTRODUCTION

The officials of Myrtle Beach recognized that an oil spill in the area could close the beaches and create a major economic problem for their business people who have invested millions of dollars in hotels and other tourist support facilities. It was obvious that the local economy could not long endure the loss of public beaches during a peak season.

They, therefore, felt the need for an Oil Spill Contingency Plan that would help reduce the time required for beach cleanup and which would be designed to minimize financial losses while the beach might be unusable. An application for a grant was filed with the Coastal Energy Impact Program (CEIP) through the Governor's Office. This application was approved and the funds were used by the S. C. Department of Parks, Recreation and Tourism in the development of the Plan and the publication of this "Handbook for Community Response".

Despite the desirability of a "Local Oil Spill Contingency Plan," to our knowledge, the Myrtle Beach Plan is the first such plan in South Carolina and one of the few local plans in the United States.

FURTHER INFORMATION

Inquiries concerning Sections I, II and III should be addressed to: PRT, Office of Grant Coordination, Edgar Brown Bldg., Suite 110, 1205 Pendleton St., Columbia, S.C. 29201.

Section III was abstracted from a research report prepared under a sub-contact by the Research Planning Institute, Inc. and their associates. Inquiries concerning their findings, research and survey methodology or the Tables should be referred to R.P.I., 925 Gervais Street, Columbia, S. C. 29201.

For additional copies of this Handbook, while the limited supply lasts, please contact PRT at the address shown above.

TABLE OF CONTENTS

TABLE OF CONTENTS

SECTION IV

Survey and Research Findings

LISTING OF TABLES

SECTION I

EXECUTIVE SUMMARY OF FINDINGS AND CONCLUSIONS

Oil Spill Contingency Plans

The State of South Carolina has an "Oil and Hazardous Substance Contingency Plan" administered by the S. C. Department of Health and Environmental Control. Once DHEC is notified of an oil spill, it is required to initiate immediate response action to assist at the spill site and to notify all persons, agencies and/or industries with water intakes throughout the state who could be affected by the spill.

In implementing the state plan, DHEC can call on the resources and expertise of a number of state agencies. It has some cleanup equipment located at its various district headquarters and additional equipment is located in the central office.

Their State On-Scene Coordinator has the primary responsibility for all state activities relating to the oil spill clean up. In accordance with the provisions of the National Contingency Plan, the federal government will assist in coordination of spill containment and cleanup involving navigable waters.

The State Contingency Plan recognizes the desirability of local Oil Spill Contingency Plans. The On-Scene Coordinator will need a considerable amount of information and cooperation from local officials and special interest groups. A local plan that has already developed the required information and identified the officials and organizations whose cooperation will be required can serve to reduce the critical lag time between the sighting of a spill and the beginning of the cleanup operation.

Oil Spill Potential

The risk of oil spills to Myrtle Beach is from the tanker and barge transportation of petroleum off its coast. This traffic is increasing and the completion of the proposed

refinery at Georgetown would create an even more significant increase.

Fortunately, due to the prevailing winds and currents, the probability of a major oil spill impact on Myrtle Beach is extremely low. However, despite the low statistical probabilities, the possibility does exist. With an almost constant flow of petroleum carriers along this coast, an unfortunate happenstance of weather conditions and/or human error could deposit large quantities of oil on the Myrtle Beach shoreline. (See Table 1.)

Potential Economic Impact

Figures developed by the Horry County Development and Tourism Commission indicate that tourism accounts for 73 percent of the Grand Strand's economic activity. In 1980, tourists spent more than $700,000,000 in the area and during the summer months, they added over five million dollars a day to the economy.

These are vast sums of money but their true significance cannot be realized until the multiplier effect is taken into consideration. It is a well established fact that tourist money represents "new dollars" in a local economy and will generate four additional dollars in economic activity before it loses its identity. Thus, the actual value of tourism along the Grand Strand is five times the figures cited above.

The broad expanse of fine, unspoiled beach is for the entire Grand Strand area and for the City of Myrtle Beach, the major tourist attraction. While golf and other recreation activities represent a substantial attraction, the beach is the "backbone" of the tourist economy during the summer months.

Based on interviews with local Myrtle Beach officials and business people in the area, an oil spill that closed the beaches for less than a week during the peak season would hurt business but would not have a significant impact on the economy. In their opinion, it would be comparable to an extended period of rainy weather.

However, should the cleanup time extend beyond a week,

there would be a serious problem with cancelled reservations and a general exodus of the tourists. Overall, the business community felt that 80 to 85% of the visitors would leave after the first week that the beaches were closed.

Every business person interviewed indicated that their business could not financially withstand the loss of business resulting from a two or three week closing of the beaches during the peak season. For a number, the time span was considerably shorter. In the words of both officials and the business community, the results would be "disastrous." (See Table 5.)

It is obvious that the key to minimizing economic loss lies in reducing the cleanup time required. To emphasize this point, if we reduce the $5,000,000 a day in tourist expenditures on a peak day by 85% and multiply this by the accepted multiplier effect and then divide the results by the 24 hours in a day, we come to realize that after the first week of beach closing, an oil spill will cost the Grand Strand economy $885,416 per hour.

Media Coverage and Promotion.

As a part of this study, four coastal communities which had experienced oil spills in the recent past were contacted. Fortunately, for these communities, in three out of the four cases, the spill occurred during the non-peak tourist season and had only a minimum of impact on their visitors. South Padra Island, Texas, however, was the recipient of the largest oil spill in history and suffered a severe loss of tourist trade.

In all four cases, the communities felt that the way in which the media covered the event resulted in a greater tourist loss than was necessary. Exaggeration as to the effects of the oil spill on the beaches and failure to mention nearby clean beaches and other alternative available activities were the major complaints. South Padre Island tourist representatives feel that it unnecessarily lost a major portion of its potential winter trade due to negative media reporting.

Each of the communities was forced to resort to paid advertising and promotion campaigns to offset negative media coverage. These promotional efforts, plus hot lines to respond to visitors and potential visitor concerns were, in each case, funded by the Chamber of Commerce.

These campaigns were developed after the fact and after negative reporting had already harmed the industry. Myrtle Beach, however, has the advantage of being able to design their promotional efforts beforehand, and by recognizing the problem in advance, may be able to encourage the media to do a better job of reporting on the total picture.

Under the State Contingency Plan, as administered by DHEC, it is deemed advisable that the State On-Scene Coordinator write the official releases and hold the press conferences. These releases are to be made after contacting local officials. It is at this point, even on the first release, that the Myrtle Beach officials should be prepared to see that the release contains positive information and not be totally negative in substance.

Attractive Beach Alternatives

It was believed at the beginning of this study that economic losses could be reduced by designing a package of attractive land based alternatives to beach use to hold the tourists in Myrtle Beach during an extended oil spill clean-up operation. While such alternatives must be made a part of the plan, based on the facts as they have evolved, such alternatives will play a relatively minor role in minimizing economic impact in the event of a major spill during the peak season.

During the peak season, the beach is "the" resource that attracts the visitors to the area. Further, presently existing land based recreation facilities are already extensively used during this period and are in no way capable of carrying the extra user load generated by closed beaches. Given the low statistical probability of a major spill, there would not be adequate economic justification for over-building such land based facilities as part of a contingency plan.

While limited in relationship to the volume of potential users, it is critical that the visitors be constantly reminded during the oil spill cleanup that there are attractive alternatives to the beach available to them. Such alternatives include, among other things, plantation and other historic tours of nearby areas, shopping, golf, amusement centers, sunbathing by a pool, the state park, deep sea fishing, and Myrtle Beach night life.

Much the same problem exists with the development of special events that exist with the construction of contingency facilities. While the possibility of a major spill exists, the low statistical probability does not warrant the cost and effort involved in predesigning and maintaining a program of special events that might or might not be needed for a decade.

The local plan, however, needs to recognize the value of such events and as soon as it appears that a spill might require more than a three or four day cleanup period, efforts should be made to institute a series of special events and other activities. Activities of special interest to children, such as fireworks displays, parades, sky and air shows, etc. could be organized and presented with only a minimum of advanced planning.

Many of the tourists on vacation, especially those with children, really have only two alternatives in the case of a major oil spill—stay or pack up and go home. Their choice may well be based on how well the Myrtle Beach community meets the needs of the children.

Inter-Community Cooperation

A number of public officials of communities in the Grand Strand area were surveyed to determine if there was any interest on their part in participating in a mutual assistance program in the case of an oil spill in the area. An effort was made to determine the level of interest that might exist in the sharing of facilities, manpower and equipment and the participation in cooperative programs for tourists affected by the spill.

All of the 16 communities contacted responded in the affirmative as to the value of such a program. Nine of the communities were willing to go so far in response to this informal survey as to develop an inventory of the manpower and equipment that could be available to assist another community. (See Table 6.)

Time will be a critical element in reducing economic losses during an oil spill cleanup. Any time that can be saved in the transporting of equipment or the recruiting of cleanup teams through local cooperation can be translated into significant economic terms.

While it was beyond the scope of this project to organize a mutual assistance program among the various entities in the Grand Strand area, such arrangements would greatly strengthen the Myrtle Beach Oil Spill Contingency Plan. Therefore, as part of this plan's implementation, the City of Myrtle Beach should take a leadership role in bringing the Grand Strand's officials together to work out at least some informal arrangements for mutual assistance.

