MINUTES

ALBEMARLE-PAMLICO ESTUARINE STUDY
ALBEMARLE CITIZENS' ADVISORY COMMITTEE

New Chowan County Courthouse
&
The Soundview Restaurant

May 12, 1988

Attendance: See Attachment A

Pre-Meeting Agenda:

From 1 p.m. - 3 p.m., and prior to both a field trip pertaining to BMPs in agriculture, and the regularly scheduled business meeting, the A-CAC standing subcommittees held break-out sessions for the purpose of review and recommendation of funding for second cycle proposals. Having completed these assignments by 5:30 p.m., the full committee adjourned to the Soundview Restaurant for dinner and to continue their meeting.

Agenda

Chairman Parker Chesson called the meeting to order at 7:45 p.m. He recognized several guests, among them Lee DeHihns, Deputy Regional Administrator of EPA, Region IV in Atlanta; Frank Redman, Wetlands & Coastal Section of EPA, Region IV; and Dr. Ernie Carl, Deputy Secretary of NRCD. Mr. Redman is replacing Ms. Sally Turner, former Chief, Marine Protection Section, EPA, Region IV. Chairman Chesson then recognized and thanked Tom Ellis, John Myers, Stanton Harrell, Jim Cummins, and Richard Saunders for the outstanding program and field trip they provided on BMPs in Agriculture.

Chairman Chesson then called upon Mr. Lee DeHihns for comment. Mr. DeHihns acknowledged the importance of interaction between the Policy Committee, EPA, and the Citizens' Advisory Committees. He stated that it was most meaningful "to be in the field this day" and that the leadership shown by the state, on behalf of the APES, was "gratifying." In other comment, Mr. DeHihns mentioned the APES Citizens' Monitoring Program was well underway and that a National Citizens Environmental Monitoring Seminar, jointly sponsored by EPA and Sea Grant, was occurring in May (23-25); and that a series of workshops being put on by Sea Grant and the NC Coastal Federation would begin on May 18 and 19. See Attachment B. He added that the process for budgeting for the coming year is underway and that the aforementioned projects were "a way to see money in action." Mr. DeHihns closed with reiteration of EPA's commitment to include the Citizens of the APES region in the decision making process and that the APES needs citizen input to succeed.

Chairman Chesson then called upon Dr. Ernie Carl, Deputy Secretary of NRCD, for comment. Dr. Carl disclosed his purpose for being at the meeting as "listening." He reiterated the state's strong support of the APES, particularly the public participation portion. He added that it was extremely important for citizens to provide the Policy and Technical Committees with information

regarding public sentiment because "no management plan will be good without citizen support." Dr. Carl then introduced Dr. Bob Holman, the new APES Program Director.

Dr. Holman briefly summarized his nine years experience with the state and avowed a working knowledge of the area through his involvement with the Chowan River project.

Program Status Report

Dr. Holman reported that he felt communication was one of the keys to success in the APES and toward that end, the program office had designed a calendar that would be distributed monthly beginning in June. See Attachment C. He added that a longer period for the review and examination of proposals for next year "would be a priority." He apologized for the seemingly abbreviated period this funding cycle, adding that it was beyond his control considering he had just "come on board."

Dr. Holman further reported that 59 proposals had been submitted this cycle, 46 of which were technical in nature and 13 of which were related to public participation. A separate package for citizen monitoring funding was also disclosed. Continuing, Dr. Holman said that the Technical Committee subcommittees (Public Affairs, Monitoring & Technical Review) were scheduled to meet on May 19 to take into consideration the recommendations made by the CACs. He added that in addition to the CAC and Technical Committee subcommittee reviews, each proposal was externally reviewed by 4-5 other reviewers. Recommendations would then be made to the full Technical Committee by whom final recommendations would be made to the Policy Committee.

Dr. Holman issued two challenges to the gathering, those being:

1) to layout a plan for an exhibit at the State Fair in October, and,

2) to organize an annual meeting where researchers, CACs, and Technical and Policy Committee members would come together for a program status update and a general meeting.

A motion to endorse the two challenges was made by Bill McGeorge and seconded by John Stallings. Motion carried.

Dr. Holman concluded with a message from Secretary Rhodes regarding the Secretary's desire to be present at the next A-CAC meeting in August, since he was precluded from attending this time due to prior commitments.

P-CAC Liaison Report

Willy Phillips reported that the P-CAC had met on May 10 in Washington. Highlights included reporting on:

1) P-CAC subcommittee break-out sessions;

2) attendance by Secretary Rhodes and Mrs. Lorraine Shinn, Washington Regional Manager of NRCD;

3) endorsement of the State Fair exhibit and annual meeting concept; and

4) P-CAC subcommittee chairs' reports and recommendations on second cycle proposals. See Attachment D.

Also included was mention of a resolution pertaining to the establishment of the Roanoke River National Wildlife Refuge. See Attachment E. Voting on the resolution was postponed until the Environmental Impact Study was available.

Public Awareness Subcommittee Report -- Carolyn Hess and Cpt. Al Howard, Co-chairs

Mrs. Hess reported that Dr. Gary Smith's videotape/slide show project was delayed due to his ill health, therefore the subcommittee decided to develop and interim slide presentation. Eighty (80) slides have been gathered, selected, reproduced and numbered. The scripting is being done by four (4) members, Cpt. Howard - Introduction: Vastness & Connectedness; Lloyd Ballance - National Environment: Rivers, Marshes, Swamp Forests, Estuaries, Pocosins, Maritime Forest/Sand Dunes and Benefits to Humans; Carolyn Hess - Problems & Solutions; and Joan Giordano - APES: organization, goals and objectives, and how individual citizens can participate. The title of the slide show is Save Our Sounds: A Citizen's Efforts.

Cpt. Howard reported on the recommendations made earlier in the day by the Public Awareness subcommittee pertaining to their choices for second cycle proposals. In response to Cpt. Howard's subcommittee's concerns (see page 3 of Attachment F), Dr. Carl felt the holding of an annual meeting would help greatly. See Attachment F.

In other business, Cpt. Howard requested endorsement by the A-CAC regarding the Nutrient Sensitive Waters designation of the entire Chowan River. He added that the P-CAC had done so at their meeting two days earlier. Motion to accept was made by Cpt. Howard and seconded by Bill McGeorge. Motion carried. Mr. DeHihns added that his counterpart from Region III in Philadelphia was travelling to Atlanta in the near future, so a dialogue would be possible for cross-regional issues. (NOTE: Virginia is in Region III.)

