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Herbicide Training Conference, 10-14 September 1973

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Year 1973

Month/Day September

Color

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Description Notes Includes supporting materials for conference

Herbicide Training Conference Sept. 1973

The attendance roster shows 18 civil engineering students from the US Air Force Academy taking this herbicide training course.

**FOR THE CHIEF OF ENGINEERS:
WESLEY E. PEEL
Colonel, Corps of Engineers
Executive
from page 20**

UNITED STATES ARMY MATERIEL COMMAND
HERBICIDE TRAINING CONFERENCE

10 - 14 SEPTEMBER 1973

PRESENTED BY THE
U. S. ARMY MATERIEL COMMAND
INSTALLATIONS AND SERVICES AGENCY
ROCK ISLAND, ILLINOIS

AT

COLORADO SPRINGS, COLORADO
ANTLERS PLAZA HOTEL

WILLIAM C. TREFZ
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COMMANDING OFFICER
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Mr. Ferris R. Williams
Chief, Roads, Grounds, Railroads
Tooele Army Depot
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I believe this a mistake. I
think it is Alvin Not Allen

ROSTER OF ATTENDING PERSONNEL

<u>NAME</u>	<u>INSTALLATION</u>
1. Aiken, David W.	Sunflower Army Ammunition Plant
2. Allan, Hugh	Fort Monmouth
3. Altom, H. T.	Milan Army Ammunition Plant
4. Anderson, Wayne D.	White Sands Missile Range
5. Andrade, George E., II	Riverbank Army Ammunition Plant
6. Antener, Lloyd	U. S. Air Force Academy
7. Arvin, Luther	Jefferson Proving Ground
8. Ayers, John J.	Sierra Army Depot
9. Bailey, Frederick	Rock Island Arsenal
10. Barkow, Roland	Fort Richardson
11. Barnett, Melvin D.	Lexington-Blue Grass Army Depot
12. Bean, Arty	Fitzsimons General Hospital
13. Berg, Roy T.	Sharpe Army Depot
14. Black, Richard	Rock Island Arsenal
15. Blea, Armando R.	U. S. Air Force Academy
16. Brace, James P.	Sacramento Army Depot
17. Brundige, Merritt C.	Watervliet Arsenal
18. Bowers, Samuel	Fort Wainwright
19. Burmood, Oran	Pueblo Army Depot
20. Byers, Robert A.	Joliet Army Ammunition Plant
21. Castronovo, Vincent C.	U. S. Air Force Academy
22. Castillo, Joe H.	Fort Huachuca
23. Click, Wilmer G.	Pine Bluff Arsenal
24. Coakley, Joseph F.	Fort Monmouth
25. Corona, John	Sacramento Army Depot
26. Creswell, John L.	Iowa Army Ammunition Plant
27. Degler, Gerald L.	Jefferson Proving Ground
28. Deuel, Kenneth Y.	Dugway Proving Ground
29. Douthit, Harold G.	Anniston Army Depot
30. Drawdy, James O.	Charleston Army Depot
31. Dykla, Thomas J.	Granite City Army Installation
32. Estes, Marvin G.	Lone Star Army Ammunition Plant
33. Fralix, James E.	Redstone Arsenal
34. Gallardo, Frank	Fitzsimons General Hospital
35. George, Michael	Picatinny Arsenal
36. Gibson, David A.	Frankford Arsenal
37. Gram, James M.	Volunteer Army Ammunition Plant
38. Gransky, Wojoech	Aberdeen Proving Ground
39. Greaney, Wilbur C.	Granite City Army Installation
40. Greenlee, Wayne A.	U. S. Air Force Academy
41. Gullett, Donald W.	Kansas Army Ammunition Plant
42. Harris, Charles S.	Fort Wainwright
43. Hartman, William J.	Savanna Army Depot
44. Hockensmith, Miles	Letterkenny Army Depot
45. Hemmen, Richard	Fort Greely
46. Hill, Bennie	Anniston Army Depot
47. Hodge, Charles N.	Savanna Army Depot
48. Hoye, James	Frankford Arsenal
49. Hurt, Orlyn E.	Savanna Army Depot
50. James, Robert	Aberdeen Proving Ground

ROSTER OF ATTENDING PERSONNEL (Continued)

<u>NAME</u>	<u>INSTALLATION</u>
51. Janecek, Charles A.	Cornhusker Army Ammunition Plant
52. Jefferson, Leroy	Letterkenny Army Depot
53. Jenkins, Ralph	Holston Army Ammunition Plant
54. Jennings, Ralph E.	Seneca Army Depot
55. Jinks, Lamar P.	Atlanta Army Depot
56. Johnson, E. C.	Milan Army Ammunition Plant
57. Johnson, Ruben	Fort Carson
58. Kelecheck, George E.	Harry Diamond Laboratories
59. Kelly, Joseph T., Jr.	Tooele Army Depot
60. Kempf, Glen E.	Longhorn Army Ammunition Plant
61. Kirkpatrick, Rodger	Rock Island Arsenal
62. Kirsch, Kenneth P.	Ravenna Army Ammunition Plant
63. Knackstedt, Edward L., Jr.	New Cumberland Army Depot
64. Kozuszek, Charles	Natick Laboratories
65. Krantz, George C.	Rocky Mountain Arsenal
66. Krupa, Leo	HQ, U. S. Army, Alaska
67. Lady, Joe	Holston Army Ammunition Plant
68. Laganosky, Thomas J.	New Cumberland Army Depot
69. Leweck, Donald J.	Harry Diamond Laboratories
70. Limpus, Leroy D.	Red River Army Depot
71. Luke, Roy	Badger Army Ammunition Plant
72. Manchego, Telesfero	U. S. Air Force Academy
73. Marshall, Gary W.	Newport Army Ammunition Plant
74. Martinez, Jose	U. S. Air Force Academy
75. Mascarenas, Pete A.	Rocky Mountain Arsenal
76. Mattson, Willard	U. S. Army Tank-Automotive Command
77. Miller, Olin	Aberdeen Proving Ground
78. McClellan, Walter F.	Indiana Army Ammunition Plant
79. McGeorge, Blaine E.	Lexington-Blue Grass Army Depot
80. Mirabal, Isidro	U. S. Air Force Academy
81. Moore, Joe	U. S. Air Force Academy
82. Montano, Ralph	Fort Wingate Depot Activity
83. Musgrove, Tommy	Red River Army Depot
84. Nance, James B.	Lima Army Modification Center
85. Newby, John	U. S. Air Force Academy
86. Orona, Isaac C.	White Sands Missile Range
87. Ortivez, Mike	U. S. Air Force Academy
88. Pace, Johnnie W.	Anniston Army Depot
89. Paripovich, Pete	Pueblo Army Depot
90. Patterson, Donald W.	Sierra Army Depot
91. Paulich, Donald	Tooele Army Depot
92. Peck, Elwood	HQ, U. S. Army, Alaska
93. Pluff, Kenneth R.	Twin Cities Army Ammunition Plant
94. Rezac, Melvin W.	U. S. Air Force Academy
95. Richardson, Gene K.	Louisiana Army Ammunition Plant
96. Riley, Walter	Fort Richardson
97. Rivera, Gilbert P.	Yuma Proving Ground
98. Rivera, Jesus M.	Fort Huachuca
99. Samples, Porter	Radford Army Ammunition Plant
100. Sanchez, Joe T.	U. S. Air Force Academy

