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ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: AIRPORT CONSTRUCTION CONTROLS TO PREVENT AIR AND WATER POLLUTION

1. **PURPOSE.** This advisory circular supplies guidance material on compliance with air and water standards during construction of airports developed under the Airport and Airway Development Act of 1970. This guidance is intended for the use of airport sponsors, sponsor's representatives, local governing bodies and their consultants, and Federal Aviation Administration Airports Service personnel. It will also be incorporated in a change to Advisory Circular 150/5370-1A, Standard Specifications for Construction of Airports, supplementing the material therein.
2. **REFERENCES.** Obtain additional copies of this circular from the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590. The following publications may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at the prices noted. Checks or money orders should be made payable to the Superintendent of Documents. No c.o.d. orders are accepted.
 - a. Advisory Circular 150/5370-1A, Standard Specifications for Construction of Airports. Price \$3.50.
 - b. Advisory Circular 150/5320-5B, Airport Drainage. Price \$1.00.
3. **BACKGROUND.**
 - a. Section 16(c)(4) of the Airport and Airway Development Act of 1970 states it to be . . . "national policy that airport development projects shall provide for the protection and enhancement of the natural resources and the quality of

environment of the Nation." Also, in implementing this policy, the Secretary of the Department of Transportation (DOT) shall consult with the Environmental Protection Agency (EPA) (as per Presidential Reorganization Plan No. 3 of 1970: Federal Register, Vol. 35, #194, 10/6/70)", with regard to the effect that any project involving airport location, a major runway extension, or runway location may have on natural resources including, but not limited to, fish and wildlife, natural, scenic, and recreational assets, water and air quality, and other factors affecting the environment.

- b. Section 16(e)(2) states: The Secretary of the DOT shall condition approval of any such project application on compliance during construction and operation with applicable air and water quality standards.

(1) All states now have federally-approved water quality standards which are based on national standards set by the Federal Water Quality Administration of EPA.

(2) The National Air Pollution Control Administration (EPA) is presently developing nationwide air quality standards. After adoption of national standards by EPA, the individual states will have nine months to develop their own. Until such time as all states have federally-approved air quality standards, FAA's district/regional offices may be contacted to determine applicable procedures to be followed during the interim.

- c. The foregoing background indicates clearly that all construction accomplished under the Airport Development Aid Program (ADAP) should be done in a manner which will protect, enhance, and retrieve a favorable environment. The following considerations of design and construction are aimed at developing a realistic meaningful means to achieve that concern for the environment.

4. OPEN BURNING OF COMBUSTIBLE WASTES. Where State or local stipulations are insufficient to minimize air pollution or danger from open burning some or all of the following conditions should be made a part of construction contracts under ADAP:

- a. No tires, oils, asphalt, paint, or coated metals are permitted in combustible waste piles.
- b. Burning will not be permitted within 1,000 feet of a residential or built-up area nor within 100 feet of any standing timber or flammable growth.
- c. Burning shall not be permitted unless the prevailing wind is away from a nearby town or built-up area.

- d. Burning shall not be permitted during a local air inversion or other climatic condition as would result in a pall of smoke over a nearby town or built-up area.
- e. Burning shall not be permitted when the danger of brush or forest fires is made known by State, local, or Federal officials.
- f. The size and number of fires shall be restricted to avoid the danger of brush or forest fires. Burning shall be done under surveillance of a watchman, who shall have fire-fighting equipment and tools readily available.

5. ALTERNATIVES TO OPEN BURNING.

- a. Sound trees, stumps, and brush may be cut off within six inches above the ground and allowed to remain in areas outside of areas to be paved providing the depth of embankment will exceed three and one-half feet. Tap roots and other projections over one and one-half inches in diameter shall be grubbed-out to a depth of at least 18 inches below the finished subgrade or slope elevation. Spoil materials removed by clearing and grubbing may be buried outside of airport construction graded areas, paved or to be paved areas, existing or future runway sites, and taxiway safety or apron areas.
- b. Wood may be salvaged for firewood or commercial use, or it may be chipped and disposed of for use as mulch.
- c. Logs, brush, etc., may be removed to an authorized disposal area or disposed of to the general public without charge.

6. AIR POLLUTION CONTROLS.

- a. Common construction operations which may cause excessive dust include:
 - (1) Quarry drilling and rock crushing.
 - (2) Clearing, grubbing, and stripping.
 - (3) Excavation and placement of embankment.
 - (4) Cement and aggregate handling.
 - (5) Cement or lime stabilization.
 - (6) Blasting.

- (7) Use of haul roads.
- (8) Sandblasting or grinding.
- b. Other construction items which may cause air pollution are:
 - (1) Volatiles escaping from asphalt and cutback materials.
 - (2) Use of herbicides or fertilizers.
 - (3) Smoke from asphalt plants or from heater/planers.
- c. Control of dust and other air pollutants should be made the responsibility of the contractor and may include:
 - (1) Drilling apparatus equipped with water or chemical dust controlling systems,
 - (2) exposing the minimum area of land,
 - (3) applying temporary mulch with or without seeding,
 - (4) use of water sprinkler trucks,
 - (5) use of covered haul trucks,
 - (6) use of stabilizing agents in solution,
 - (7) use of dust palliatives and penetration asphalt on temporary roads,
 - (8) use of wood chips in traffic and work areas,
 - (9) use of vacuum-equipped sandblasting systems,
 - (10) use of plastic sheet coverings.
 - (11) Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application equipment and empty containers shall not be rinsed and discharged so as to pollute a stream, etc., or the ground water.
 - (12) Bituminous mixing plants shall be equipped with a dust collector, to waste or return uniformly to the hot elevator all or any part of the material collected, as stated in specifications P-201 and P-401 in Advisory Circular 150/5370-1A.