Technical Review Subcommittee

Joe Wright reported that they had reviewed 46 proposals with the following results: See Attachment G.

New Business

Mike Corcoran, Executive Director of the NC Wildlife Federation petitioned the group for endorsement of a resolution to establish the Roanoke River National Wildlife Refuge. See Attachment E. Mr. Corcoran indicated the refuge would cover an estimated area of 30,000 acres and would be funded by duck stamp money. Because the Environmental Impact Study was not slated for completion until May 13, Dr. Rob Powell made a motion to table the issue until more information became available. Mr. Corcoran seconded the motion. Chairman Chesson added that when the issue did come back up, it would be delegated to the Technical Review subcommittee.

In other business, Don Flowers, A-CAC member, commented on the pesticide being used to keep growth down in the Dare County range. Tom Ellis, NC Dept. of Agriculture and Dr. Carl assured the gathering they would look into the matter of the pesticide and would report to the group their findings. Mr. Flowers requested that the information be sent to the CACs. See Attachment H.

In comment from the general public, Mr. Rob Cross, a commercial fisherman, shared information about a new 100-member organization called ASAP - the Albemarle Sound Action Program. He said two (2) issues were of prime importance to his group:

1) pulp mill effluent; and

2) the flushing mechanism of the sound.

In other business, Bill McGeorge made a motion endorsing the expansion of the PTRF's Citizens' Monitoring effort outside of the Pamlico area. Bill Piland seconded the motion. Motion carried.

There being no further business, the meeting was adjourned at 9:45 p.m.

The next meeting will be held on August 8 at a time and place to be announced.

JG:kn

Attachments

A-CAC

Attachment A

5-12-88

Attendance Sheet

CAC Members	Others
Earl Rountree	
WILLY PHILLIPS PCAC	T. Stanton Harrell, SCS
LEON WHITE for JIMMY R. JENKINS	John Myers SCS
Joe WRIGHT	Jim Cummings NCDNRCD
John W. Stallings	Richard Saunders DSCT
Bill Piland	Rod Cross Commercial Fisherm
Yates Barber	Tom Ellis NC Dept of Agricul
Don Flowers	Laura Neale, Horticulturist
MIKE CORCORAN	CHRIS WISE NCAgExt
Terry Pratt	Dawn Parks ECU
DON BRYAN	Phillips [illegible]
Robert Powell	Frank M Redman EPA
Al Howard	
Joseph H. Stutts	
[illegible]	
Wm. R. McGeorge	
W.C. Witherspoon	

Bob Holman
Jean Gearduino } Staff

Dr Carr
Lee DeHihns
Frank Redman

ALBEMARLE CITIZENS' ADVISORY COMMITTEE

MAY 12, 1988

NEW CHOWAN COUNTY COURTHOUSE
EDENTON, N. C.

&

SOUNDVIEW RESTAURANT

Pre-Meeting Agenda

1:00 - 3:00 pm	Public Awareness/Governmental Relations & Technical Review Sub-Committee Meetings	Co. Comm. Meeting Room New Chowan County Courthouse
*3:00 - 5:00 pm	Field Trip - BMPs in Agriculture *Gather at County Commissioners Meeting Room in New Chowan County Courthouse and prepare to leave from there	
6:00 pm	Arrive at Soundview Restaurant Hwy 32 (Southside of Albemarle Bridge)	
6:00 - 7:30 pm	Dinner (Dutch) $11.95 per person - Country Buffet	

A G E N D A

Soundview Restaurant

7:30 - 9:00 pm Meeting of Albemarle Citizens' Advisory Committee

1.	Welcome	Chairman Chesson
2.	Introduction of Lee DeHihns, EPA Region IV	Chairman Chesson
3.	Introduction of Dr. Bob Holman Program Director - APES	Lee DeHihns
4.	Program Status Report	Dr. Holman
5.	Public Awareness Sub-Committee Report	Carolyn Hess Capt. Al Howard
6.	Recommendations of Technical & Public Participation Proposals for 2nd Cycle	Carolyn Hess John Stallings

New Business

1.	Proposal concerning the Roanoke River National Wildlife Refuge	Mike Cocoran

Adjourn

Attachment B

A CITIZENS GUIDE TO COASTAL WATER RESOURCE MANAGEMENT

To balance all the uses and users of our coastal resources, government has laws, regulations and state commissions. Legislators who drafted these laws and established the commissions included provisions for you to participate. They understood that public involvement was vital if our coastal management laws were to work as intended.

A complex combination of federal and state laws form the basis of the regulatory programs that are designed to protect coastal resources in North Carolina. The most notable of these laws are the federal Clean Water Act enacted in 1972, the N.C. Coastal Area Management Act of 1974 and the N.C. Sedimentation and Pollution Control Act of 1973.

This series of workshops and field trips are designed to help you effectively participate in the implementation of our coastal management laws. Although many avenues for public participation exist, few people actually know how to use them. After attending one of these workshops and field trips, you will understand how to effectively participate in managing our coastal resources.

Participants will receive a free copy of **A Citizens Guide to Coastal Water Resources Management** which has been prepared for these workshops. This book will provide a reference to citizens as they encounter coastal management issues in their communities.

These workshops and field trips are financed by the U.S. Environmental Protection Agency's National Estuary Program as part of the Albemarle-Pamlico Estuarine Study. The National Estuary Program is a federal and state program designed to improve the management of our coastal estuaries. Active citizen involvement in managing our coast is a priority for the Study. To that end, the study provided generous financial support for these workshops and the guidebook that has been prepared for them.

AGENDA

The first night of each workshop will cover the following topics:

(1) Water Quality Standards Administered by the N.C. Division of Environmental Management
(2) Coastal Area Management Act Administered by the N.C. Division of Coastal Management
(3) Section 404 Dredge and Fill Regulations Administered by the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency
(4) Sediment and Erosion Control Regulations Administered by the N.C. Division of Land Resources

The second night of each workshop will discuss ways that citizens may effectively communicate their concerns to environmental agencies. Topics to be covered include:

(1) Methods of Staying Informed about Coastal Development Issues
(2) Understanding Administrative Rules
(3) Participating in Public Hearings
(4) Writing Comments on Proposed Administrative Rules and Permit Applications
(5) Working With the Press
(6) Informing Agencies About Violations of Regulations
(7) Non-regulatory Methods of Protecting Water Resources

Each field trip is designed to look at how regulatory decisions are made in the field. Different types of habitats protected by coastal management laws will be examined. Jurisdictional decisions that must be made in the field will be illustrated.