ROSTER OF ATTENDING PERSONNEL (Continued)

<u>NAME</u>	<u>INSTALLATION</u>
101. Schonberger, John R.	Lake City Army Ammunition Plant
102. Sears, Reginald A.	Fort Monmouth
103. Souza, Manuel G.	Army Materials & Mechanics Research Center
104. Stec, Anthony	Tobyhanna Army Depot
105. Studdard, Randall L.	Alabama Army Ammunition Plant
106. Talton, Moses L.	Fort Huachuca
107. Tafoya, Ismael	U. S. Air Force Academy
108. Teiken, Harold	Fort Greely
109. Thatcher, Milton L.	Yuma Proving Ground
110. Thompson, Wallace	Fort Richardson
111. Torres, Richard	U. S. Air Force Academy
112. Towery, Leon	Redstone Arsenal
113. Trujillo, Leo	U. S. Air Force Academy
114. Vian, James L.	Savanna Army Depot
115. Vigil, Art	U. S. Air Force Academy
116. Vigil, Nash	U. S. Air Force Academy
117. Walker, Harold	Aberdeen Proving Ground
118. Washington, Colie	Charleston Army Depot
119. Williams, Dale	U. S. Air Force Academy
120. Williams, Ferris R.	Tooele Army Depot

AGENDA

U. S. ARMY MATERIEL COMMAND HERBICIDE TRAINING

COLORADO SPRINGS, COLORADO

MONDAY, 10 SEPTEMBER 1973

First Day

Morning Session

El Paso Room

Chairman: Mr. Carl J. Anderson

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
0800-0900	Registration	Staff Personnel
0900-0915	Welcome to Conference	Mr. Clayton J. Banta
0915-0930	Objectives of Herbicide Training Program	Mr. Carl J. Anderson
0930-1000	Department of Army Policy for Herbicide Use	Mr. Vance W. Mays
1000-1030	Break	
1030-1100	History and Development of Pesticides	Dr. Bert L. Bohmont
1100-1130	Cultural and Other Methods of Weed Control	Mr. Eugene Heikes
1130-1145	Discussion Period	Staff Personnel
1145-1300	Lunch	

MONDAY, 10 SEPTEMBER 1973

First Day

Afternoon Session
El Paso Room

Chairman: Mr. Ferris R. Williams

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
1300-1345	Aquatic Weed Control	Dr. Peter A. Frank
1345-1415	What to Look for on the Pesticide Label	Dr. Bert L. Bolmont
1415-1430	Break	
1430-1515	Weed Identification	Mr. Eugene Heikes
1515-1545	Safety in Mixing, Calibration, Storage, and Use of Herbicides	Mr. Olin Miller
1545-1615	Calculations Required for Herbicide Use	Mr. Donald M. Bandel
1615-1645	Polymerized Soil Sterilants for Roadsides	Dr. Wayne G. McCully
1645-1700	Discussion Period	Staff Personnel

TUESDAY, 11 SEPTEMBER 1973

Second Day

Morning Session
El Paso Room

Chairman: Mr. Richard Black

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
0800-0815	Announcements	Staff Personnel
0815-0915	New Day and New Challenges	Mr. Lyle R. McCutchen
0915-1015	Herbicides for Selective and Non-selective Weed Control	Mr. Henry Stuit
1015-1030	Break	
1030-1115	Du Pont Industrial Herbicides	Mr. Turney J. Hernandez
1115-1145	Spray Nozzles for Herbicide Use	Mr. A. B. Buhl
1145-1200	Discussion	Staff Personnel
1200-1330	Lunch	

TUESDAY, 11 SEPTEMBER 1973

Second Day

Afternoon Session
El Paso Room

Chairman: Mr. Charles A. Janecek

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
1330-1400	Turf Weeds and Disease Control	Mr. Howard Kohrmann
1400-1445	Diquat-Paraquat Weed Control	Mr. A. W. Woolridge Mr. W. D. Hogan
1445-1500	Break	
1500-1545	Weed Control on Non Crop Areas	Mr. Oscar Coindreau Mr. Herbert E. Raab
1545-1615	Vegetation Control with Maleic Hydrazide	Mr. John D. Kitsmiller
1615-1645	Algae Control and Maintenance	Dr. David T. Schulteis
1645-1700	Discussion Period	Staff Personnel

WEDNESDAY, 12 SEPTEMBER 1973

Third Day

Morning Session
Tour

Chairman: Mr. Vincent Castronovo

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
0800-1200	Tour Air Force Academy	Mr. Vincent Castronovo

Afternoon Session
Tour

Chairman: Mr. Durwood Davis

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
1200-1300	Lunch, Officers Club, Fort Carson	
1300-1700	Tour Fort Carson	Mr. Durwood Davis

THURSDAY, 13 SEPTEMBER 1973

Fourth Day

Morning Session
El Paso Room

Chairman: Mr. Archie M. Schmidt

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
0800-0815	Announcements	Staff Personnel
0815-0845	Uses of Herbicides in Forest Management on Military Reservations	Mr. Wilmer G. Click
0845-0915	Weed Control in Western United States	Mr. Wayne D. Anderson
0915-1015	Environmental Impact Statements and Assessments	Mr. Vance W. Mays
1015-1030	Break	
1030-1115	Environmental Effects of Herbicides	CPT Allan L. Young
1115-1130	Discussion	Staff Personnel
1130-1300	Lunch	