Updating of Handbook

The probable delay between the writing of this plan and the time when it will eventually be used dictates the need for a well defined procedure to keep the plan current and meaningful. Over a period of time, organizational responsibilities and personnel will change, new laws and regulations will be adopted and technological advancements may well outdate certain sections of the contingency plan.

The need for maintaining the plan is comparable to the need for a maintenance program for fire extinguishers. The probability of either ever being used is low, no one ever wants to see them used and yet they are the insurance against a major disaster. This plan, like the fire extinguisher, unless checked periodically could become inoperable and give a false sense of security.

It is strongly recommended that an official of City Government be given the responsibility to review the plan

on an annual basis. To make the updating of the plan easier, and to provide for necessary changes, it has been published in looseleaf form so that outdated material can be removed and replaced with current information.

Further, the first 50 copies have been numbered and should be registered as to the holder and distributed only to those individuals and organizations which have implementation responsibilities. Since the plan may not have to be implemented for a number of years, the numbered copies have been punched for use in a loose leaf book. This will permit the exchange of pages as new material is added or other changes are made.

Financing Oil Spill Cleanups

The ultimate financial responsibility for the cost of an oil spill cleanup lies with the one causing the spill and his insurance company. Therefore, the business people and property owners who suffer financial losses due to an oil spill should carefully document their oil spill financial losses and costs related to such spills. As is explained below, at this time it may not be possible to recover all such losses, but without properly documented records, there would be no possibility of recovery.

In the case of small spills, when the spiller is unable or unwilling to do so, the state assumes the responsibility for the cleanup and looks to the spiller for reimbursement. In the case of larger spills, the state will request federal coordination, technical assistance and the use of the "Federal 311K Fund".

Under the current National Contingency Plan, federal funding is available only for cleanup and spill response activities approved by the U.S. Coast Guard. It does not provide funding for economic losses of business or government which are related to anticipated revenue.

The Coast Guard office charged with oil spill response will, however, receive petitions for compensation and will advise petitioners as to the best possible recourse available under the specific circumstances of the spill. Federal

government representatives suggest the best policy for determining sources of economic assistance is to contact the Coast Guard representatives at the time a spill occurs.

A revised National Contingency Plan is expected in December of this year. The new plan, if approved, should provide for a greater variety of economic considerations. Whoever is designated to maintain this Handbook should acquire a copy of the Plan and analyze it for the use of registered Handbook holders.

Summary of Conclusions

To put this contingency plan in its proper perspective, it is necessary for the community and its public officials to recognize several very significant facts:

1. While there is a possibility of a major oil spill in the Myrtle Beach area, the statistical probability is low. Therefore, the community must be willing to prepare for something that, hopefully, will never occur.

2. While a major spill may never take place, should one occur during the peak season, it would be disastrous to the tourist industry, and result in a multi-million dollar loss to the local and state economies. With such an occurrence as even an "outside" possibility, the time and cost preparing for it is more than warranted.

3. The oil spiller has the legal responsibility for cleanup and the payment of damages. However, both the state and federal governments are available with technical assistance and, if necessary, they can assume responsibility for the cleanup activities.

4. The speed with which the community is able to provide the spiller or government response teams with the necessary information and required support can be a significant factor in the lag time between the spill and the actual start of cleanup, and will have a direct bearing on the degree of the spill's economic impact.

5. Negative reporting by the media has adversely affected tourism in other coastal communities which have

suffered oil spills in the past. The community's ability to influence positive media coverage and the quality of its own public relations efforts can be significant factors in the economic impact on tourism during an oil spill cleanup.

6. In summary, while the local community, has little or no formal control over the actual cleanup operation, it can, through advanced planning and research, put itself in a position to expedite the cleanup and reduce lag time. If it is prepared in advance, it can influence the way in which the media perceives and reports on the occurrence and can, through its own public relations efforts, reduce the adverse economic impact on tourism generated by an oil spill.

SECTION II
PLAN PROPOSAL

Plan Objective

It is the objective of this plan to reduce the adverse economic impact on the Myrtle Beach tourist industry should the ocean beach ever become unusable for public recreation due to an offshore oil spill. For this purpose, the plan has been designed to:

1. Reduce the time lag between the oil spill sighting and the start of actual cleanup by publishing in advance information required by the state to start an oil spill clean up through the development and establishment of a local response team and the procedures for cooperating with and supporting state cleanup efforts.

2. Provide a package of public relations activities and efforts to assure fair coverage by the media and a system of hot lines, special events and promotional efforts to fully inform visitors and potential visitors as to attractive alternatives to beach use.

3. Enhance Myrtle Beach's capability to deal with a major oil spill through cooperative and mutual assistance agreements with other communities in the Grand Strand area.

Relationship to Other Plans

To take advantage of the many benefits which can be derived from existing federal and state financial and technical assistance legislation, the "Myrtle Beach Oil Spill Contingency Plan" has been designed to be used as an integral part of South Carolina's "Contingency Plan for Spills of Oil and Other Hazardous Materials". This state plan makes provision for state emergency response to oil spill situations and for activating a federal response should it be necessary.

Nothing can be gained by trying to duplicate at the local community level an already organized and funded statewide

response system administered by the S. C. Department of Health and Environmental Control (DHEC) with the cooperation and support of a number of other involved state agencies. Therefore, the thrust of the Myrtle Beach plan is to capitalize on the state plan and to expedite its implementation through local cooperation and support.

Oil Spill Sighting Response

In all cases of offshore oil spills, the spiller is required to contact the Coast Guard. The spiller will work directly with the Coast Guard in all matters relating to containment, salvage and the minimization of resulting environmental damages and economic losses.

When an offshore spill is sighted in the Myrtle Beach area by others, they should immediately contact either the Coast Guard office in Charleston or the DHEC office in Columbia (the telephone numbers and contact persons are given in the "Oil Spill Contact Section" of this plan). It is immaterial which office is contacted as the one will immediately alert the other and they will coordinate their efforts.

In the event of an oil spill sighting, as much pertinent information as possible should be relayed to the authorities. Any and all of the following information would be of value to them in making an administrative determination as to the level of response that might be necessary:

Location of the spill
Source of the spill
Time of the spill
Volume of the spill
Nature and potential danger of the spilled material
Anticipated movement of spill
Responsible party (address, phone number, etc.)
Action already taken
Weather conditions at spill site

State Response Procedures

When the Columbia DHEC office receives information

concerning an offshore oil spill, it will contact the U. S. Coast Guard and one of its twelve Environmental Quality Control District Offices. For the Myrtle Beach area, this would be the Waccamaw District Office located in Myrtle Beach, S. C. This district includes the counties of Georgetown, Horry and Williamsburg. Each district office has a Director and technical personnel who make up the District Response Team.

In response to an oil spill sighting call from Columbia, the district office will designate an On-Scene Coordinator (OSC) who will be responsible for directing the initial investigative effort. Such an investigation will include verification of the reported spill and an assessment of the general environmental damage or potential damage. He will then provide the Columbia office with such information, advice and assistance as is necessary to formulate the most effective course of action for combatting the spill.

The District OSC will remain in charge unless the situation warrants the assignment of a State OSC. In either case, the On-Scene Coordinator is in charge of the operation and is responsible for coordination of:

Source control and containment of the oil spill
Protection of the environment, public safety and welfare
Cleanup and recovery
Proper disposal of recovered material
Providing communications between the spiller, clean up and containment parties, and appropriate federal, state and local officials
Protecting the interest of all parties concerned

State-Local Relationships

The State Oil and Hazardous Substances Contingency Plan in no way infringes on the rights and legal responsibilities of local officials. However, the plan does provide for a system of cooperation and coordination designed to produce maximum efficiency with a minimum of lost time and cost.

One of the objectives of the state plan is "the development of local contingency plans and mutual assistance groups so that the spiller can take prompt, effective action." It is recognized that it is essential to have maximum participation by those agencies, groups and individuals who would be most directly involved with, and affected by, a spill situation.

The state plan also provides for DHEC to establish contact with appropriate offices of local government prior to a spill incident and to explain the need for certain information they would have to have. In the event of a spill, the State OSC will make his initial contact with local heads of government before the media has had an opportunity to disseminate the information concerning the incident to the public.

The state plan recognizes the value of the input that might be made by a number of special interest groups, such as the Chamber of Commerce, representing the business community, and groups representing environmental and historical interests. The state plan recommends that these local groups be identified in the local contingency plan with appropriate phone number and cognizant contact individual.

Myrtle Beach Response Team

A procedure for the establishment of a local response team will be essential to state efforts in the eventuality of a major spill. The standing membership of this team should consist of the:

City Manager
City Planner
Fire Chief
Director of Public Works
Executive Vice-President of the Myrtle Beach Area Chamber of Commerce

The State On-Scene Coordinator (SOSC) shall make his initial contact with the City Manager, who will then assemble such members of the response team, to meet with

the SOSC, as he feels is warranted by the particular situation.

The state plan provides that the SOSC will meet with the local response team at least once a day during the emergency and that the first meeting will take place prior to any dissemination of information to the media or public.

In the event that it is deemed desirable, the City Manager will appoint one of the response team members or some other qualified individual to serve as the city's OSC. This coordinator will have the responsibility of providing the communication linkage between the State On-Scene Coordinator and the various members of the city's response team.

The Manager may, at his discretion, or at the request of the State On-Scene Coordinator, expand the response team membership to include individuals or representatives of special interest groups whose technical knowledge may prove to be of value to the cleanup effort.