Participants Receive a Free Copy of **A Citizens Guide To Coastal Water Resource Management.**

Application Form

Name _____

Street Address _____

City _____

State _____ Zip

Home Phone Number

Work Phone Number

Affiliation (if any) _____

Yes, I intend to participate in the following workshop (pick one):

❑ Edenton, Municipal Building, May 18 & 19

❑ Washington, St. Peter's Episcopal Church, June 1 & 2

❑ Beaufort, Duke Marine Lab, June 15 & 16

❑ Nags Head, St. Andrews Episcopal Church, July 20 & 21
(Classes from 7 to 9 p.m. each night)

Yes, I intend to participate in the following field trip (pick one - space is limited with first preference being given to participants in the workshops)

❑ Manteo, NC Aquarium, August 6

❑ Pine Knoll Shores, NC Aquarium, August 13
(Field Trips from 10 a.m. to 3 p.m. each day)

Send application form to N.C. Coastal Federation, 1832 J. Bell Lane (Ocean), Newport, NC 28570 (919) 393-8185.

Attachment C

APES CALENDAR OF EVENTS

MAY, 1988

SUN	MON	TUE	WED	THU	FRI	SAT
1	2 RESEARCH PROPOSALS DUE	3 RESEARCH PROPOSALS SENT OUT FOR REVIEW	4	5	6	7
8	9	10 PAMLICO CAC MEETING 7PM WASHINGTON,NC	11	12 ALBEMARLE CAC MEETING NEAR CRESWELL, NC 7:30PM SOUND VIEW REST.	13	14
15	16	17	18 TECHNICAL REVIEW SUBCOMMITTEE MEETING 9AM RALEIGH, NC	19	20	21
22	23 RHODE ISLAND MEETING OF CITIZENS MONITORING PROGRAMS MAY 23-25, 1988	24	25 TECHNICAL COMMITTEE MEETING 10AM RALEIGH, NC	26	27	28
29	30	31				

POLICY COMMITTEE - JUNE 9

Attachment D

May 10, 1988

MEMORANDUM

TO: Citizens' Affairs Sub-Committee
APES Technical Committee

FROM: Public Awareness/Governmental Relations Sub-Committee
Pamlico Citizens' Advisory Committee, Alton Ballance, Chair

SUBJECT: Recommendations for funding of 2nd year Public Participation Projects

The Pamlico CAC sub-committee for Public Awareness/Governmental Relations met on May 10, 1988 and reviewed thirteen (13) proposals for Public Participation. The review committee consisted of Alton Ballance, John Spagnola, Don Ensley and Joan Giordano. The proposals were evaluated with the potential for impacting the greatest number of people, as the main criterion. After much deliberation the following proposals were recommended for funding:

	NUMBER:	
	240	Teacher Environmental Education Program
*	224	Guide to Streamwalking
*	225	Community Educational Outreach
*	226	Educational Calendar
**	266	The State of the Estuary/TV PSA Campaign

SPECIAL RECOMMENDATION:

	NUMBER:	
	277	Coordination of the Citizen Monitoring Effort

* These were selected as a group and funding recommendation was placed at $45-$50K.

** It was heartily recommended that the content of this proposal be in keeping with the APES program and that APES review of the material occur before they are aired.

May 10, 1988

MEMORANDUM

TO: Technical Review Sub-Committee
APES Technical Committee

FROM: Technical Review Sub-Committee
Pamlico Citizens' Advisory Committee, Dr. Ernie Larkin, Chair

SUBJECT: Recommendations for funding of 2nd year Technical Proposals

The Pamlico CAC sub-committee for Tecnical Review met on May 10, 1988 and reviewed forty-six (46) proposals for Technical Projects. The review committee consisted of Dr. Ernie Larkin, Willy Phillips, Todd Miller and Doug Mercer. The following recommendations were made:

See attached copy of letter

224 Pineview Drive
Greenville, NC 27834
May 11, 1988

Mr. James Turner. Jr.
U.S. Geology Survey
P.O. Box 2857
Raleigh, NC 27601-2857

Dear Mr. Turner:

I enclose the report from the Environmental Issues and Technical Review Subcommittee of the Pamlico Citizens Advisory Committee of the APES study which was endorsed by the full Pamlico Citizens Advisory Committee at its meeting of May 10, 1988. I would appreciate it very much if your technical review subcommittee of the technical committee of the APES study would consider these comments at your meeting of May 19, 1988, at which these studies presumably will be evaluated.

Since we are all very new to this process and technically quite uninformed, we would appreciate your allowing for certain naivete which may be apparent in some of these comments. We would also appreciate, however, if you would simply take these comments for what they represent which we believe is a prioritization that we as representatives of the public would like to have considered by this study. [redacted]

We hope that through action of the technical committee, we be allowed to participate prospectively in the funding strategy for the third year and subsequent years of the study, as well as in the full range of activities addressed by your subcommittee.

Sincerely,

Ernie Larkin

Ernest W. Larkin, M.D.
Chair, Environmental Issues and Technical Review Subcommittee and Vice-Chair, Pamlico Citizens Advisory Committee

rth

Enclosure

My apologies for the sloppy paperwork. I am leaving town for 2 weeks and just ran out of time. Thanks for considering these thoughts, though.

ENVIRONMENTAL ISSUES AND TECHNICAL REVIEW SUBCOMMITTEE OF THE PAMLICO CITIZENS ADVISORY COMMITTEE

Report of the subcommittee, endorsed by the full Pamlico CAC at its Meeting of May 10, 1988

I. General comments: There were three areas of study which the committee feels should be priority issues, but which the committee did not feel qualified to select individual studies for. These include the striped bass problem, wet land protection and hydrology of the Albemarle/Pamlico sounds. We would also like for many of the studies as much as possible to relate to the political process with the goal of producing management changes by political concensus. Finally, we would like for the technical committee to allow representation from the CAC on the technical review subcommittee for the next funding cycle with a particular goal in mind of studying the work plan prospectively, considering what studies have been funded and then begin to fill in the holes in the work plan.

II. Concensus priority: The following studies were considered by the entire subcommittee to represent a group of studies which are deserving of a priority status: 204, 211, 250, 265, 268/270, and 273. These studies were specifically endorsed by the full CAC.