I believe this a mistake. I think it is Alvin Not Allen

THURSDAY, 13 SEPTEMBER 1973

Fourth Day

Afternoon Session
El Paso Room

Chairman: Mr. Leon Towery

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
1300-1345	Formulations and Effectiveness of Phenoxy Herbicides and Amatrole	Mr. Lee Van Deren
1345-1415	Banvel (Dicamba) for Industrial Brush Control	Mr. Richard W. Fields
1415-1430	Break	
1430-1515	Spraying Equipment for Herbicide Use	Mr. Victor M. Jouffray
1515-1545	Vegetation Management	Mr. L. V. Braghetta
1545-1615	Reporting the Use of Herbicides	Mr. Donald M. Bandel
1615-1630	Vegetation Control and Wildlife Management	Mr. William M. Kornman
1630-1700	Discussion Period	Staff Personnel

FRIDAY, 14 SEPTEMBER 1973

Fifth Day

Morning Session

Chairmen: Mr. Carl J. Anderson - Pueblo Room
Mr. Donald M. Bandel - Cheyenne Room
Mr. William M. Kornman - Manitou Room

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTED BY</u>
0800-0815	Announcements	Staff Personnel
0815-0900	Critique of Program	Staff Personnel
0900-1200	Written Examination to Determine Eligibility for Certification	

Regulation
No. 1105-3-1

15 December 1972

Planning
ENVIRONMENTAL IMPACT ASSESSMENTS AND IMPACT STATEMENTS

1. Purpose. The purpose of this regulation is to provide guidance on the need, preparation, coordination, and review of environmental assessments and environmental impact statements (EIS).
2. Applicability. This regulation is applicable to the Directorate of Military Construction, Office of the Chief of Engineers (OCE) and all Corps of Engineers Installations and Activities performing military construction.
3. References.
 - a. The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190; 83 Stat. 852)
 - b. Executive Order 11514, Protection and Enhancement of Environmental Quality, 5 March 1970 (35 F.R. 4247, March 7, 1970)
 - c. Executive Office of the President, Council on Environmental Quality, "Statements on Major Federal Actions Affecting the Environment," 23 Apr 71, (36 Federal Register 79,7724 (1971)).
 - d. Executive Office of the President, Office of Management and Budget (OMB) Circular No. A-95
 - e. DAAG-PAP(M) (1 Sep 71) DALO-IN Letter, Subject: Environmental Consideration in DA Actions. RCS DD-H&E(AR) 1068, 21 Oct 1971
 - f. DOD Directive 6050.1, 9 Aug 71, subject: Environmental Considerations in DOD Actions.
4. Policy. NEPA obligates federal agencies to pursue a policy of program planning and implementations which minimizes the adverse effects and maximizes the beneficial effects on the environment. Compliance with NEPA requires an assessment of the effect on the environment of implementing proposed programs. For projects that are "Major Actions Significantly Affecting the Quality of the Human Environment" this assessment must be documented in an environmental impact statement. (See Figure 1). If the action is not a major action significantly affecting the quality of the human environment but will be environmentally controversial, then an impact statement is also required. A documented environmental