The standing members of the response team should be issued registered copies of this handbook and assembled sometime in the near future to be briefed on their responsibilities under the plan. As new information is included or there are changes in the plan, the team members' handbooks should be updated.

The S. C. Department of Health and Environmental Control plans to hold several response drills a year throughout the state. To thoroughly familiarize the local response team as to what might take place in the event of a major spill, it is recommended that the City of Myrtle Beach request that such a drill be held in their city.

State Information Needs

In the event of an offshore oil spill, the SOSC will need certain local information before he can properly perform his duties. Much of the information that will be required is contained in appropriate sections of this handbook. Such information, however, can become outdated and, as part of this plan, a city official needs to be appointed by the City

Manager to revise the handbook at least once a year and to send such changes as are necessary to the registered holders of the book.

This study was limited to developing a plan relating to off-shore oil spills. However, the state plan also covers land spills of oil and other hazardous materials which requires the need for other information than was developed under this study.

Since such hazardous material spills are more likely than major offshore oil spills, this plan could be made more valuable to the community by expanding the plan to include such spills. This would involve merely the collection of some additional information which is readily available. It is recommended that whoever is assigned the responsibility of updating the handbook should contact DHEC and cooperate with them in the development of the additional information.

Media Relations

Under the state plan, the SOSC is responsible for coordination of official news releases and press conferences. It is highly desirable to limit the flow of official information to one source. However, past experience has shown that releases from OSC's are inclined to contain only technical information, such as volume of oil, weather conditions, the pounds of dead fish collected, etc.

Releases containing only technical information result in negative type news stories and media coverage that has an adverse effect on tourism and the local economy. To offset the negative effects of such releases, a provision must be made to assure that they contain some positive information that the press can report to the public.It is for this reason that the Executive Vice-President of the Myrtle Beach Chamber of Commerce is included on the response team.

While no effort should ever be made to mislead the public, or to suppress any significant piece of information, it is vital to the community's economic well being that the

response team insist on input into the SOSC's releases and formal press conferences. All releases should be balanced with information concerning usable beaches and attractive alternative recreation opportunities available in the community. The press cannot report what it does not know.

The Chamber of Commerce should identify an area that can be cleared and established as a press room in the eventuality of a major oil spill which would attract a large number of media people. Such a room should be set up with desks, telephones, etc. as soon as it is certain that there will be extensive media coverage. The press room should be air conditioned, contain adequate restrooms, good lighting, parking and janitorial services. Seeing to the comfort and needs of the press would be one of the best investments the business community could make.

All news releases and press conferences should take place in this area. Having the press all working together in one place would give the Chamber personnel an opportunity to expose them to the kinds of information which would be needed to offset some of the adverse publicity resulting from the oil spill.

Promotion Efforts

In other communities which have experienced oil spills, they found that toll free hot lines were extremely cost effective. A special effort should be made to see that these hot line numbers are included in all news releases and mentioned at all news conferences. Through these phones, it is possible to talk to people who are worried about coming to Myrtle Beach during the spill and to visitors who need information about activities that are going on.

Since the plan may not be used for some time, it is not possible, at this point, to develop the series of pre-packaged special events and activities needed to help maintain the interest of the tourist during the cleanup period. However, as soon as it is determined that the beaches will be unusable for a period of five days or more, a Chamber of Commerce Committee should be appointed to develop a series of

special events that would be attractive to the visitors and which might be referred to in news releases.

It is important that the Chamber, through paid advertising, public service time and its own news releases, constantly remind the visitors of alternative recreation opportunities available in the area. More extensive advertising campaigns outside the local area need to be held off until the impact of media coverage can be accurately evaluated. Two of the four other communities involved in oil spills felt they had started their out-of-the-area promotion campaigns too early.

As part of this plan, if the Myrtle Beach Chamber of Commerce should request assistance during a major oil spill, the S. C. Department of Parks, Recreation and Tourism will make a temporary assignment of writers and special events specialists to assist the Chamber in its promotion efforts.

Mutual Assistance Agreements

An offshore oil spill of a volume to affect the Myrtle Beach economy will affect many, if not all, of the communities on the Grand Strand. These communities share not only the beach but also the same common tourist market and, to a large degree, their economies are tied together.

In the time of such an emergency, a prearranged agreement of mutual assistance and cooperation would be of great value. Preliminary investigations during this study indicated a strong interest in cooperative contingency planning. (See Table 6.)

The City of Myrtle Beach should take the leadership in such an effort. Using the Myrtle Beach Plan as a model, it will be feasible to expand it into a Grand Strand Area Plan. These communities are assured that if they choose to develop such an area wide plan, they will have the full support and backing of the S. C. Department of Parks, Recreation and Tourism and the S. C. Department of Health and Environmental Control.

Plan Implementation Actions

•Distribute copies of plan to all persons who might be affected.

•Hold a briefing session with designated members of the standing response team.

•Appoint a city official to maintain and update handbook.

•Request DHEC to hold an oil spill drill in Myrtle Beach area.

•Contact DHEC to determine what additional information they need in the event of other hazardous substance spills.

•Call a meeting of representatives of the other Grand Strand communities to work out mutual assistance understandings in the event of a major oil spill.

•Identify likely spaces for use as a press room should the need ever arise.

Procedures in the Event of an Oil Spill

•Oil spill reported to Columbia DHEC office or Charleston Coast Guard

•Coast Guard and DHEC coordinate their activities

Columbia DHEC alerts District Office

•District office investigates and reports to Columbia DHEC office

•DHEC On-Scene Coordinator contacts City Manager

•City Manager alerts appropriate members of standby response team

•Myrtle Beach response team meets with SOSC to determine actions to be taken

•Myrtle Beach OSC appointed if situation warrants

•Myrtle Beach response team and SOSC formulate news releases

•Myrtle Beach response team and SOSC meet at least daily in the event of a significant spill, to formulate plans and

develop news releases

•Chamber of Commerce implements staged public relations plan as situation warrants

In the event of a major spill:

•SOSC requests federal assistance

•Inter-Community mutual assistance agreements put into effect

•Chamber of Commerce sets up press room

•Chamber of Commerce requests PRT tourism writers and special events assistance.

SECTION III

OFFICIAL AGENCIES AND SPECIAL INTEREST GROUPS

Federal Agencies

U.S. Coast Guard
Charleston Office (24 hr.) ..... (803) 722-4861

Environmental Protection Agency
Atlanta, Georgia (24 hr.)..... (404) 881-4062

State Agencies

S.C. Dept. of Health & Environmental Control
Emergency Response Team
Columbia, S. C. (24 hr.) ..... (803) 758-5531
Office phone during working hours .... (803) 758-5496

S. C. Dept. of Health & Environmental Control
Waccamaw District Office
Myrtle Beach, S. C. ..... (803) 448-8400

County Agencies

Horry County Civil Defense Agency
Horry County Court House
Conway, S. C.
E. F. Harrison, Jr., Director (803) 248-6247 (ext 225)

Horry County Sheriff's Office
Horry County Court House
Conway, S. C.
M. L. Brown, Jr., Sheriff..... (803) 248-6247 (ext 225)

Horry County Police Chief
Conway, S. C.
Gordon Harris, Chief ..... (803) 248-6241

Civil Air Patrol
Conway, S. C.
Second Lt. W. E. Steinbrecker ..... (803) 245-9175

Myrtle Beach City Agencies

City Manager - Carey F. Smith ..... (803) 448-2430
City Planner - Jim Tolbert ..... (803) 448-2437

Chief of Police - J. Stanley Bird ..... (803) 448-3111
Public Works Director - Ron Andrews (803) 448-2437
Fire Chief - Fernie Faulk ..... (803) 448-3656

Special Interest Groups

Myrtle Beach Area Chamber of Commerce
Myrtle Beach, S. C.
Ashby Ward, Executive Vice-President (803) 448-5135

South Carolina Environmental Coalition
(No chapter in Myrtle Beach,
Columbia Office will designate the most
knowledgeable person in the area at the
time of a spill)
Columbia, S. C. - Bill Frye ..... (803) 799-0321

National Audubon Society
Southeastern Regional Office
(No chapter in Myrtle Beach,
Regional Office will designate the most
knowledgeable person in the area
at the time of a spill)
Charleston, S. C. - Carlyle Blakeney .. (803) 723-6171

Sierra Club
(No chapter in Myrtle Beach, a
knowledgeable person in the area
will be designated at the time of a spill)
Camden, S. C. - Richard Watkins ..... (803) 425-3138

SECTION IV
SURVEY AND RESEARCH FINDINGS
I. OIL SPILL RESEARCH
Oil Spill Risks

The major risk of oil impacts on Myrtle Beach is associated with the tanker and barge transport of petroleum products. Future risks, however, may include those connected to offshore drillings on the continental shelf. Ports of entry for petroleum products lying adjacent to Myrtle Beach include Georgetown (approximately 40 miles away) and Wilmington (approximately 80 miles away). Charleston is also a major petroleum facility but lies over 90 miles from the study site. A refinery is currently proposed for Georgetown; its completion would double the number of ship calls and triple the quantity of oil handled by Georgetown. (See Table 1.)