III. Comments on other studies: The following studies with their comments were considered by the subcommittee and the following ideas should be considered.

209: We would like for wet land studies to emphasize protection and management recommendations rather than repeating studies which might have already been done including inventories.

214: We assume that this study will be done anyhow. We endorse the study concept, but would hope that this could be funded from other sources.

219: We would endorse this study but would request that there be no overlap with John Wells' continuing study of a similar nature.

220: The study itself looks good. [redacted].

223: Same comment as for 220.

230: We believe that this project is good [redacted].

233: We do believe that the hydrology of water circulation in the sounds needs more study. We are simply unsure as to whether this particular study will contribute to this goal or not.

249: Wet land protection should be very important. Will this study really accomplish protection of wet lands? We simply do not know.

253: We agree with the concept of this study but have doubts as to whether APES should fund this study or whether another funding source might be more appropriate.

256: We suspect that this study is probably being done by others and that this information may already have been obtained.

271: We support the idea of this study [redacted]

Attachment E

RESOLUTION

WHEREAS the Roanoke River is a major tributary to the Albemarle Sound and the lower portion of the river is within the study area of the Albemarle Pamlico Estuarine Study;

WHEREAS the bottomland hardwood wetlands along the Roanoke River provide important habitat for fisheries and wildlife and contribute to the maintenance and improvement of water quality in the river and sounds;

WHEREAS management of the bottomland hardwood wetlands and other lands along the Roanoke River which emphasizes wildlife and fisheries habitat protection is consistent with the goals of maintaining and improving the quality and productivity of the Albemarle and Pamlico Sounds;

WHEREAS the United States Fish and Wildlife Service has proposed establishing the Roanoke River National Wildlife Refuge in Halifax, Martin, and Bertie Counties;

THEREFORE BE IT RESOLVED that the Pamlico Citizens' Advisory Committee of the Albemarle Pamlico Estuarine Study meeting in Washington, North Carolina on May 10, 1988 supports the proposed establishment of the Roanoke River National Wildlife Refuge.

Attachment F

May 12, 1988

MEMORANDUM

TO: Citizens' Affairs Sub-Committee
APES Technical Committee

FROM: Public Awareness/Governmental Relations Sub-Committee
Albemarle Citizens' Advisory Committee , Capt. Al Howard, Co-Chair

SUBJECT: Recommendations for funding of 2nd year Public Participation Projects

The Albemarle CAC sub-committee for Public Awareness/Governmental Relations met this date and reviewed the following proposals:

Number: 202 Communications Networks in Eastern North Carolina Communities: Implications for Resource Management

209 From Sound to Sea: Journey of the Striped Bass

222 Water Quality Municipal Educator

224 Guide to Streamwalking

225 Community Educational Outreach

226 Educational Calendar

240 Teacher Environmental Education Program

246 Developing a Citizens Agenda for the APES

252 Regional Management & Public Involvement Program for Southeastern Virginia

257 Protecting Our Estuaries/Radio Show

259 A Guide to Environmental Interest Organizations: APES Region

261 Leadership Development Workshops

266 The State of the Estuary/TV PSA Campaign

SPECIAL ENDORSEMENT OF:

277 Coordination of the Citizen Monitoring Effort

The order of preference for the proposals was:

SPECIAL ENDORSEMENT OF:

277 Coordination of the Citizen Monitoring Effort

REGULAR PROPOSALS RECOMMENDED FOR FUNDING:

* 252 Regional Management & Public Envolvement Program for Southeastern Vriginia

224 Guide to Streamwalking

266 State of the Estuary/TV PSA Campaign

225 Community Educational Outreach

209 Sound to Sea: Journey of the Striped Bass

226 Educational Calendar

240 Teacher Environmental Education Program

246 Developing a Citizens Agenda for APES

261 Leadership Development Workshops

222 Water Quality Municipal Educator

259 A Guide to Environmental Interest Organizations: APES Region

257 Protecting Estuaries/Radion Show

202 Communications Networks in Eastern North Carolina Communities: Implications for Resource Management

The tally sheet used by the committee members is attached. Provided with some of the proposals are comments and recommendations. The program proposals reviewed are attached.

Other items of concern pertaining to the proposals were:

1. The time provided to review the number of proposals submitted was too limited. Time did not permit a careful review.

* The recommendation of this proposal deals only with the Backbay portion and carries with it a request for reduction in funding amount. The remainder should be referred to the Technical Committee

2. There appeared to be several proposals that seemed to concern the same area for study. Some proposals seemed to propose studying an area known to have been covered before. Therefore, it is necessary to catalogue all studies completed for the APES study area in order to have a ready reference source for the work completed. Conclusions and recommendations should be included with the listing.

2a. An initial meeting with principal investigators of approved proposals should be held in order to provide the CACs ideas concerning the proposals.

3. The CACs should be provided quarterly reports on the progress of the approved proposals. The report should include but not be limited to:

a. status
b. monies expended
c. projected completion date
d. problem areas

4. The CACs should be provided the financial statement for proposed projects.

Attachment G

P. O. Box 573
Edenton, N.C. 27932
May 14, 1988

Mrs. Joan Giordano
Public Participation Coordinator
Albemarle-Pamlico Estuarine Study
P. O. Box 1507
Washington, N.C. 27889

Dear Mrs. Giordano:

The Technical Review/Environmental Issues Committee of the Albemarle Citizens Advisory Committee reviewed the below numbered projects on Thursday afternoon, May 12, 1988 and ranked them as shown.

Our review involved:

* Projects of a discovery nature were generally given priority over those that developed plans / procedures for control. We felt the plans / procedures projects would be more effective later in the overall study.

* The dollar value of the projects were not considered except when two projects appeared to cover the same study areas.

* At first reading the projects were divided into four groups from most useful/important to least useful/important. One project (No. 276) was judged incomplete and was not rated.

* The two most useful/important groups were then reconsidered and redivided into group 1 and 2. At this point two of the group 1 projects were selected at random, ranked against each other, and stacked with the more useful/important on top. A third group 1 project was then ranked against the first two projects and placed in the stack in its order. A fourth was then ranked against the prior three and so on until all group one projects has been ranked into decending order of importance in our opinion. The group two projects were then ranked in a like way.

* Groups 3 and 4 are submitted as unranked groups.

* An average of 4 to 5 minutes per project was available to this committee for its review. As a result heavy emphasis was placed on the subject of each study and the contents of its executive summary.