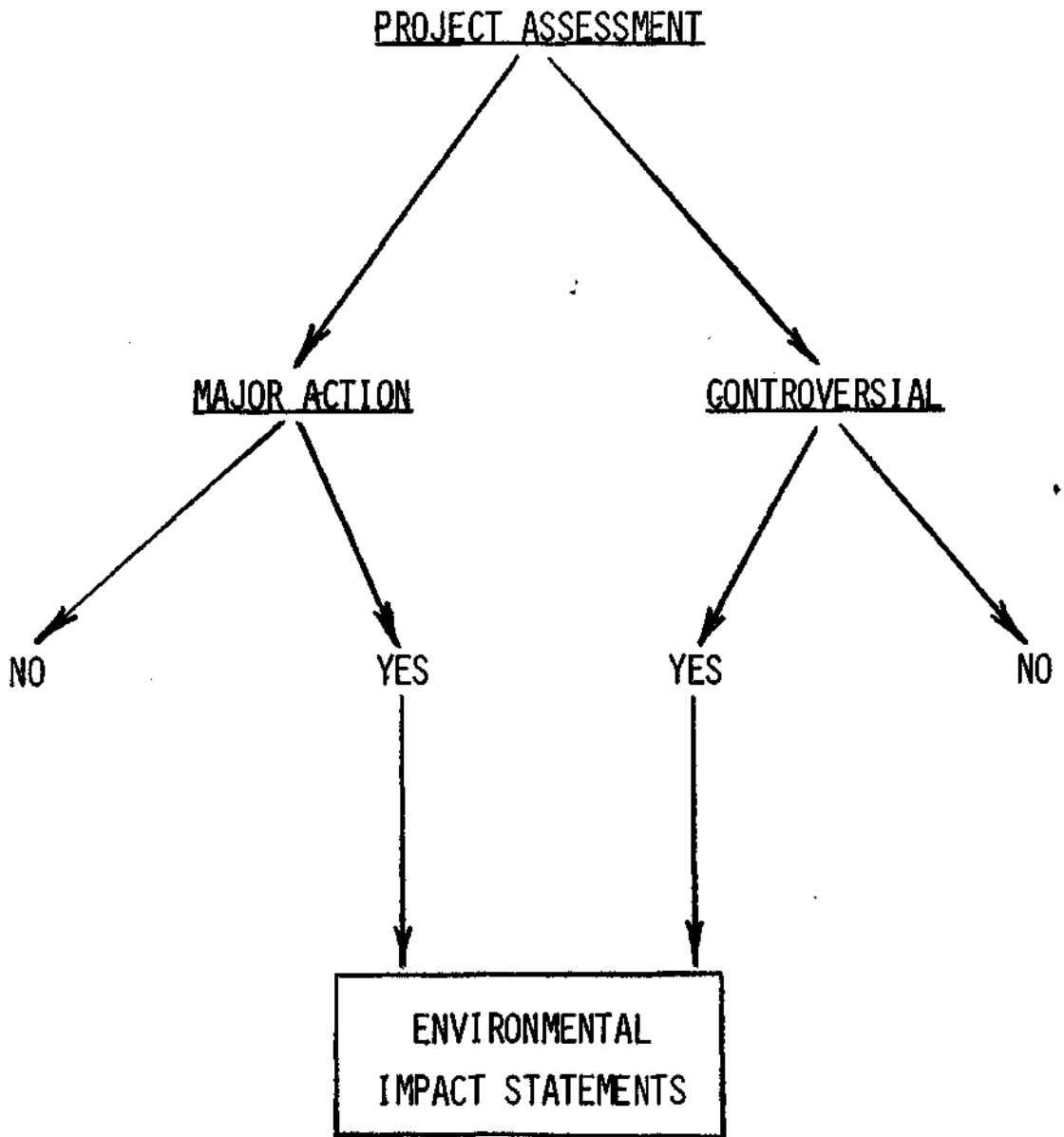


Figure 1

15 Dec 72

assessment is required for projects even though they do not represent a major action significantly affecting the quality of the human environment or a controversial action in order to positively demonstrate that the environmental consequences were thoroughly and adequately considered in compliance with NEPA (See Appendix B). It is the policy of the Chief of Engineers to take a leading role in fulfilling the spirit and intent of PL 91-190 and in implementing Executive Orders and Council on Environmental Quality (CEQ) Guidelines. To this end, staff elements, divisions, districts, and other activities will properly assess and document the environmental consequences of all of their proposed major actions. In formulating plans or decisions, the impact on the human environment will be fully considered from initial concept through development and execution. Early and continual coordination with appropriate local, state and federal agencies and the interested public, will be accomplished to develop, analyze and consider all reasonable and feasible alternatives and measures which will enhance, protect, preserve and restore the quality of the human environment. The human environment will be considered together with technical and economic consideration to insure balanced decision making in the best public interest. For military construction activities, the proponent (major user or installation commander) of the planned project is responsible for early project assessment. Districts will coordinate with using services to promote early development of assessments or impact statements in order to assure that assessment submissions are timely and do not delay design and construction schedules. Districts must review and consider, prior to concept design, the factors and assumptions included in the environmental assessment and/or statement prepared for that project. Districts will assist within available resources in preparing assessments and impact statements for all projects when requested to do so by a using service.

5. General. Preparation of environmental assessments and environmental impact statements shall be based on considerations discussed in the CEQ guidelines and the following directions which are intended to assure consistency of effort in the preparation of statements for proposed actions:

a. A careful objective detailing of environmental impacts, alternatives, and implications of proposed actions, activities and projects should give reviewers both within and outside the Department of the Army, insight into the particulars associated with the actions, activities or projects. The general public, environmental action groups, special interest associations, governmental agencies, and Congressional

committees will expect the assessments and statements to be a valid source of information on proposed actions, activities and projects, as well as a reflection of how the Department of the Army views environmental factors and seeks to accommodate them. Since the assessments and statements must be made available to the public, whenever possible, it must be assumed that they will receive careful evaluation. Assessments and statements should be systematic presentations of environmental impacts, both favorable and adverse.

b. An assessment and statement should describe physical and environmental aspects sufficiently to permit evaluation by independent appraisal of the favorable and adverse environmental effects of each proposal. It should be simple and concise, yet include all pertinent facts. Length will depend upon the particular proposal and the nature of its impact.

c. A statement should not be limited to ultimate conclusions, but should contain in support of each conclusion, a thorough evaluation of all factors affecting the potential environmental impact of the proposed major action or legislation.

d. Rather than serving as a means of assisting or supporting project justification, a statement or assessment should include a complete and objective appraisal of the environmental effects, both beneficial and adverse, and of available alternatives. A full description of each of the alternatives shall be included. In no case should adverse effects, either real or potential, be ignored or slighted in an attempt to justify an action previously recommended. Similarly, care must be taken to avoid overstating favorable effects.

e. Care shall be exercised to insure that the cumulative effects of many small projects, themselves not significant, are evaluated. In addition, primary as well as secondary effects must be considered.

f. In developing and obtaining the necessary information for the preparation of assessments and statements, consultations with Federal, State and local agencies are encouraged at appropriate times. It is not recommended that formal written inquiries be made at the environmental assessment phase.


g. Appendix A provides guidance on implementation of this regulation. Appendix B furnishes instructions on Environmental Impact Assessment methodology. Appendix C amplifies Environmental Impact Statement procedures.

15 Dec 72

6. Nature of Environmental Quality. Environmental quality is the aggregate of subjective and objective expressions of the capability of the environment to serve the full range of man's needs. On the one hand, its dimensions include things as specific as physical measures of the condition of land, water, and air, generally expressed as standards; on the other hand, things as illusive as the spiritual and therapeutic value of beautiful natural scenery, or the knowledge of such existing areas.

7. Environmental Quality Objective. The environmental quality objective is to preserve or enhance resources and amenities that have ecological, cultural, aesthetic, or other values which make them significant in terms of environmental quality. Ecological values pertain to the structure and function of ecosystems -- in essence man's habitat. Aesthetic values are attributed to man's sensory perception of the environment.

FOR THE CHIEF OF ENGINEERS:



WESLEY E. PEEL
Colonel, Corps of Engineers
Executive

3 Appendices
APP A Military Construction
APP B Environmental Assessments
APP C EIS



WEED CONTROL IN THE SEMI-ARID WESTERN U.S.

I. INTRODUCTION.

A. Definitions.

1. A weed is any plant growing in an area where its presence is undesirable.
2. Weed control is any management practice which either eliminates weeds or reduces them to a non-objectionable condition.

B. Reasons for weed control.

1. Improve appearance of an area.
2. Increase desired plants.
3. Reduce health hazard.
 - a. Pollens, poisons.
 - b. Snake cover.
4. Reduce plant residue.
 - a. Fire hazard
 - b. Drainage obstruction.
 - c. Sand duning.
 - d. Target zone visibility.
 - e. Electric and electronic problems.
5. Past practice - not always a very good reason!

C. Major methods of weed control.1. Natural control.

- a. Plant competition - always first consideration.
 - (1.) Decorative - lawns, native.
 - (2.) Erosion control.
 - (3.) Long term - low cost.
- b. Climatic - dry/wet seasons, frost, etc.
- c. Biologic - mainly grazing.