Explicit oil spill risk analyses for tanker traffic have not been published for Myrtle Beach. However, due to prevailing winds and currents, projected impacts on Myrtle Beach resulting from spills at these port entrances is likely to be very low. Data generated by the U. S. Geological Survey as part of the outer continental shelf studies program reveal more specific information (Lanfear and Armstutz, 1981; Ray et al., 1980; and Slack and Smith, 1976). The probability of oil impacting Myrtle Beach from the proposed lease sites (see Table 1) or pipeline routes, for the life of the basin and including spills from existing tanker traffic, is near zero for oil floating for less than 10 days and only 1 percent for impacts within 30 days after the incident (Samuels and Lanfear, 1980). Areas to the north and south are much more likely to be impacted 6 and 9 percent within 30 days.

However, the low statistical occurrence of impacting oil spills should not be a signal for complacency. The washing up of 650 oiled birds onto Myrtle Beach during February 1981 (Schultz, pers. com.), as well as a ship collision just off Nags Head (North Carolina) with resulting shoreline

pollution, indicate that oil spills do continue to occur in spite of low statistical probabilities.

The Physical Effects of Spill Impact by Oil Type

Petroleum products are transported in a variety of forms from crude oil to gasoline. Each form of oil has a specific set of chemical and physical properties which affect their interaction with water and sediments. Weathering processes, water/sediment residence time, environmental damage, and ultimately cleanup and recovery methods vary greatly with each type of oil. A list of oil types and the effects each would have on the shoreline environments present at Myrtle Beach is shown in Tables 2A and 2B.

Light, volatile oils (Category I, Table 1A) tend to spread over the water surface very rapidly. Almost immediately, evaporation and photooxidation begin to "weather" or break down the oil, eliminating as much as 25 percent of the volume in 24 hours. Lighter oils also tend to be more soluble and the oil is easily mixed into the water column. As a result, oil reaching the beaches often appears as a light multicolored sheen. It may penetrate into sandy sediments if large enough quantities are present, but will be removed quickly by agitation from wave activity. Aesthetically, at least, a spill of this type would probably be less damaging to the Myrtle Beach shoreline. Depending on the amount of petroleum spilled, it may go largely unnoticed visually and may take only a few hours to a few days for the beaches to be free of oil accumulation.

Heavier oils (Categories II and III, Tables 2A and 2B) create a more complex impact problem for the Myrtle Beach shoreline. When oil is spilled into seawater, it can form either an oil-in-water (o/w) or a water-in-oil (w/o) emulsion. The o/w emulsion (more common with lighter petroleum products) is distributed throughout the water column and is exposed to degradation processes. Conversely, w/o emulsion (called "mousse") generally forms from heavier petroleum products and is more resistant to weathering. The emulsion floats and is viscous enough to retard evaporation. Further, the emulsion has

twice the volume of the original oil, is very stable, and assumes a rather sticky, taffy-like viscosity that readily adheres to most substrates.

With heavier oils, impact to the Myrtle Beach area shoreline is potentially far worse aesthetically and physically than lighter oils. In smaller spills, oil would tend to accumulate along the upper beach face where it may percolate into the sediment. With larger spills where vast quantities of oil may be deposited on the shoreline, the oil will accumulate in both the upper and lower intertidal zones. There is a greater likelihood that oil would become more deeply incorporated into the beach face as sediment reaches saturation levels. In either case, once spilled oil impacts on shoreline, it renders the beach unusable to tourists until it has been removed.

Response Measures

An integral part of oil spill contingency planning is the selection of cleanup techniques for oil-impacted shorelines. In Myrtle Beach, especially during peak tourist months, rapid and effective cleanup is imperative to insure a minimal loss of tourist dollars. The selection of the proper cleanup techniques should be based on the following parameters:

1. Substrate type and grain size (i.e., seawalls or fine-grained sand beaches).

2. The amount and type of oil.

3. Physical effects of cleanup (e.g., removal of sand in an erosional area).

4. Cost versus benefit of the selected benefit.

For the purpose of this study, oil can be separated into two broad types:

1. Heavy fuel and crude oils

2. Light, more volatile oils.

Both types react differently with various shoreline environments and require different cleanup procedures.

General cleanup strategies for each major oil type are discussed below. Specific cleanup procedures recommended for Myrtle Beach are presented in Table 3.

Cleanup of heavier oils is best conducted after all spilled oil has come on shore. This reduces labor costs and, more importantly, it minimizes the amount of sand that would be removed from the beach. The specific cleanup techniques shown in Table 3 all apply to heavier oils. The selection of the best technique is dependent upon a host of variables present at the time of the spill and the type of substrate to be cleaned.

Unless lighter oils form an emulsion in the seawater, they generally do not require the extensive cleanup procedures (depending on the amount spilled) of heavier oils. Light oils impacting the shoreline will typically penetrate more deeply into the sediment, but normal agitation by wave activity will remove a large percentage of this oil naturally. The greatest problem in cleaning up spills of lighter oils may be the removal of dead organisms (fish, polychaetes, crabs, etc.) because lighter oils tend to be more toxic. Emulsion will adhere to most substrate and, in many cases, must be treated in the same manner as heavier oils.

With either type of oil, the use of heavy equipment such as road graders and bulldozers is **not** recommended for cleanup. While machinery of this kind offers a swift and effective way to remove spilled oil, it concomitantly removes tons of much needed sand. The end result is a cleaner but more severely eroded beach.

A much better (albeit slower) method of cleanup is the use of manual (shovels and rakes) labor and vacuum trucks. This technique has been applied at two major oil spills, the BURMAH AGATE and IXTOC I, with good success. Additionally, the use of pressure spraying and sorbent materials are generally recommended for final aesthetic cleanup and usually have a negligible effect on the surrounding environment.

To facilitate a rapid cleanup response in the Myrtle Beach area, a list of beach access points has been prepared (Tables 4A, 4B and 4C). The list gives a description of each recommended access road and provides information concerning equipment deployment and temporary storage of collected oil at each site.

II. TOURISM'S VULNERABILITY TO AN OIL SPILL

Discussion

The vulnerability of Myrtle Beach's tourism industry to an oil spill is directly related to the dependence of the industry on beach and water-oriented activities. The critical factors include the extent of beach which may be affected by an oil spill, the vulnerability of the local economy, and the seasonableness of the tourist trade. The potential extent of beach affected by a spill has been discussed previously.

Tourism is the area's most important economic activity; indeed, it is the economic base of the community. According to figures provided by the Horry County Development and Tourism Commission, tourist spending accounted for 73 percent of the Grand Strand's economic activity in 1980. In fact, Grand Strand tourist spending exceeded $700 million during 1980.

Total visitors to the Grand Strand in 1980 numbered 7,000,000. Per capita spending totaled approximately $100. There were 47 million overnight accommodations through 1980, with over 60 percent taking place during the summer season. The average length of stay per tourist was 4.3 days resulting in an average daily tourist expenditure of $23.26. During the summer season of 1980, the peak overnight accommodations for transient persons totaled 228,000. This resulted in expenditures exceeding five million dollars on these peak days of tourist activity.

Myrtle Beach Visitor Survey

Surveys were conducted to gather information on the

following points of interest:

A general background on visitor trips including the annual number, average length, and motive;

Visitor reaction to an oil spill.

The visitor survey provided a good sample of annual visitation frequencies and average lengths of stay. However, there was a contrast between responses of visitors and area businesspersons regarding expected reactions to an oil spill. The majority of tourists said their activities would continue uninterrupted, whereas businesspersons believed a maximum stay of 2-3 days could be expected before an appreciable tourist outflow would occur.

The survey indicated two important visitor reactions if an oil spill occurred:

1. A major percentage (67%) of the tourists surveyed said it would be highly probable that they would remain for the entirety of their visit regardless of an oil spill.

2. There are one or more alternative activities in the area that the tourists would enjoy if restricted from beach use.

Myrtle Beach Business Survey

A survey of businesses located in the Grand Strand area was undertaken with the survey's purpose being twofold. One purpose was similar to that of the visitor survey—that is, to predict what effect an oil spill may have on visitors. The assumption made was that persons who are in the business of serving tourists would have some insight into tourist behavior and attitudes by exposure and because it is a part of the nature of their business to predict tourist behavior.

The second purpose was to determine the effects of a short-term decline of tourism on specific types of businesses, facilities, or activities. The businesses were asked to establish the seasonal pattern of their business as it relates to dependence on tourism. They were also asked to

estimate the percentage of tourists they felt could be lost for a brief period of time as a result of an oil spill without imposing financial hardship on the business.

The majority of the businesses felt that tourists would react negatively to an oil spill. The general consensus was that the tourists' reaction to a 2-3 day beach cleanup period would be similar to the reaction to several days of rain. That is, visitors would go to the various shopping areas and amusement centers for a couple of days and take advantage of the activities offered by these places. However, if the cleanup was not accomplished within the 2-3 day period, a high percentage of tourists would begin an exodus from the affected area. See Table 5.

Summary of the Business Survey

In summary, Myrtle Beach businesses produced a concensus: businessmen are somewhat frightened by the prospect of a spill. This is particularly the case when the possibility of one occurring during the peak summer season is considered. A number of the people surveyed felt that an oil spill could be devastating. Their primary concern is with the handling of the incident by the news reporting media. It is felt to be of the utmost importance that the media be kept constantly abreast of what occurs during and after an oil spill since the type of publicity that the area receives can make or break the business community.

Other points brought out in the survey include the following:

Most businesses are heavily dependent upon tourists as customers, at least during the spring, summer, and fall seasons.

Very little of this tourist business can be lost.

The businessmen do not believe that tourists will stay in the area for very long if an oil spill occurs.