Our priority listing of the projects is:

Group 1 and 2. (Decending order of importance)
219, 273, 228, 241, 270, 210, 212, 268, 248, 250, 232, 233, 253, 254, 258, 256, 214, 204, 275.

Group 3. (Unranked within group)
201, 203, 234, 237, 245, 249, 271.

Group 4. (Unranked within group)
211, 215, 217, 218, 220, 221, 223, 229, 230, 231, 242, 243, 247, 262, 263, 264, 265, 267, 272.

Respectfully submitted,

J. A. Wright
Acting Secretary
Technical Review/Environmental Issues Committee
ACAC, APES

Copy: Dr. Parker Chesson, Chairman, ACAC
Mr. John Stallings

Attachment H 1 of

North Carolina Department of Agriculture

James A. Graham • Commissioner
William G. Parham, Jr. • Deputy Commissioner

Ray Forrest
Assistant Commissioner

MEMORANDUM

DATE: May 24, 1988

TO: Chrys Baggett

FROM: Tom Ellis

SUBJECT: Aerial Application of Herbicides and Prescribed Burning on the Dare County Bombing Range (88-E-4300-0871)

Attached is a copy of the review of this proposal by our Pesticides Section. Further review considering the use of Garlon* 4 as described is needed. If additional information or assistance is needed please contact Jim Burnette or John Dalley at 733-3556.

TE:mk

Attachment

P.O. Box 27647, Raleigh, N.C. 27611 (919) 733-7125

NORTH CARCLINA STATE CLEARINGHOUSE
DEPARTMENT CF ADMINISTRATION
INTERGCVERNMENTAL REVIEW

REVIEW DISTRIBUTICN

EPT OF AGRICULTURE ✓
EPT OF CUL RESOURCES
EPT OF HUMAN RESCURCES
EPT CF NRCD
EPT OF ~~TRANSPORTATICN~~
FFICE CF MARINE AFFAIRS-DOA
F OF CCAST ~~MANAGEMENT-NRCD~~
TATE PLANNING REGICN R

STATE NUMBER 88-E-4300-0871

HC9

DATE RECEIVED 04 19 88

STATE AGENCY RESPONSE DUE ~~05-24-88~~ 05-24-88

LOCAL RESPONSE DUE ~~05-30-88~~ 05-30-88

REVIEW CLOSEC ~~06-02-88~~ 06-02-88

Reviewers —
Please note date
Changes.

PROJECT
APPL N.C. DEPT. CF NRCD
CFDA CCCCl
DESC PROPOSED AERIAL APPLICATICN CF HERBICICES AND APPLICATION CF PRESCRIBED BURNING OF 575 ACRES OF THE USAF DARE COUNTY BOMB RANGE TO REDUCE CHANCES OF WILDFIRES CAUSED BY BOMBING

CROSS-REFERENCE NUMBER

REVIEW THE ATTACHED PROJECT. SUBMIT YOUR RESPONSE BY THE ABOVE INDICATED DATE. IF ADDITIONAL REVIEW TIME IS NEEDEC CONTACT THIS OFFICE.

AS A RESULT OF THIS REVIEW THE FCLLOWING IS SUBMITTEC

( ) NO COMMENT

(✓) COMMENTS ATTACHEC

SIGNED BY Tom Ellis

DATE 5-23-88

North Carolina Department of Agriculture

Robert L. Gordon, Director
Food and Drug Protection Division

James A. Graham • Commissioner
William G. Parham, Jr. • Deputy Commissioner

May 5, 1988

MEMORANDUM

TO: Tom Ellis

FROM: John Dalley JD

SUBJECT: Environmental Impact Statement for the Proposed Aerial Spraying and Burning on the U.S.A.F., Dare County Bomb Range

In the proposal for aerial application of herbicides on the U.S.A.F., Dare County bomb range, it is our understanding that the target area is Federally owned land. The application of pesticides on Federally owned land does not fall under the jurisdiction of the North Carolina Pesticide Law.

A review of the proposal and the labeling requirements of the herbicide Garlon 4, which is to be used, indicates that the herbicide will be used for its intended purpose and in accordance with the labeled method of application.

However, one concern arises from the "Environmental Hazard" statement which reads "This pesticide is toxic to fish. Keep out of lakes, ponds, or streams. Do not contaminate water by cleaning of equipment or disposal of waste."

The proposal indicates the target area will be drained of water by pumping before application of the herbicide. If this target site is inhabited by fish and the site is not drained in a proper manner, a fish kill may result from residues of the herbicide. This situation would be a violation of a Federal law governing the use of a pesticide in a manner inconsistent with its labeling. (Please observe this statement under "Directions for Use" on the label of Garlon 4 herbicide. [enclosed])

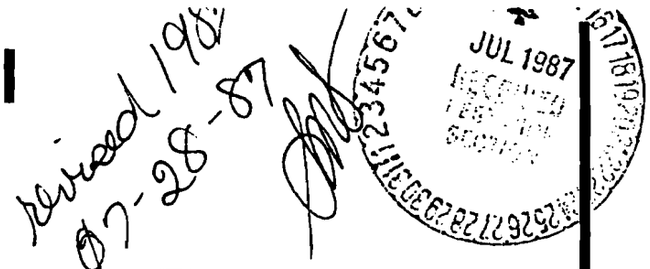
If we can be of further assistance, please let us know.

JD:lg

cc: John Smith
Jim Burnette, Jr.

Pesticide Section
Dept. PE P.O. Box 27647, Raleigh, N.C. 27611 (919) 733-3556

Specimen Label



Garlon* 4
Herbicide

For the control of Woody Plants and Broadleaf Weeds on Rangeland, Permanent Pasture, Rights-of-Way, Industrial Sites, Non-crop Areas, Non-irrigation Ditch Banks, and for Use in Forests

Active Ingredient(s):
Triclopyr (3,5,6-trichloro-2-pyridinyloxyacetic acid),
Butoxyethyl Ester 61.6%
Inert Ingredients 38.4%
Acid Equivalent: Triclopyr - 44.3% - 4 lb/gal
Contains petroleum distillates
E.P.A. Registration No. 464-554
E.P.A. Est. 464-MI-1

KEEP OUT OF REACH OF CHILDREN

CAUTION
AVISO:
PRECAUCION AL USUARIO:
Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

Avoid Contact With Eyes, Skin, Or Clothing • Avoid Breathing Mists or Vapors • Avoid Contamination Of Food • Wash Thoroughly After Handling • Remove And Wash Contaminated Clothing Before Reuse

STATEMENT OF PRACTICAL TREATMENT: In case of skin contact, flush skin with plenty of water. Get medical attention if irritation persists. **If swallowed,** do not induce vomiting. **Call a physician.**

Physical or Chemical Hazards

COMBUSTIBLE • Do Not Use or Store Near Heat or Open Flame. • Do Not Cut or Weld Container.