2. Mechanical control.

- a. Cropping - outleasing.
- b. Cultivation.
 - (1.) May be beneficial to desired plants.
 - (2.) Control depends on variety, stage of growth, etc.
- c. Mowing.
 - (1.) May not destroy weed - needs repeating.
 - (2.) Reduces size, seeding, improves appearances.
 - (3.) Height of cut determined by plant, area use, etc.
 - (4.) Generally cheapest method and should always be considered.
- d. Burning.
 - (1.) Reduces trash, seed, visibility, snake cover.
 - (2.) May not be allowed - smoke, fire, severity, laws.
 - (3.) May be expensive - cheaper than hand removal.

3. Chemical control.

- a. Contact herbicides - kills above ground growth.
- b. Systemic herbicides - absorbed and translocated.
 - (1.) Generally specific.
 - (2.) Can often be combined for broader control.
- c. Pre-emergent herbicides - controls new seedlings.
 - (1.) Often specific.
 - (2.) Often residual.
- d. Sterilant herbicides - kills all vegetation.
 - (1.) Applied to soil.
 - (2.) Generally highly residual.
- e. Growth inhibitors - largely experimental.

II. CONTROL OF WESTERN WEEDS.

A. Plants.

1. Often sparse, hard to reestablish.
2. May be tough, waxy.

B. Soils. - often sandy, alkaline.

C. Climate.

1. Temperatures - may be very high - Southwest.
2. Low rainfall - seasonal.
3. Winds.

III. CHEMICAL CONTROL OF WESTERN WEEDS.

A. Contact herbicides.

1. Advantages/disadvantages.

- a. Low hazard to nearby decoratives - usually.
- b. Selective and non-selective kill ~~at~~ above ground growth.
- c. Often does not kill roots.
- d. Usually little residual.
- e. Expensive - but much less than hand removal.

2. Examples.

- a. Fortified oils, solvents - some stain, some inflammable.
- b. Cacodylic acid (SB) - arsenic.
- c. Paraquat (NOT SB) - Toxic.
- d. Amitrole - selective, residual.

3. Application.

- a. Controls most annuals, reduces growth
- b. Normally have to wet foliage - 50 to 100 gal/A.

B. Systemic herbicides.

1. Advantages/disadvantages.

- a. May be extremely hazardous to nearby decoratives.
- b. Selective.
- c. Normally kills entire plant - including perennials.
- d. May be very low cost.
- e. May contaminate equipment - 2,4-D.
- f. Usually non-residual.
- g. May be combined for broad control.

2. Examples.

a. 2,4-D (2,4,5-T)

- (1.) Selective - broadleaf, including R. thistle.
- (2.) Low cost, low volume.
- (3.) Low human toxicity - 2,4,5-T ???
- (4.) High decorative toxicity, contaminant.
- (5.) Use low volatile.

b. Dalapon.

- (1.) Selective - grasses, including juniper.
- (2.) Low toxicity, low corrosivity, low contaminate, low volatility.

c. 2,4-D/dalapon - gives broad control.

d. Picloram and silvex.

- (1.) Broadleaf and woody control.
- (2.) Less volatile than 2,4-D.
- (3.) Picloram - some soil residual.

3. Application.

- a. Apply to growing plant - use surfactant.
- b. Little residual - repeat applications.
- c. Often use low volume.

- C. Pre-emergent herbicides.
 - 1. Advantages/disadvantages.
 - a. Apply before plant emerges.
 - b. Short to medium residual.
 - c. Usually specific.
 - 2. Examples.
 - a. Benefin, bensulide (Not SB) - lawns, greens.
 - b. Dacthal - lawns.
 - c. Dicamba - grass, not near ornamentals.
 - d. Fenac (Not SB) - very effective on R. thistle and puncture vine - residual, toxic to ornamentals.
- D. Soil sterilants.
 - 1. Advantages/disadvantages.
 - a. Normally controls all growth.
 - b. Residual - 1 to 5 years (or more).
 - c. High cost.
 - d. Normally requires moisture, depends on barrier.
 - c. DO NOT USE NEAR ORNAMENTAL AREAS.
 - 2. Examples.
 - a. Simazine and monuron.
 - b. Bromocil - good long range control.
 - c. Many others.
 - 3. Application.
 - a. Normally in winter or before rainy season.
 - b. Apply to soil.
 - c. Generally wettable powder - requires agitation.
 - d. Avoid disturbing soil afterwards.
 - e. May have to water in.

IV. SUMMARY

- A. Principles of weed control.
 - 1. Don't create control problems.
 - 2. Use plant competition, cropping, mowing.
 - 3. Use chemicals as secondary control or to improve stands.
 - 4. Know your chemicals; use them wisely.

USAMC HERBICIDE TRAINING CONFERENCE
TOUR OF THE UNITED STATES AIR FORCE ACADEMY

Meet at South Gate

1. Turn north at South Gate to Kettle Lakes.

Discuss: Afforestation
Native grasses
Fish program
Sportsmens Club

2. Return to South Gate Blvd and proceed north.

Discuss: Living snow fence.

3. Turn south into Pine Drive.

Discuss: Ice Lake
Food plots

4. Turn south onto Pine Loop and proceed to Nature Trail.

Discuss: Nature trail use.
Herbicide use.

5. Return to Pine Loop, west on Pine Loop through Pine Valley Housing to Community Center Drive; continue east to the Community Center. Coffee break at cafeteria.
Herbicide Program in Housing.

Discuss: Hillside stabilization.
Function of Community Center.

6. Continue east on Community Center Drive to Stadium Blvd.

Discuss: Solid Waste Recycling.
Tree Pest Control.

7. Turn north on Stadium Blvd to Falcon Stadium.

Discuss: Falcon Stadium operation with Stadium Manager.

8. Return to Stadium Blvd to sod holding and forestry operations area.

Discuss: Sod bank.
Firewood selling operation.
Spray rig for Paraquat on sprinkler heads.