III. EXPERIENCES OF OTHER COMMUNITIES

Purpose of Survey

To determine what strategies other beach communities

impacted by an oil spill have used to minimize the impact on the tourist industry, inquiries were made to beach communities across the nation. Communities investigated included Santa Barbara, California; Nantucket, Massachusetts; South Padre Island, Texas; and Nags Head, North Carolina. Questions about past impacts, strategies, and plans for future emergencies were addressed through telephone interviews with key informants at local and state levels.

Santa Barbara, California

In January 1969, a blowout occurred in the Santa Barbara Channel, spilling approximately 77,000 barrels of oil. The oil contaminated and damaged beaches, boats, and marinas as well as wildlife, fish, and shellfish habitats. Although the spill occurred during the nonpeak tourist season, tax losses after the spill were estimated at $1,862,000 from lost tourism. Although the beaches were cleaned in a relatively short period of time, reports from the media did have an impact on the tourist centers.

After the beaches were cleaned, the oil companies developed an advertising campaign to bring people back to the beaches. Although the Chamber of Commerce in Santa Barbara was pleased with the effort and the results of the advertising, the Santa Barbara County Offices felt that the campaign was started too soon. A similar situation involving the oil company and an advertising campaign was not found in any other coastal community impacted from a spill. The Chamber of Commerce was pleased with the effort in 1969, and in the event of another spill, it anticipated that the oil company would repeat the effort; however, no formal arrangements were made.

In the aftermath of the spill, the state developed an Oil Spill Contingency Plan denoting the Department of Fish and Game as a liaison between local and state governments and the federal government and industrial personnel involved in the spill response. The majority of oil spill containment and recovery equipment is owned by private companies, individually or through cooperatives. Santa

Barbara, Los Angeles and Long Beach are some of the areas in which the cooperative's equipment is stored. The County of Santa Barbara has no equipment of its own. The emphasis in oil spill emergency planning has been containment and, if necessary, fast and efficient cleanup. Plans to alleviate impacts on tourism have not been made, reported Brian Baird of the California Coastal Commission.

Recently, counties have begun to develop oil spill contingency plans. Los Angeles County has such a plan, developed by the Department of Beaches, providing a framework of action by local government in cooperation with the Coast Guard and private contractors. The advantage of this plan is the familiarity of local government with public safety, shoreline access, safety hazards,and crowd control (the county has a population of 7 million, the majority of which would be interested in a spill). Santa Barbara is beginning to develop a local response team, to clearly define duties during a spill.

The tourism of the area was affected by the last spill and would be affected by another spill, especially at a more popular vacationing time. Although tourists are attracted by the beaches and water-related activities, visitors are also drawn by the mountain scenery, historical sites and cultural events. There are no plans to encourage other forms of tourism, but the Chamber of Commerce and the Santa Barbara County office would communicate with the public on when the beaches were cleared up and on what other activities were available.

The California Coastal Commission is involved with Coastal Energy Impact Programs throughout the state. Funding from CEIP is devoted to a variety of projects and investigations. Concerning oil spills, three projects are involved with the effects of spills: investigation of the oil spill cooperatives and their ability to handle a spill; four bird-cleaning centers placed strategically along the coast; and a mapping of the coastline, which indicates sensitivity to oil. No projects are involved with the effects on tourism.

The emphasis in California in planning for a spill

emergency is preventive in nature, through legislation and assurances that oil companies operate with at least a minimum of cleanup equipment. Although in the past reliance has been totally on U.S. Coast Guard and private response teams, counties are now developing oil spill contingency plans and becoming more involved in the response effort. Long-range planning, including plans to lessen the impact on tourism, has not been undertaken.

Nantucket, Massachusetts

In December 1976, the ARGO MERCHANT ran aground 30 miles southeast of Nantucket. The first leak occurred on December 17 and the ship broke apart on December 21, spilling 7.5 million gallons of oil. The accident occurred in rough weather with no response efforts made and no dispersants used at the site. The oil that washed ashore on the Nantucket beaches was old and broken apart, and it was easily raked up. Oily wastes were disposed of in the Nantucket landfill.

Because the spill occurred in December, the tourist industry was not immediately affected. An active campaign by the Chamber of Commerce to assure the public of clean beaches resulted in no noticeable drop in tourism. Cleanup efforts by the Coast Guard were generally viewed as satisfactory to good. However, the impact on the fishing industry may in fact have long-lasting effects. Although no baseline data exist, fishermen report lower than normal lobster catches near the site of the wreck.

If a major oil spill occurred in the spring or summer months, the effect on the tourist industry could be substantial. The majority of visitors to Cape Cod and the Islands (Martha's Vineyard and Nantucket) are drawn to the beaches and the water-related activities. Aside from impacts on tourism, a major oil spill would affect the critical and sensitive beach and wetland areas found here.

Key informants from the Cape Cod, Martha's Vineyard, and Nantucket Chambers of Commerce and Planning Commissions recognized the threat of an oil spill on their

tourist industry. No plans to alleviate the negative impact on the tourist industry have been developed as yet, although all agreed that certain steps would be taken. A visitors' hotline would be developed to truthfully answer questions about beach, swimming and boating conditions. Press releases would include descriptions of not only the affected areas but also the clean, nonaffected areas. It was felt by all informants that the reporting of a spill by the media may give an erroneous view of the situation. Informants felt that little or no attention had been paid in the past by the media to other clean beaches and other available activities. Both clean beaches and other activities would be described by the Chamber of Commerce in their media releases. Funding for such projects often comes from an emergency fund. The Cape Cod Chamber of Commerce would use money from its Hurricane Emergency Fund for a media and hotline campaign. Furthermore, fund drives were made for a media campaign in 1979 to encourage visitors to come to the Cape despite the gas crisis, and the director did not discount a similar project in case of an oil spill.

Although the area's main attraction is its waterfront and water-related activities, other types of recreation exist. Press releases by the Chamber of Commerce on the Islands or Cape Cod would include descriptions of the alternatives. Nantucket has plans to diversify its tourist industry and economic base, although plans are not to appease visitors in case of a spill. The island is trying to diversify its economy (promoting fishing) to provide jobs for young adults on the island and to take some emphasis off development.

Emphasizing preparedness in case of a spill, the state is encouraging coastal townships to prepare oil containment and cleanup plans. Oil Spill Contingency Plans in Massachusetts contain information on and contracts with:

1. Available federal, state, county, local and private equipment organizations useful in containing or cleaning up a spill;

2. Scientific and technical personnel;

3. Lodgings, hospitals and emergency centers;

4. Type and location of beach access (footpath, dirt road, paved road);

5. Beaches in the township including U.S. Geological Survey maps and maps color-coded by beach type (least and most sensitive to oil); and

6. The oil spill response coordinator for the township.

On Martha's Vineyard and Nantucket, the Oil Spill Contingency Plans formalize duties in cleaning up a spill and encourage towns to work with one another. The Oil Spill Contingency Plans are especially important for the Islands because their primary energy source is #2 oil, brought in by tanker. These plans are the first line of defense in case of a spill. Nantucket, because of the past spill, is a particularly vocal community anxious to become involved and prepared.

Besides the Oil Spill Contingency Plans, the state's oil spill program involves training town employees to use containment equipment and eventually purchasing small amounts of equipment for townships. Although originally conceived for the hundreds of small spills that occur off the coast, it is generally agreed that these plans may aid federal and state efforts in a very large spill.

The State of Massachusetts, through its Office of Coastal Zone Management, implements a Coastal Energy Impact Program. The state's primary emphasis with its CEIP is oil spill mitigation efforts. Several coastal communities have applied for funds through CEIP to develop other forms of recreation in the event of a spill. The towns of Beverly, Lynn and Quincy, anticipating poor swimming conditions at the time of a spill, have plans to upgrade marinas and boat launches to encourage boating.

Because of the ARGO MERCHANT and increasing numbers of small spills, coastal communities on Cape Cod and the Islands are planning a course of action in case of a spill. Primary emphasis is on preventing the oil from

coming ashore. Oil Spill Contingency Plans aim to contain spills and protect beaches. Speedy cleanup may become a more difficult and costly problem as oily wastes become more difficult to dispose of. In anticipation of damaged beaches, some federal money is being used to promote other forms of recreation; however, the majority of efforts are preventive in nature.

South Padre Island, Texas

The Campeche Bay offshore well blowout caused the largest oil spill in history from any source. The IXTOC I Number 1 well, drilled by a Mexican national oil company, spilled an estimated 10,000-30,000 barrels of oil per day from June 3, 1979, until March 23, 1980. The oil slick and tar moved 700 miles north, reaching the Texas coast in early August. With a change in the wind direction and the ocean currents in early fall, the slick moved back south.

Although no figures are available, South Padre Island's tourist industry was hurt severely. Two possible reasons why South Padre Island lost as much tourism as it did are: the major role beaches and water-related activities play on the island; and the reporting by the media on the extent of the spill. In the past year, South Padre Island has diversified its recreation activities to include an 18-hole golf course, but the diversification is not solely in preparation of another spill. To counteract the media's reporting for the spill, the South Padre Island Convention and Tourist Bureau spent over $100,000 promoting the cleaning of the beaches in "The Coast is Clear" campaign. It is felt that the media and their reporting were the major factors in losing tourist trade. The tourist bureau felt that the situation improved much more rapidly than the media led people to believe. Radio, TV and newspaper ads written by the tourist bureau all described the cleanup process and clear available beaches. Despite the efforts of the tourist bureau, the spill affected almost 60 days of winter trade.