Environmental Hazards

This pesticide is toxic to fish. Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes.

NOTICE
Read the entire label. Use only according to label directions.

Before buying or using this product, **read** "WARRANTY LIMITATIONS AND DISCLAIMER" elsewhere on this label. If terms are not acceptable, return **unopened** package at once to seller for full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under "WARRANTY LIMITATIONS AND DISCLAIMER."

IN CASE OF AN EMERGENCY
endangering life or property involving this product, call collect 517-636-4400

AGRICULTURAL CHEMICAL
Do Not Ship or Store with Food, Feeds, Drugs, or Clothing

See Back Panel for Important Use Precautions.

Garlon* 4

GENERAL INFORMATION

GARLON 4 Herbicide is recommended for the control of unwanted woody plants and annual and perennial broadleaf weeds in rangeland, permanent pasture, forests, and on non-crop areas including industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides and railroads, fence rows, non-irrigation ditch banks and around farm buildings.

Among the woody plant species controlled are:

Adler	**Dogwood**	**Salmonberry**
Arrowwood	**Douglas Fir**	**Sassafras**
Ash	**Elderberry**	**Scotch Broom**
Aspen	**Elm**	**Sumac**
Beech	**Hazel**	**Sweetbay Magnolia**
Birch	**Hickory**	**Sweetgum**
Blackberry	**Hornbeam**	**Sycamore**
Blackgum	**Locust**	**Tanoak**
Cascara	**Madrone**	**Thimbleberry**
Ceanothus	**Maples**	**Tulip Poplar**
Cherry	**Mulberry**	**Wild Rose**
Chinquapin	**Oaks**	**Willow**
Choke Cherry	**Persimmon**	**Winged Elm**
Cottonwood	**Pine**	
Crataegus (Hawthorn)	**Poison Oak**	
	Poplar	

Among the annual and perennial broadleaf weeds controlled are:

Black Medic	**Dandelion**	**Ragweed**
Bull Thistle	**Field Bindweed**	**Smartweed**
Burdock	**Goldenrod**	**Sweet Clover**
Canada Thistle	**Ground Ivy**	**Vetch**
Chicory	**Lambsquarters**	**Wild Carrot (Queen Annes Lace)**
Clover	**Lespedeza**	
Creeping Beggarweed	**Matchweed**	**Wild Lettuce**
Curly Dock	**Mustard**	**Wild Violet**
	Oxalis	**Yarrow**
	Plantain	

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not use for manufacturing or formulating.

Do not apply this product through any type of irrigation system.

FOLIAR APPLICATIONS

Use GARLON 4 Herbicide at rates of 1 to 8 quarts per acre to control broadleaf weeds and woody plants. In all cases use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. The recommended order of addition to the spray tank is water, NALCO-TROL (if used), surfactant (if used), additional herbicide (if used), GARLON 4 Herbicide. If surfactant is used, add 1 to 2 quarts per acre of a standard agricultural surfactant such as Tronic, Sponto 712 or Ortho X-77. Use continuous adequate agitation.

Before using any recommended tank mixtures, read the directions and all precautions on both labels.

For best results applications should be made when woody plants and weeds are actively growing. When hard-to-control species such as ash, blackgum, choke cherry, elm, maples (other than vine or big leaf), oaks, pines, or winged elm are prevalent and during applications made during late summer when the plants are mature, or during drought conditions, use the higher rates of GARLON 4 Herbicide alone or in combination with TORDON* 101 Mixture Herbicide.

When using GARLON 4 in combination with 3.8 lb/gal 2,4-D low volatile ester herbicide generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard-to-control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those recommended may be effective. Consult State or Local Extension personnel for such information.

HIGH-VOLUME LEAF-STEM TREATMENT WITH GROUND EQUIPMENT

FOLIAGE TREATMENT: For control of woody plants, use GARLON 4 Herbicide at the rate of 1 to 3 quarts in water to make 100 gallons of spray mixture, or GARLON 4 Herbicide at 1 1/2 to 3 pints may be tank mixed with 1/4 to 1 2 gallon of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture Herbicides and diluted to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars.

BROADCAST APPLICATIONS WITH GROUND EQUIPMENT

Make application using equipment that will assure uniform coverage of spray volumes applied.

Woody Plant Control

FOLIAGE TREATMENT: Use 4 to 8 quarts of GARLON 4 Herbicide in enough water to make 20 to 100 gallons of total spray per acre, or GARLON 4 Herbicide at 3 pints to 3 quarts may be combined with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre.

Broadleaf Weed Control

Use GARLON 4 Herbicide at rates of 1 to 4 quarts in a total volume of 20 to 100 gallons per acre as a water spray mixture. Apply at any time weeds are actively growing. GARLON 4 Herbicide at 1/2 to 6 pints may be tank mixed with 1 to 2 quarts of 3.8 lb/gal 2,4-D amine or low-volatile ester, TORDON* K, or TORDON* 101 Mixture Herbicides to improve the spectrum of activity.

AERIAL APPLICATION (Helicopter Only)

Aerial sprays should be applied using suitable drift control. (See Use Precautions.)

FOLIAGE TREATMENT: (Utility and Pipeline Rights-of-Way) Use 4 to 8 quarts of GARLON 4 Herbicide alone, or 3 to 4 quarts GARLON 4 Herbicide in a tank mix combination with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions.

RANGE AND PERMANENT GRASS PASTURE IMPROVEMENT APPLICATIONS

All application methods may be used to treat susceptible weeds on range and permanent pasture land provided that no more than 1 1/2 quarts of GARLON 4 Herbicide are applied per acre. For control of sensitive woody species, use 1 1/2 quarts of GARLON 4 in combination with a 2,4-D product or other products approved for brush control on range and permanent pasture. Large plants or species requiring higher rates of GARLON 4 may not be completely controlled.

Restrictions: Withdraw livestock from treated forage at least 3 days before slaughter during the year of treatment. Do not graze lactating dairy animals on treated areas for one year following treatment. Do not harvest grass for hay from treated areas for one year following treatment.