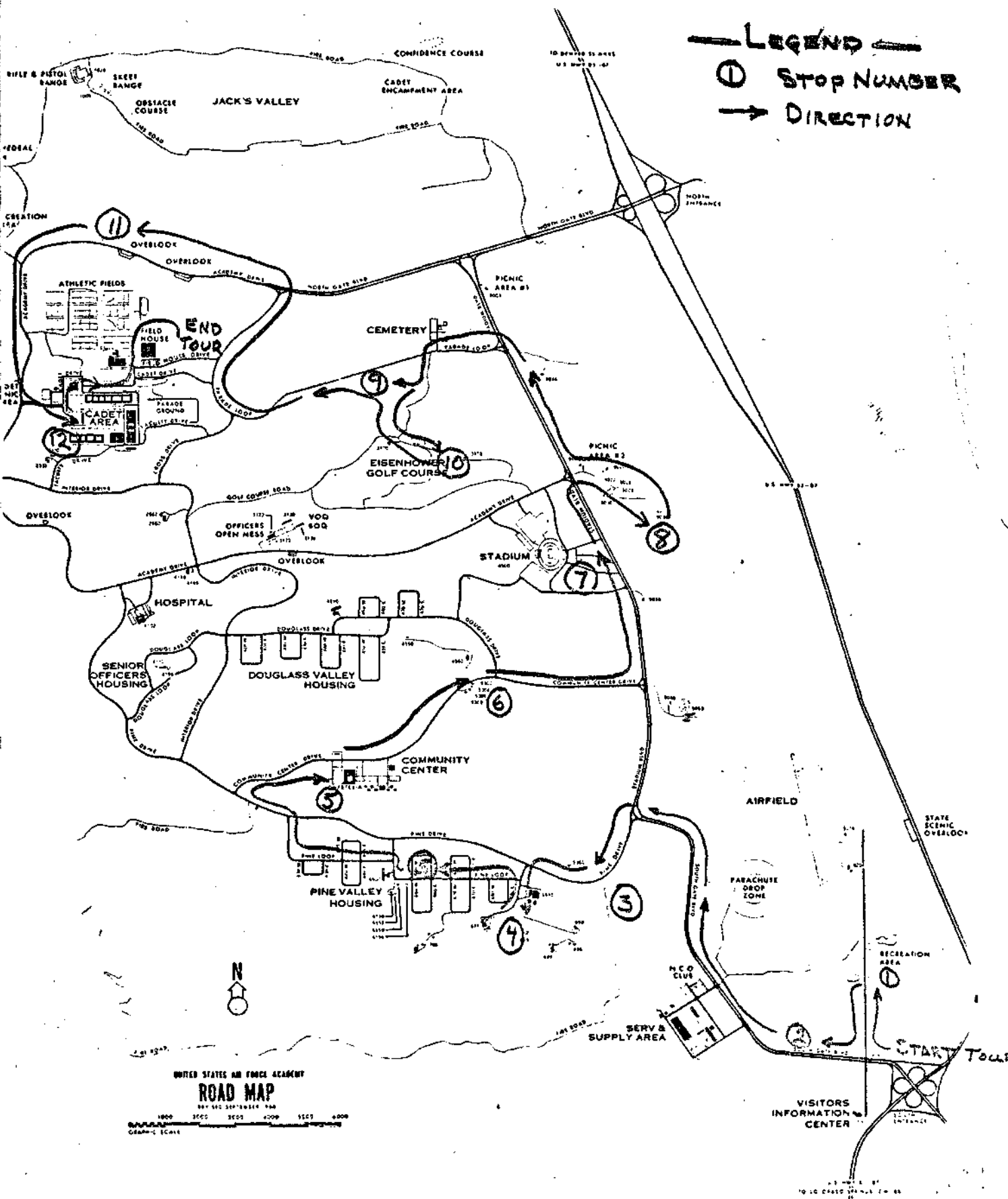
9. Return to Stadium Blvd; turn north to Parade Loop. Turn left to Eisenhower Golf Course and to Reservoir #4.

Discuss: Aerifiers
Reuse of wastewater
10. Continue to Golf Course Maintenance Bldg.

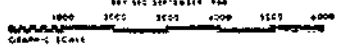
Discuss: Golf Course Maintenance
11. Return to Parade Loop. Proceed west, then north to North Gate Blvd. Stop at 2nd overlook.

Discuss: Burn area
Diversion ditches
Road shoulder stabilization
Athletic fields
Compost operation
12. Proceed to Cadet Chapel; then Field House tours. Answer any questions concerning the Air Force Academy Land Management Program.

LEGEND
 ○ STOP NUMBER
 → DIRECTION



UNITED STATES AIR FORCE ACADEMY
ROAD MAP



REPORTING THE USE OF HERBICIDES

Current regulations require the use of herbicides be reported on the monthly Pest Control Summary Report (DD Form 1532) and the Annual Installation Natural Resources Report (DA Form 2785-R). Reporting the use of pesticides by agricultural lessees and golf courses is not specifically required at the present. The policy has been to report only pesticides used by the Facilities Engineer in his maintenance operations including applications by contractors. Clarification of this matter is expected in the near future and it is anticipated that all pesticides used on the installation, regardless of the user, will be reported.

The attached copies of each report show examples of how these forms should be prepared.

Installation Natural Resources Report:

List herbicides by the common name only. Do not use trade names such as Telvar-W, Tordon, Brush Killer, Weed-B-Gone, or Pramitol.

Pest Control Summary Report:

Examples are given showing the use and reporting of standard and commonly used non-standard herbicides. Example numbers correspond to line numbers on the DD Form 1532.

1. Amitrole (6840-833-1217) Applied in solution with 100 gal. of water to control brush at 4 lbs. of 90% concentrate per acre.
2. Borate-Bromacil (Borocil, 6840-027-6467) Granular non-selective herbicide applied at 200 lbs. material per acre. 4% Bromacil, 94% borates.
3. Bromacil (Hyvar, 6840-890-2146) Wettable powder, non-selective, applied at 5 lbs. of 80% concentrate in 30 gal. of water per acre.
4. Cacodylic Acid (Phytar, 6840-926-9094) Concentrated solution, contact herbicide, used to kill vegetation around ornamentals, applied at 1 gal. concentrate containing 2.48 lbs./gal. in 100 gal. water per acre.
5. Chlorate-Borate (Polybor-chlorate, 6840-684-8975) Non-selective, applied in solution, 870 lbs. of concentrate containing 73% borates and 25% chlorates in 435 gal. of water per acre.
6. Dacthal (6840-681-9475) 75% wettable powder used for preemergence control of annual vegetation. Applied at 10 lbs. per acre in 40 gal. of water.
7. Dalapon (6840-577-4204) Water soluble concentrate containing 85% active ingredients, applied at 30 lbs. per acre in 200 gal. water to control cattails along drainage ditch.