No emergency planning for the next spill has been undertaken by the tourist bureau. Similar reliance on the Coast Guard and private corporation cleanup response was

repeated by cities that did not own cleanup equipment.

In Corpus Christi, similar reliance on the Coast Guard for cleanup leaves the city and county without any equipment of its own. The Corpus Christi Convention and Tourist Bureau reported that although some tourist business was lost to the spill, many people came to the area, just to see the spill. The Chamber of Commerce had a telephone hotline set up to explain to visitors the extent of the problem and the locations of oil-free beaches.

In Galveston, partly as a result of the oil spill, the city has developed a strong cleanup campaign in case of a spill. The city felt that part of South Padre Island's difficulty in dealing with the spill was not having a cleanup plan. Galveston's goal is to get the area cleaned up as quickly as possible. The media would also be used to describe problem areas as well as clean areas and other attractions and activities. The room tax levied on hotel rooms provides some of the money intended for such a media campaign. The Galveston Convention Center also described the Galveston area's diverse recreation attractions as compared to limited water-based recreation activities on South Padre Island.

The state's Oil Spill Contingency Plan deals primarily with notification and legal requirements for spillers. An updated plan is scheduled to include source data, equipment suppliers and sensitivity ratings for beaches. The state also relies on the Coast Guard and the industrial cooperatives for cleanup. Towns and counties do not have any equipment of their own and often rely on county highway departments and their equipment (bulldozers, front-end loaders). The state's CEIP has no projects directly related to oil spills. Some local, coastal parks are getting funds for improvements through CEIP, and access for fishermen is being improved after parts of the shoreline are developed for oil terminals and tanker ports.

Texas had done very little emergency planning up until this point, with heavy reliance on Coast Guard and industry cleanup capabilities. More thorough planning is anticipated

in the near future, with major emphasis on efficient cleanup and recovery. The impact on tourism has not yet entered state or local planning considerations.

Nags Head, North Carolina

On May 6, 1981, the ARGO CARRIER collided with another vessel 11 miles off the coast of Nags Head. Of the 150,000 gallons of oil spilled, 10,000 gallons washed up on the shore at Nags Head. The ship causing the accident contracted with a private firm for cleanup while the Coast Guard coordinated the efforts. The effects of the spill were cleaned up in approximately three days.

The media reported the incident, and tourists planning to visit the area called the Outer Banks Chamber of Commerce to determine the extent of the damage. As with individuals in Massachusetts, the Chamber of Commerce for Nags Head felt that the media failed to tell the entire story and mention the beaches untouched by the spill. Tourists calling the Chamber of Commerce were told the extent of the problem and location and names of oil-free beaches. In addition, nonwater-recreation activities were described, including historical and cultural attractions.

The Nags Head area has two features that lessen the impacts of oil. The type of beach on the Outer Banks is an exposed, sandy beach that cleans itself rapidly. Efforts by the private contractor and the Coast Guard, in addition to the type of beach, produced a quick response and relatively clean beaches in a short period of time. In addition, the Outer Banks and the barrier beaches act to protect Pamlico Sound and boating, fishing and swimming activities there. If activities on the barrier islands are curtailed because of oil spills, additional activities, including water-based recreation, are available.

There is no specific plan to alleviate the negative impact an oil spill would have on the tourist industry. Towns on the Outer Banks have no cleanup equipment of their own. The Outer Banks Chamber of Commerce would follow a plan of action similar to other incidents of oil spills,

including telephone hotlines and press releases. The Chamber of Commerce tries to send out as much positive information as is possible without distorting the truth. Visitors would be alerted to the problem, but they would be given a list of alternatives. Because the beaches are cleaned so quickly and Pamlico Sound offers alternative water recreation, a major plan for tourism has not been implemented. Furthermore, the coastline extends 90 miles and only a portion (at most one-third) has been unusable at any time. The Chamber of Commerce contends that there has always been a clean beach available to visitors.

The Chamber of Commerce often cites other activities in the area when trying to interest tourists in the Outer Banks area. Cultural and historical sites are within a reasonable distance. However, there are no plans for additional diversification of the tourist industry. Townships in the barrier islands refused opportunities to expand recreational activities. The usual description of attractions around the Outer Banks includes alternative recreation activities, including historical and cultural sight-seeing.

Because of beach conditions, barrier islands and a huge expanse of coastline, oil spill impacts on the tourist industry have not been especially severe. An oil spill occurring in 1981 had no substantial effect on the tourist industry. Towns and counties, with no equipment of their own, rely on state and federal cleanup efforts.

Discussion

In conclusion, of the communities interviewed, no local plans have been made by oil-spill-experienced communities to lessen the impact to the tourist industry. The line of defense taken in the past to encourage tourists to return to the beaches was found to be satisfactory and would be repeated. If planning was undertaken by a community, county or state, it was primarily preventive in nature, emphasizing fast and efficient cleanup if the oil did impact the beach. It is anticipated that with a more organized planning system for the spill itself, more long-range

planning, including tourism impacts, can be implemented in the future. There are no plans to lessen impacts on tourism at the present. The effect of media reporting of the oil spill incident seemed to have the most detrimental effect on the tourist industry, and efforts by the coastal communities would be to balance the reporting.

IV. SURVEY OF ADJACENT COMMUNITIES

Survey Purpose

This survey was conducted in order to determine interest in the Grand Strand area relative to the development of cooperative agreements for sharing facilities, manpower and equipment to assist in cleanup of an oil spill, as well as the promotion of cooperative programs to accommodate tourists who may be unexpectedly affected by a spill. No attempts were made to actually negotiate any agreements, but the idea was posed as a means of assessing possibilities for mutual assistance.

Those interviewed for this survey were public officials for the municipal and county governments of Georgetown and Horry Counties. The questionnaire included three principal questions:

1. Would your government be interested in agreeing to cooperative efforts for an oil spill cleanup?

2. What could your government contribute to the effort in terms of facilities, manpower and equipment?

3. What programs could be developed to take care of tourists (i.e., entertainment) that might be forced from the beach until the cleanup was completed?

Results of the Adjacent Communities' Survey

The general consensus of the county and municipal officials interviewed was that their particular government would be interested in putting together some cooperative plan with which to respond to an oil spill emergency. However, some of the officials noted that their ability to contribute to a cleanup would be greatly restricted by their limited budgets.

Sixteen of the responses indicated a definite interest in assisting with cleanup. Nine were able to determine the manpower and equipment which they would be willing and able to contribute to a cleanup effort. The officials' responses are shown in Table 6.