BASAL BARK AND DORMANT BRUSH TREATMENTS

GENERAL INFORMATION: To control susceptible woody plants in rights-of-way, other non-crop areas, and forests, use GARLON 4 Herbicide in oil or oil-water mixtures prepared and applied as described below. When preparing mixtures, use as oils either diesel fuel, No. 1 or No. 2 fuel oil, or kerosene. Substitute other oils or diluents only as recommended by the oil or diluent's manufacturer.

OIL MIXTURE SPRAYS: Add GARLON 4 Herbicide to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, reagitation is required.

OIL-WATER MIXTURE SPRAYS: First, premix the GARLON 4 Herbicide, oil and surfactant in a separate container. Do not allow any water or mixtures containing water to get into the GARLON 4 Herbicide or the premix. Fill the spray tank about half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

NOTE: If the premix is put in the tank without any water, the first water added may form a thick "invert" (water in oil) emulsion which will be hard to break.

BASAL BARK TREATMENT: To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 1 to 5 gallons of GARLON 4 Herbicide in enough oil to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20-40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground. Thorough wetting of the indicated area is necessary for good control. Spray until run-off at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line. For oil-water mixture application, mix 2 gallons GARLON 4 Herbicide, 25 gallons of oil and one half gallon of Sponto 712, and add to 72.5 gallons water as indicated under directions for use. Treat as above. For best results with oil/water mixtures, treat only stems 2 inches or less in diameter.

LOW VOLUME BASAL BARK TREATMENT: To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of GARLON 4 Herbicide in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks in a manner which thoroughly wets the lower stems, including the root collar area, but not to the point of runoff. Herbicide concentration should vary with size and susceptibility of species treated. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line.

STREAMLINE BASAL BARK TREATMENT (Southern States): To control or suppress susceptible woody plants, mix 20 to 30 gallons of GARLON 4 Herbicide in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using equipment which provides a directed straight stream spray. Apply the spray in a 2 to 3-inch wide band to one side of stems less than 3 inches in basal diameter. Direct the spray at a point approximately 12 to 24 inches above ground. Treat both sides of stems which are 3 to 4 inches in basal diameter. Greater efficacy is achieved when spray is applied to thin juvenile bark; direct spray above rough, thickened mature bark. Pines (loblolly, slash, shortleaf, and Virginia) up to 2 inches in dbh can be controlled by directing the spray at a point approximately 4 feet above ground. Vary herbicide concentration with size and susceptibility of the brush species being treated. Apply at any time, including the winter months, except when snow or water prevent spraying at the desired height above ground level.

THINLINE BASAL BARK TREATMENT: To control susceptible woody plants with stems less than 6 inches in diameter, apply undiluted GARLON 4 in a thin stream to all sides of the lower stems. The stream should be directed horizontally to apply a narrow band of GARLON 4 around each stem or clump. From 2 to 15 ml. of chemical will be required for treatment of single stems and from 25 to 100 ml. to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required.

DORMANT STEM TREATMENT: Mix 3 to 6 quarts of GARLON 4 Herbicide in enough oil to make 100 gallons of spray. Apply with knapsack or power spraying equipment, using low pressure (20-40 psi). Treat any time when brush is dormant and most of the foliage has dropped. Thoroughly wet the upper parts of the stems and use the remainder needed to wet the lower 12 to 15 inches above the ground to the point of run-off. For root suckering species such as sumac, persimmon, sassafras and locust, also spray the ground under the plants to cover small root suckers which may not be visible above the soil surface. Brush of average density and 4 to 6 feet high may take up to 150 gallons of spray mixture per acre. For oil-water mixture application mix 6 quarts GARLON 4 Herbicide, 25 gallons of oil and one half gallon of Sponto 712 and 73 gallons water as indicated under directions for use. Treat as above.

TREATMENT OF CUT STUMPS IN CALIFORNIA AND THE PACIFIC NORTHWEST: To control resprouting, apply undiluted GARLON 4 Herbicide to wet the area adjacent to the cambium and bark around the entire circumference of freshly cut stumps. Treatments may be applied throughout the year; however, control may be reduced with treatment during periods of moisture stress as in late summer. Stumps should be cut so that they are approximately level to facilitate uniform GARLON 4 Herbicide coverage. Use an applicator which can be calibrated to deliver the small amounts of material required.

NOTE: All basal bark and dormant brush treatment methods may be used to treat susceptible woody species on range and permanent pasture land provided that no more than 1.5 quarts of GARLON 4 Herbicide are applied per acre. Large plants or species requiring higher rates of GARLON 4 may not be completely controlled.

FOREST MANAGEMENT APPLICATIONS

For broadcast applications of GARLON 4 Herbicide, use volume rates needed to provide adequate coverage of brush for good control, usually 5 to 25 gpa by air or 10 to 100 gpa by ground. Application systems should be used to prevent hazardous drift to off-target sites. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

Forest Site Preparation

FOREST SITE PREPARATION (not for conifer release): Use 4 to 8 quarts of GARLON 4 Herbicide and apply in a total spray volume of 5 to 25 gallons per acre, or GARLON 4 Herbicide at 2 to 4 quarts may be used with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON* 101 Mixture in a tank mix combination in a total spray volume of 5 to 25 gallons per acre.

NOTE: Conifers planted sooner than one month after treatment with GARLON 4 at less than 1 gallon per acre or sooner than two months after treatment at 1 to 2 gallons per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period observed.

Directed Spray Applications for Conifer Release

To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 1 to 5 gallons of GARLON 4 Herbicide in enough water to make 100 gallons of spray mixture. This spray should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after the hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray solutions away from conifer foliage, particularly foliage of desirable pines.

NOTE: Sprays may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

Broadcast Applications for Conifer Release in the Pacific Northwest and California

ON DORMANT CONIFERS BEFORE BUD SWELL (EXCLUDING PINES): To control or suppress deciduous hardwoods such as vine maple, bigleaf maple, alder or willow before leaf-out or evergreen hardwoods such as madrone, chinquapin, and Ceanothus spp., use GARLON 4 Herbicide at 1 to 2 qts. per acre. Diesel or fuel oil carrier may be used especially on deciduous hardwood species. On evergreen hardwoods, water carrier with 1 to 2 gallons of diesel oil per acre or a suitable surfactant or oil substitute at manufacturer's recommended rates are equally effective.