Agent Blue

8. Dicamba (Banvel-D, 6840-905-4304) Water soluble liquid containing 49% dicamba or 4 lbs. per gal. Applied to control brush at 2 gal. concentrate in 100 gal. water per acre.

9. Diquat (6840-815-2799) Water soluble concentrate containing 35.3% diquat or 2 lbs. per gal. Applied to pond for control of floating weeds at 1/2 gal. concentrate in 150 gal. water per surface acre.

10. Diuron (Karmex, 6840-825-7790) Wettable powder containing 80% active ingredients. Applied to control all vegetation at 50 lbs. per acre in 100 gal. water.

11. DSMA (6840-965-2071) Water soluble powder containing 63% active ingredients. Applied to control dallisgrass in turf at 5-1/2 lbs. concentrate in 200 gal. water per acre.

12. Monuron (Telvar, 6840-514-0644) 80% wettable powder applied for non-selective control of vegetation at 40 lbs. concentrate per acre in 75 gal. of water.

On VA Exposure List

13. Picloram (Tordon, 6840-990-1464) Granules containing 11.6% active ingredients. Applied at 70 lbs. per acre for broadcast control of dense stands of brush.

Agent White

14. Picloram-2,4-D (Tordon 101, 6840-629-1638) Water soluble concentrate containing 5.7% picloram and 21.2% 2,4-D acid equivalent. Applied to control brush at 2 quarts concentrate in 20 gal. water per acre.

15. Silvex (6840-882-4810) Emulsifiable concentrate containing 4 lbs. acid per gal. Applied to control chickweed in turf at 1-1/2 quarts concentrate in 40 gal. water per acre.

Now Banned Because of TCDD Dioxin

16. Simazine (Princep, 6840-781-8195) 80% wettable powder, preemergence herbicide. Applied around ornamentals at 2-1/2 lbs. in 30 gal. water per acre.

17. 2,4-D Amine (6840-664-7060) Water soluble concentrate used to control broadleaf weeds. Applied to control dandelions in turf at 1 quart of concentrate (4 lbs. acid per gal.) in 40 gal. water per acre.

18. 2,4-D Low Volatile Ester (6840-577-4194) Emulsifiable concentrate used to control broadleaf weeds. Applied to control honeysuckle on fences at 1/2 gal. of concentrate (4 lbs. acid per gal.) in 50 gal. water per acre.

Now Banned Because of TCDD Dioxin

19. 2,4-D, 2,4,5-T Mixture (6840-825-7792) Emulsifiable concentrate used to control brush. Applied to control woody growth on right-of-way at 3 quarts concentrate (4 lbs. acid per gal.) in 100 gal. water per acre.

20. Fenac (6840-929-7951) Soluble concentrate containing 1.5 lbs. acid per gal. Used to control grasses and weeds. Applied to control Canada thistle at 12 gal. concentrate in 75 gal. water per acre.

21. Silvisar, 50% Cacodylic Acid in soluble liquid. Used in tree injector to kill undesirable species at approximately 4 ml per tree.
22. Copper sulfate (6840-063-3981) Used to control algae in a 14 acre lake, average depth of 4 ft., treated at 1 ppm. Required 152 lbs. of 95% material.
23. Atratul 8P. Pelleted herbicide containing 8% atrazine compounds, 40% sodium chlorate and 47% sodium metaborate. Applied for non-selective control at 400 lbs. per acre. Show only first two chemicals on report.
24. Pramitol 25E. Emulsifiable concentrate containing 1.97 lbs. prometone per gal. Applied 10 gal. of concentrate in 75 gal. water per acre for non-selective control of vegetation.
25. Tersan 1991 turf fungicide. Wettable powder containing 50% Benomyl. Applied to golf greens at 2 oz. per 1000 ft² in 3 gal. water.
26. Tupersan. Wettable powder, preemergence weed killer containing 50% siduron. Applied 20 lbs. per acre in 100 gal. water to fairways.
27. MH-30 (SLO-GRO, Maleic Hydrazide). Water soluble liquid containing 3 lbs. active ingredients per gal. was applied to a steep bank to reduce mowing. 1-1/3 gal. of concentrate was mixed with 50 gal. of water and applied on one acre.
28. Daconil 2787 turf fungicide (common name chlorothalonil) Wettable powder contains 75% active ingredients. Applied to golf greens at 4 oz. in 10 gal. water per 1000 ft².
29. Diesel oil applied to kill all vegetation, using full strength and applied on one acre using 150 gal. Diesel oil weighs 7.25 lbs./gal.

INSTALLATION NATURAL RESOURCES REPORT PART I - LAND MANAGEMENT (including Soil and Water Conservation) (AR 420-74)				FISCAL YEAR		REPORTS CONTROL SYMBOL DD-M (A) 670	
				INSTALLATION		SAMPLE	
1. GROUNDS CLASSIFICATION (Acres)				2. LAND MANAGEMENT PLAN			
Improved	Semi-Improved	Unimproved ¹	Required <input type="checkbox"/> Yes <input type="checkbox"/> No	Date of Original Plan	Date of last revision	Is Plan Current? <input type="checkbox"/> Yes <input type="checkbox"/> No	
3. LANDSCAPE PLANTING PLAN				4. SOIL SURVEYS			
Required <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Approved	Percent of planting prescribed in plan accomplished		Required <input type="checkbox"/> Yes <input type="checkbox"/> No	Acres Completed		
5. OUTLEASES	NUMBER	ACRES	CASH RENTAL	VALUE OF MAINTENANCE SERVICES	CONSERVATION BENEFITS ²	VALUE AS FIRE PREVENTION ³	TOTAL BENEFITS
Grazing							
Crop or Hay							
TOTAL							
Are soil and water conservation provisions included in lease(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No							
6. CONSTRUCTION AND O&M PROJECTS REQUIRING CONSERVATION MEASURES ⁴							
FY PROPOSED PROJECTS				FY COMPLETIONS			
Project Number		Estimated Cost		Project Number		Cost	
7. HERBICIDE TREATMENTS							
Kind of Herbicide (Common Name) ⁵	Strength of Concentrate ⁶	Application rate of Concentrate	Name of Vegetation Eradicated	Acres Treated			
Monuron	80%	35 lbs/Acre	ALL	30			
2,4-D - 2,4,5-T	2 lbs each/gal	1/2 gal/Acre	Woody Vegetation	15			
Dalapon	85%	30 lbs/Acre	Bermuda Grass	7			
MH-30	3 lbs/gal	2 gal/Acre	Growth Retardant	21			
Dacthal	75%	11 lbs/Acre	Crabgrass	136			
Borate Bromacil	90%	500 lbs/Acre	ALL	72			
FOOTNOTES:							
1. Do not include forest land (see Part II).							
2. Cost soil and water Benefits performed by lessee.							
3. See Chapter 4, Section IV, AR 420-74.							
4. Indicate by asterisk, projects contributing to natural beauty.							
5. e. g., Monuron; 2, 4-D; Silvex							
6. Pounds per gallon or percent of active ingredient.							