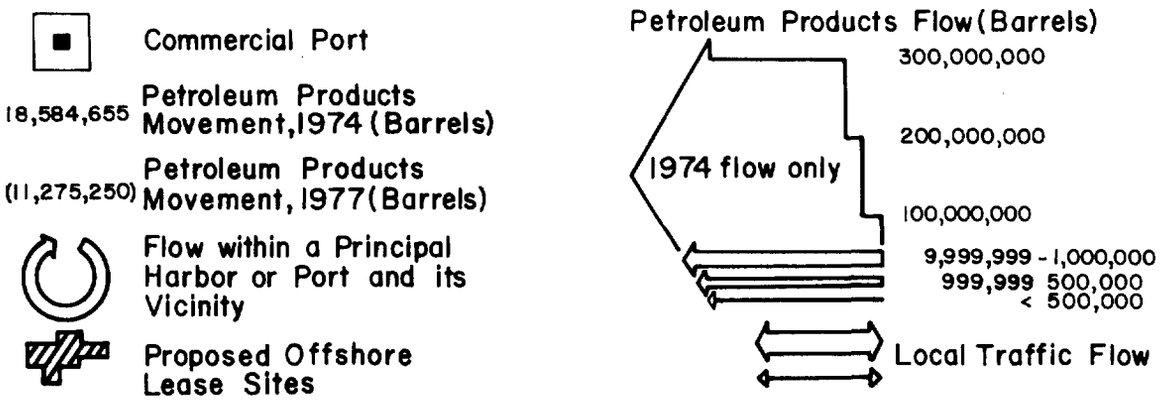
TABLE 1

POTENTIAL SHORELINE IMPACT

PLEASE FOLD OUT

TABLE 1

POTENTIAL SHORELINE IMPACT



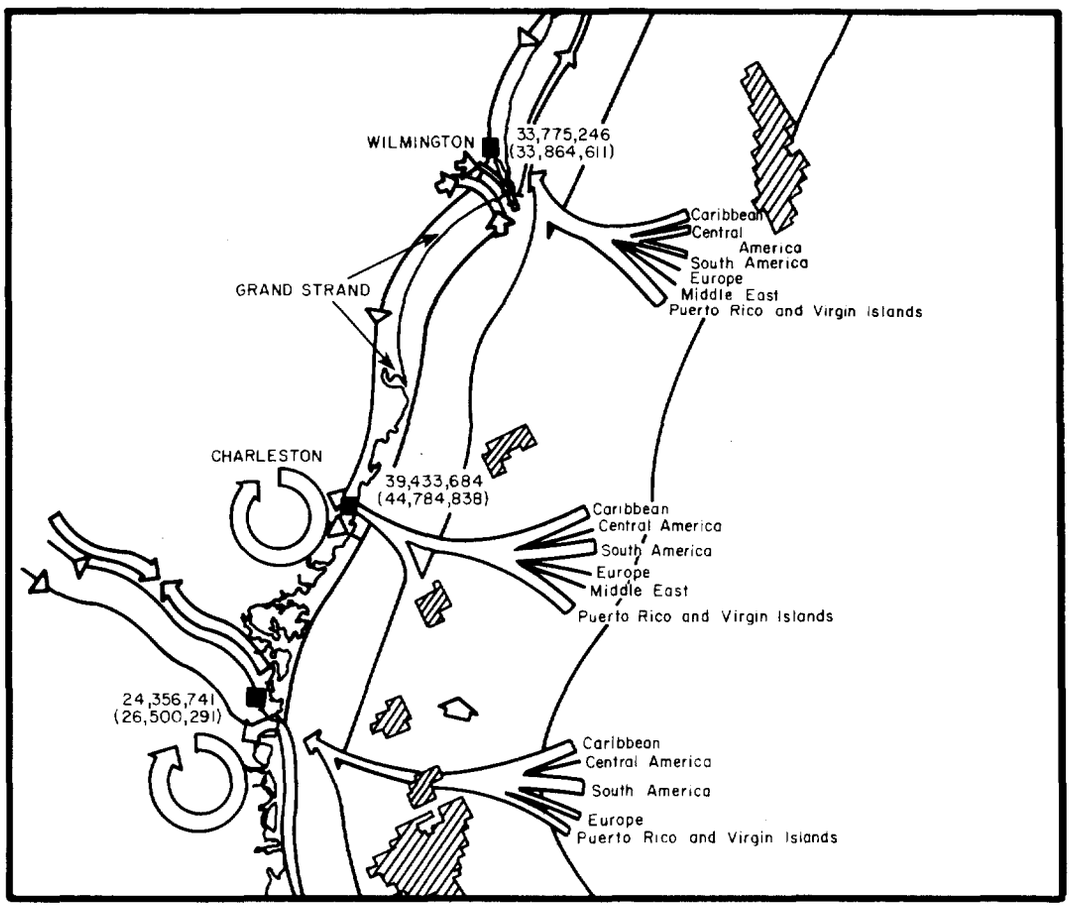


Diagram showing the potential for shoreline impact by spilled oil, oil transport traffic, and proposed effective lease sites (modified from Ray et al., 1980).

TABLE 2A

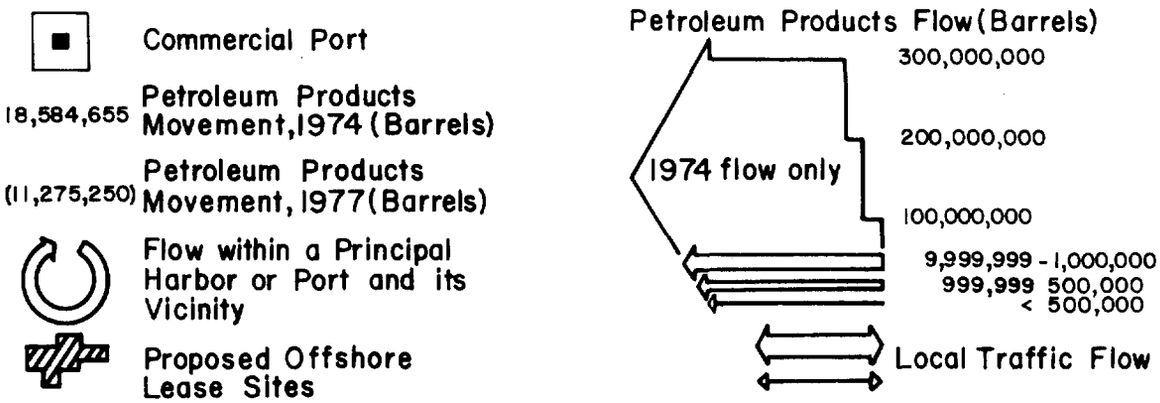
DESCRIPTIONS OF OIL IMPACT BY OIL TYPE

PLEASE FOLD OUT

(CONTINUED NEXT PAGE)

TABLE 1

POTENTIAL SHORELINE IMPACT



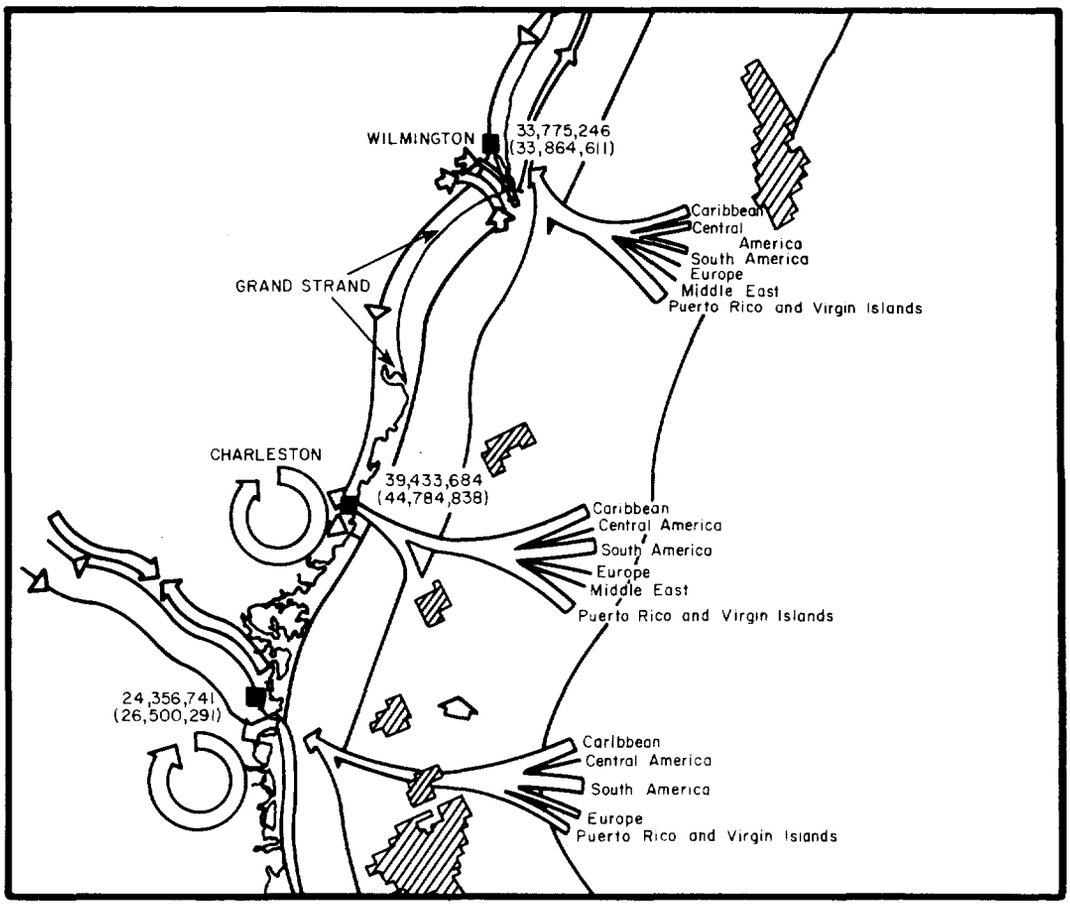


Diagram showing the potential for shoreline impact by spilled oil, oil transport traffic, and proposed effective lease sites (modified from Ray et al., 1980).

TABLE 2B

DESCRIPTIONS OF OIL IMPACT BY OIL TYPE (CONTINUED FROM PRECEDING PAGE)

PLEASE FOLD OUT

TABLE 2B

DESCRIPTIONS OF OIL IMPACT BY OIL TYPE (CONTINUED FROM PRECEDING PAGE)

OIL TYPE	EXAMPLES	PHYSICAL/CHEMICAL PROPERTIES	EFFECTS ON SHORELINE BY BEACH TYPE
(3) Residual oils	Asphalt, Bunker C, No. 6 fuel oil, waste oil	- Form tarry lumps at ambient temperatures - Nonspreading - Relatively nontoxic due to substrate - May soften and flow when stranded in sun - Difficult to recover from water surface using most cleanup equipment - Easily removed manually from beaches	FINE-GRAINED SAND BEACH - Oil would not penetrate very deeply into substrate and would tend to accumulate on the upper beach face. When large quantities of oil are present, oil may cover entire beach face. COARSE-GRAINED SAND BEACH - Oil may penetrate a few centimeters. Accumulation would be greatest along the upper beach face. Burial may occur near the beach. MIXED SAND AND SHELL BEACHES - Oil would penetrate deeply into substrate. Dependent on the sediment coarseness and oil type. Burial is likely. Heaviest accumulations would be on the upper beach face. Oil would tend to coat sediment, particularly large shell fragments to form tarry aggregates. SEAWALLS AND RIPRAP - Accumulation would be light and residence time short on vertical seawalls and bulkheads. Oil would adhere to riprap, and percolate well into the structure. Residence time would be lengthy. EXPOSED BEACH ROCK - Oil would tend to adhere to the surface of the outcrop, would accumulate in scour pools and small crevices. Residence time would be lengthy. EXPOSED PEAT OUTCROPS - Oil would probably not adhere very well to peat outcrops but would accumulate in scour pits. Residence time would be relatively short.