ON CONIFER PLANTATIONS (EXCLUDING PINES) AFTER HARDWOODS BEGIN GROWTH AND BEFORE CONIFER BUD BREAK ("Early Foliar" hardwood stage), use GARLON 4 Herbicide at 1 to 1.5 qts. alone or with 3.8 lb/gal 2,4-D low volatile ester herbicide in water carrier to provide no more than 3 lbs. acid equivalent per acre from both products. After conifer bud break, these sprays may cause more serious injury to the crop trees. Added surfactant may cause unacceptable injury to conifers especially after bud break.

ON CONIFER PLANTATIONS (EXCLUDING PINES) AFTER CONIFERS HARDEN OFF IN LATE SUMMER AND WHILE HARDWOODS ARE STILL GROWING ACTIVELY, use GARLON 4 Herbicide at rates of 1 to 1.5 qts. per acre alone or plus 3.8 lb/gal 2,4-D low volatile ester herbicide to provide no more than 3 lbs. acid equivalent per acre from both products. Treat as soon after conifer bud hardening as possible so that hardwoods are actively growing. Added oil, oil substitute or surfactant may cause unacceptable injury to the conifers.

NOTE: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Broadcast Applications for Conifer Release in the Eastern United States

To release spruce, fir, red pine and white pine from competing hardwoods such as red maple, sugar maple, striped maple, alder, birch (white, yellow, and grey), aspen, ash, pin cherry, and rubus spp. and perennial and annual broadleaf weeds, use GARLON 4 Herbicide at rates of 1.5 to 3 quarts per acre alone or plus 3.8 lb/gal 2,4-D amine or low-volatile ester herbicides to provide no more than 4 pounds acid equivalent per acre from both products. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

NOTE: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Broadcast Applications for Conifer Release in the Lake States Region

To release spruce, fir, red pine and jack pine from competing hardwoods such as aspen, birch, maple, cherry, willow, oak, hazel, and rubus spp. and perennial and annual broadleaf weeds, use GARLON 4 Herbicide at rates of 1.5 to 3 quarts per acre. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

NOTE: Sprays may cause discolored needles and temporary growth suppression in jack pine. Rates exceeding 1.5 quarts/A may result in more severe damage especially to young jack pine 18 inches or less in height.

Spot Treatment to Control Clumps of Resprouting Hardwoods Such As Big Leaf Maple Using a Hovering Helicopter in Forests

STEM TREATMENT BEFORE LEAF-OUT: Mix 1 to 2 gallons of GARLON 4 Herbicide with about 20 gallons diesel oil and enough water to make 100 gallons of solution. Apply as an invert emulsion by means of a hovering helicopter equipped with a nozzle system to direct sufficient spray to cover the stems to the ground line of the sprouted trees, usually 3/4 to 1 1/2 gallon per clump.

NOTE: Conifers contacted by this spray may be seriously injured; in existing plantations, drift control systems, such as invert emulsions, should be used to minimize injury to adjacent conifers. A dye or other marking system to designate treated trees may be used.

USE PRECAUTIONS

Apply this product only as specified on this label.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

Do not apply GARLON 4 Herbicide directly to, or otherwise permit it to come into direct contact with grapes, tobacco, vegetable crops, flowers or other desirable broadleaf plants and do not permit spray mists containing it to drift onto them.

AVOID INJURIOUS SPRAY DRIFT: Applications should be made only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

Aerial Application: For aerial application on rights-of-way or other areas near susceptible crops, use NALCO-TROL drift control additive as recommended by the manufacturer or apply through the MICROFOIL boom, THRUVALVE boom, or equivalent drift control system. Thickened sprays prepared by using high viscosity invert systems or other drift reducing systems may be utilized if they are made as drift-free as are mixtures containing NALCO-TROL or applications made with the MICROFOIL boom or THRUVALVE boom. If a spray thickening agent is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with the MICROFOIL boom, THRUVALVE boom, or other systems that cannot accommodate thick sprays.

With aircraft, drift can be lessened by applying a coarse spray; by using no more than 30 pounds spray pressure at the nozzles; by using a spray boom no longer than 3/4 the rotor length; by spraying only when wind velocities are low; or by using approved drift control system.

Ground Equipment: To aid in reducing spray drift GARLON 4 should be used in thickened (high viscosity) spray mixtures using NALCO-TROL drift control additive, high viscosity invert systems, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by using no more than 30 pounds spraying pressure with large droplet producing nozzle tips; and by spraying when wind velocity is low. Do not apply with nozzles that produce a fine droplet spray.

HIGH VOLUME LEAF-STEM TREATMENT: To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. NALCO-TROL thickening agent or equivalent may be used to reduce spray drift.

Do not apply on ditches used to transport irrigation water. Do not apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result.

Do not graze areas treated with more than 1.5 quarts GARLON 4 per acre or harvest hay from treated areas for one year following treatment.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

STORAGE: Store above 28° F or agitate before use.

DISPOSAL:

Prohibitions - Open dumping is prohibited.

Pesticide Disposal - Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to applicable federal, state, or local procedures.

Container Disposal - Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.

General - Consult federal, state, or local disposal authorities for approved alternative procedures.

Be sure that use of this product conforms to all applicable regulations.

WARRANTY LIMITATIONS AND DISCLAIMER

The Dow Chemical Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions therein under normal conditions of use. THIS IS THE ONLY WARRANTY MADE ON THIS PRODUCT. NO OTHER EXPRESS AND NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OUTSIDE OF THIS LABEL. Therefore, neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), under abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes, etc.) or under conditions not reasonably foreseeable to or beyond the control of seller.

When buyer or user suffers losses or damages resulting from the use or handling of this product (including claims based on contract, negligence, strict liability, or other legal theories), buyer or user must promptly notify in writing The Dow Chemical Company of any claims to be eligible to receive either remedy given below. The EXCLUSIVE REMEDY OF THE BUYER OR USER and the LIMIT OF LIABILITY of The Dow Chemical Company or any other seller will be one of the following, at the election of The Dow Chemical Company:

(1) **Refund of purchase price** paid by buyer or user for product bought, **or**

(2) **Replacement** of amount of product used.

The seller will not be liable for consequential or incidental damages or losses.

The terms of this Warranty Limitations And Disclaimer cannot be varied by any written or verbal statements or agreements. Any employee or sales agent of the seller is not authorized to vary or exceed the terms of this Warranty Limitations And Disclaimer in any manner.

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