PEST CONTROL SUMMARY REPORT

SER. CODE C. D. CODE UNIT IDENT CODE YR. MO. REPORT CONTROL SYMBOL DD-1&L (AR) 1080

TO: FROM: (Installation or Activity) AREA/DISTRICT/COMMAND
 S A M P L E

LINE	PEST		OPERATION			PESTICIDE								MAN-HOURS						
	NAME a	CHECK b		NAME c	TOTAL UNITS TREATED d	UNIT e	BLDG. AND TERRAIN TREATED f	NAME g	FORM h	APPLICATION		RATE (Per Area Unit)				CHECK p		SURVEY q	LABOR r	SUPERVISOR s
		A	I							AMOUNT i	UNIT j	1ST RATE		2D. RATE		SS	NS			
												POUNDS l	% m	POUNDS n	% o					
1	BRUSH			SPPDEQ	21	AC	SPW	AMITROLE	SLN	2100	GA	3.6	100			X				
2	ALLVEG			DGPDEQ	5	AC	OPX	MBB	GRN	1000	LB	8	100	188	100	X				
3	ALLVEG			SPPDEQ	1	AC	OPX	BROMACIL	SUS	30	GA	4	100			X				
4	MXGRABDLVD			SPHAND	2	AC	OPG	ARSENICORG	SLN	202	GA	2.5	100				X			
5	ALLVEG			SPPDEQ	3	AC	OPX	MCB	SLN	1305	GA	635	100	217	100	X				
6	MXGRABDLVD			SPPDEQ	130	AC	OPG	DCPA	SUS	5200	GA	7.5	100			X				
7	AQUATICWDS			SPPDEQ	7	AC	W01	DALAPON	SLN	1400	GA	25.5	100			X				
8	BRUSH			SPPDEQ	11	AC	SPW	DICAMBA	SLN	1122	GA	8	100			X				
9	AQUATICWDS			SPPDEQ	2	AC	W01	DIQUAT	SLN	301	GA	1	100			X				
10	ALLVEG			SPPDEQ	12	AC	OPG	DIURON	SUS	1200	GA	40	100			X				
11	GRASSYWEED			SPPDEQ	140	AC	OPG	ARSENICORG	SLN	28000	GA	3.5	100			X				
12	ALLVEG			SPPDEQ	9	AC	OPX	MONURON	SUS	675	GA	32	100			X				
13	BRUSH			DGHAND	4	AC	OPB	PICHLORAM	GRN	280	LB	8	100			X				
14	BRUSH			SPPDEQ	25	AC	OPB	OCOPICHLORAM24D	SLN	512	GA	0.25	100	1	100	X				
15	BDLVDWEEDS			SPPDEQ	75	AC	OPG	SLVEX	EML	3028	GA	1.5	100			X				
16	MXGRABDLVD			SPHAND	4	AC	OPG	SIMAZINE	SUS	120	GA	2	100			X				
17	BDLVDWEEDS			SPPDEQ	110	AC	OPG	24D	SLN	4427	GA	1	100			X				
18	BDLVDWEEDS			SPPDEQ	5	AC	OPB	24D	EML	251	GA	2	100			X			31	

PEST CONTROL SUMMARY REPORT

SER. CODE C.D. CODE UNIT IDENT CODE YR. MO. REPORT CONTROL SYMBOL DD-1&L (AR) 1080

TO: FROM: (Installation or Activity) AREA/DISTRICT/COMMAND
S A M P L E

LINE	PEST			OPERATION			PESTICIDE								MAN-HOURS					
	NAME a	CHECK b		NAME c	TOTAL UNITS TREAT- ED d	UNIT e	BLDG. AND TERRAIN TREATED f	NAME g	FORM h	APPLICATION		RATE (Per Area Unit)				CHECK p		SURVEY q	LABOR r	SUPERVISOR s
		A	I							AMOUNT i	UNIT j	1ST RATE		2D RATE		SS	NS			
												POUNDS l	% m	POUNDS n	% o					
19	BRUSH			SPPDEQ	11	AC	OPB	M22	EML	1108	GA		1.5	100	1.5	100	X			
20	BDLVDWEEDS			SPPDEQ	2	AC	OPG	FNAC	SLN	174	GA		18	100			X			
21	BRUSH			SYSTEMAPP	2400	EA	DEW	ARSENICORG	SLN	2.5	GA	50						X		
22	AQUATICWDS			DGHAND	14	AC	W01	COPPERSULF	DUS	152	LB		10	100			X			
23	ALLVEG			DGPDEQ	7	AC	OPX	OCOATRAZINE CHLORATE BORATE	GRN	2800	LB		32	100	160	100	X			
24	ALLVEG			SPPDEQ	13	AC	OPX	OTRPROMETONE	EML	1105	GA		20	100			X			
25	TURFDIS			SPPDEQ	2	AC	GFG	OWOBENOMYL	SUS	261	GA		2.7	100			X			
26	GRASSYWEED			SPPDEQ	75	AC	GFG	SIDURON	SUS	7500	GA		10	100			X			
27	GRASSYWEED			SPPDEQ	6	AC	OPG	MLEICHYDRA	SLN	308	GA		4	100			X			
28	TURFDIS			SPPDEQ	2	AC	GFG	OWOCHLOROTHALONIL	SUS	871	GA		8.2	100			X			
29	ALLVEG			SPHAND	1	AC	OPX	HERBOIL	OLP	150	GA		1087	100			X			

(REPLACES DD FORM 1532, 1 MAY 1965, WHICH IS OBSOLETE AS OF 1 JULY 1971.)