TABLE 3

OIL SPILL CLEAN UP TECHNIQUES

PLEASE FOLD OUT

TABLE 2B

DESCRIPTIONS OF OIL IMPACT BY OIL TYPE (CONTINUED FROM PRECEDING PAGE)

OIL TYPE	EXAMPLES	PHYSICAL/CHEMICAL PROPERTIES	EFFECTS ON SHORELINE BY BEACH TYPE
(3) Residual oils	Asphalt, Bunker C, No. 6 fuel oil, waste oil	- Form tarry lumps at ambient temperatures - Nonspreading - Relatively nontoxic due to substrate - May soften and flow when stranded in sun - Difficult to recover from water surface using most cleanup equipment - Easily removed manually from beaches	FINE-GRAINED SAND BEACH - Oil would not penetrate very deeply into substrate and would tend to accumulate on the upper beach face. When large quantities of oil are present, oil may cover entire beach face. COARSE-GRAINED SAND BEACH - Oil may penetrate a few centimeters. Accumulation would be greatest along the upper beach face. Burial may occur near the beach. MIXED SAND AND SHELL BEACHES - Oil would penetrate deeply into substrate. Dependent on the sediment coarseness and oil type. Burial is likely. Heaviest accumulations would be on the upper beach face. Oil would tend to coat sediment, particularly large shell fragments to form tarry aggregates. SEAWALLS AND RIPRAP - Accumulation would be light and residence time short on vertical seawalls and bulkheads. Oil would adhere to riprap, and percolate well into the structure. Residence time would be lengthy. EXPOSED BEACH ROCK - Oil would tend to adhere to the surface of the outcrop, would accumulate in scour pools and small crevices. Residence time would be lengthy. EXPOSED PEAT OUTCROPS - Oil would probably not adhere very well to peat outcrops but would accumulate in scour pits. Residence time would be relatively short.

TABLE 4A

ACCESS POINTS
FOR PERSONNEL AND EQUIPMENT

PLEASE FOLD OUT

(CONTINUED NEXT PAGE)

TABLE 2B

DESCRIPTIONS OF OIL IMPACT BY OIL TYPE (CONTINUED FROM PRECEDING PAGE)

OIL TYPE	EXAMPLES	PHYSICAL/CHEMICAL PROPERTIES	EFFECTS ON SHORELINE BY BEACH TYPE
(3) Residual oils	Asphalt, Bunker C, No. 6 fuel oil, waste oil	- Form tarry lumps at ambient temperatures - Nonspreading - Relatively nontoxic due to substrate - May soften and flow when stranded in sun - Difficult to recover from water surface using most cleanup equipment - Easily removed manually from beaches	FINE-GRAINED SAND BEACH - Oil would not penetrate very deeply into substrate and would tend to accumulate on the upper beach face. When large quantities of oil are present, oil may cover entire beach face. COARSE-GRAINED SAND BEACH - Oil may penetrate a few centimeters. Accumulation would be greatest along the upper beach face. Burial may occur near the beach. MIXED SAND AND SHELL BEACHES - Oil would penetrate deeply into substrate. Dependent on the sediment coarseness and oil type. Burial is likely. Heaviest accumulations would be on the upper beach face. Oil would tend to coat sediment, particularly large shell fragments to form tarry aggregates. SEAWALLS AND RIPRAP - Accumulation would be light and residence time short on vertical seawalls and bulkheads. Oil would adhere to riprap, and percolate well into the structure. Residence time would be lengthy. EXPOSED BEACH ROCK - Oil would tend to adhere to the surface of the outcrop, would accumulate in scour pools and small crevices. Residence time would be lengthy. EXPOSED PEAT OUTCROPS - Oil would probably not adhere very well to peat outcrops but would accumulate in scour pits. Residence time would be relatively short.

TABLE 4B

ACCESS POINTS
FOR PERSONNEL AND EQUIPMENT
(CONTINUED FROM PRECEDING PAGE)

PLEASE FOLD OUT

(CONTINUED NEXT PAGE)

TABLE 4B ACCESS POINTS FOR PERSONNEL AND EQUIPMENT (CONTINUED FROM PRECEDING PAGE)

E = Excellent G = Good F = Fair, Marginal N = Not Available

	LOCATION	ACCESS	EQUIPMENT STAGING	TEMPORARY OIL STORAGE	COMMENTS
10.	6th Avenue South	G	F	F	Good access way only; no room for equipment or oil storage.
11.	North Street	F	N	N	Not a good access point, but only one close to pier (south).
12.	2nd Avenue South	E	G	G	Mouth of pier - very good area for cleanup activity.
13.	8th Avenue North	G	F	N	Best access point along this part of beach.
14.	South of 14th Avenue North by Pier	E	F	N	Erosional area, may require preparation.
15.	18th Avenue North	G	F	N	Access point needs minor preparation - drainage pipe on upper beach face.
16.	South of 19th Avenue North	E	G	G	Erosional area, may require preparation. Adjoins large vacant lot.
*17.	24th Avenue North	E	E	G	City of Myrtle Beach parking area - excellent for cleanup activity.
18.	31st Avenue North	E	F	F	Narrow passageway, wooden bench structure not to be disturbed.
19.	52nd Avenue North	E	F	F	Very little room for storage or equipment staging.

(CONTINUED NEXT PAGE)

TABLE 4C

ACCESS POINTS
FOR PERSONNEL AND EQUIPMENT

(CONTINUED FROM PRECEDING PAGE)

PLEASE FOLD OUT

TABLE 4B ACCESS POINTS FOR PERSONNEL AND EQUIPMENT (CONTINUED FROM PRECEDING PAGE)

E = Excellent G = Good F = Fair, Marginal N = Not Available

	LOCATION	ACCESS	EQUIPMENT STAGING	TEMPORARY OIL STORAGE	COMMENTS
10.	6th Avenue South	G	F	F	Good access way only; no room for equipment or oil storage.
11.	North Street	F	N	N	Not a good access point, but only one close to pier (south).
12.	2nd Avenue South	E	G	G	Mouth of pier - very good area for cleanup activity.
13.	8th Avenue North	G	F	N	Best access point along this part of beach.
14.	South of 14th Avenue North by Pier	E	F	N	Erosional area, may require preparation.
15.	18th Avenue North	G	F	N	Access point needs minor preparation - drainage pipe on upper beach face.
16.	South of 19th Avenue North	E	G	G	Erosional area, may require preparation. Adjoins large vacant lot.
*17.	24th Avenue North	E	E	G	City of Myrtle Beach parking area - excellent for cleanup activity.
18.	31st Avenue North	E	F	F	Narrow passageway, wooden bench structure not to be disturbed.
19.	52nd Avenue North	E	F	F	Very little room for storage or equipment staging.

(CONTINUED NEXT PAGE)

TABLE 5

BUSINESS SURVEY RESPONSE

PLEASE FOLD OUT

TABLE 4B **ACCESS POINTS FOR PERSONNEL AND EQUIPMENT (CONTINUED FROM PRECEDING PAGE)**

E = Excellent G = Good F = Fair, Marginal N = Not Available

	LOCATION	ACCESS	EQUIPMENT STAGING	TEMPORARY OIL STORAGE	COMMENTS
10.	6th Avenue South	G	F	F	Good access way only; no room for equipment or oil storage.
11.	North Street	F	N	N	Not a good access point, but only one close to pier (south).
12.	2nd Avenue South	E	G	G	Mouth of pier - very good area for cleanup activity.
13.	8th Avenue North	G	F	N	Best access point along this part of beach.
14.	South of 14th Avenue North by Pier	E	F	N	Erosional area, may require preparation.
15.	18th Avenue North	G	F	N	Access point needs minor preparation - drainage pipe on upper beach face.
16.	South of 19th Avenue North	E	G	G	Erosional area, may require preparation. Adjoins large vacant lot.
*17.	24th Avenue North	E	E	G	City of Myrtle Beach parking area - excellent for cleanup activity.
18.	31st Avenue North	E	F	F	Narrow passageway, wooden bench structure not to be disturbed.
19.	52nd Avenue North	E	F	F	Very little room for storage or equipment staging.

(CONTINUED NEXT PAGE)

TABLE 6

MUTUAL ASSISTANCE RESPONSE TABLE

PLEASE FOLD OUT

TABLE 4B **ACCESS POINTS FOR PERSONNEL AND EQUIPMENT (CONTINUED FROM PRECEDING PAGE)**

E = Excellent G = Good F = Fair, Marginal N = Not Available

	LOCATION	ACCESS	EQUIPMENT STAGING	TEMPORARY OIL STORAGE	COMMENTS
10.	6th Avenue South	G	F	F	Good access way only; no room for equipment or oil storage.
11.	North Street	F	N	N	Not a good access point, but only one close to pier (south).
12.	2nd Avenue South	E	G	G	Mouth of pier - very good area for cleanup activity.
13.	8th Avenue North	G	F	N	Best access point along this part of beach.
14.	South of 14th Avenue North by Pier	E	F	N	Erosional area, may require preparation.
15.	18th Avenue North	G	F	N	Access point needs minor preparation - drainage pipe on upper beach face.
16.	South of 19th Avenue North	E	G	G	Erosional area, may require preparation. Adjoins large vacant lot.
*17.	24th Avenue North	E	E	G	City of Myrtle Beach parking area - excellent for cleanup activity.
18.	31st Avenue North	E	F	F	Narrow passageway, wooden bench structure not to be disturbed.
19.	52nd Avenue North	E	F	F	Very little room for storage or equipment staging.

(CONTINUED NEXT PAGE)