- (13) Delay of operations until climate or wind conditions dissipate or inhibit the potential pollutants (see paragraphs 6a and 6b) in a manner satisfactory to the engineer.

7. PERMANENT AND TEMPORARY WATER POLLUTION CONTROL (SOIL EROSION).

- a. In the design and construction of an airport consider permanent means for control or prevention of soil erosion not only to preserve and protect slopes, pavement, and other facilities but also to reduce potential sources of water pollution. Such means include, but are not limited to, selection of appropriate gradients for backslopes and channels and provision of berms, drainage features, soil stabilization, pavement, and turf to control or prevent erosion from wind or water.
- b. Construction shall include temporary pollution control measures to ensure that soil erosion which might cause water pollution is kept to a minimum. Such measures should be shown on the plans or ordered by the engineer and may consist of construction of berms, dikes, dams, drains and sediment basins, or use of fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray, and other erosion control devices or methods. Drains, channels, and filter cloths are described in Advisory Circular 150/5320-5B.
- (1) At the preconstruction conference, or prior to the start of the applicable construction, the contractor should be required to submit, for acceptance, his schedules for accomplishment of temporary erosion and pollution control work. He should also submit, for acceptance, his proposed method of erosion control on haul roads and borrow pits and his plan for disposal of waste materials or erosion control details for other potential sources of pollution. To the extent that such work is predictable, the specifications should identify erosion and pollution control items so that the contractor may consider them in the bid.
- (2) The contractor should be required to complete all permanent erosion control features at the earliest practicable time. Temporary pollution control measures should be used to correct unforeseen conditions that occur during construction or those that are needed prior to completion of permanent measures.

- (3) The engineer should limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, or borrow and fill operations; and, require immediate installation of permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, or ponds. The engineer's authority to order such work would be used for situations not foreseen by the plans and specifications. Under many conditions, the amount of surface area of erodible earth at one time should not exceed 750,000 square feet; however, the engineer may decide to specify other area dimensions to meet local and project conditions. To the extent possible, these limitations should be made a part of the plans and specifications.
- (4) If the permanent or temporary pollution control measures ordered by the engineer fall within the specifications for a work item that has a unit contract price, the work should be accomplished under a change order or supplemental agreement subject to the limitations as defined in the contract's general provisions. If the work is such that no quantities or prices were given in the contract, the work should be covered by a supplemental agreement submitted by the contractor and approved by the owner. Should the parties be unable to agree on unit prices or if this method is impractical, the engineer may instruct the contractor to proceed with the work by day labor or force account as defined in the general provisions.
- (5) In the event that temporary erosion and pollution control measures are required due to the contractor's negligence, carelessness, or failure to install permanent controls in a timely manner, then contract provisions should call for such work to be performed by the contractor at his own expense.
- (6) In case of repeated failures on the part of the contractor to control erosion/pollution, right should be reserved to the engineer to employ outside assistance to provide the necessary corrective measures. Such incurred costs, plus related engineering costs, should be charged to the contractor and appropriate deductions made from the contractor's progress payments.
- (7) The erosion control features installed by the contractor should be acceptably maintained by the contractor during the time that construction work is being done.

8. OTHER WATER POLLUTION CONTROLS.

- a. The contractor should not be permitted frequent fording of live streams with construction equipment; therefore, temporary bridges or other structures should be used wherever such crossings adversely affect sediment levels and an appreciable number of stream crossings are necessary.
- b. All waterways should promptly be cleared by the contractor of falsework, piling, debris, or other obstructions placed during construction work and not a part of the finished work.
- c. Water from aggregate washing or other operations containing sediment should be treated by filtration, a settling basin or other means sufficient to reduce the sediment content to not more than that of the stream, etc., into which it is discharged.
- d. Pollutants such as fuels, lubricants, bitumens, raw sewage, and other harmful materials should not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto. Wash water or waste from concrete mixing or curing operations should not be allowed to enter live streams, etc.

9. CONFLICT WITH OTHER CONTROLS.

- a. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive laws, rules, or regulations should apply. The sponsors' engineers should be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.
- b. Some states, municipalities, and pollution control authorities have very specific regulations for air and water pollution controls. For information, note that these may include requirements for:
 - (1) Use of smoke density charts;
 - (2) measurement of weight and density (micrograms per cubic meter of air) of suspended particulate;
 - (3) differentiation between allowable particulate limits by land uses, such as residential, commercial, or industrial;
 - (4) permissible weights of emission in pounds/hour versus pounds/hour of material processed;

- (5) open burning;
- (6) dust collection systems for asphalt plants;
- (7) erosion control measures.

10. APPLICATION.

- a. The recommended controls mentioned in paragraphs 4 through 8 should be considered in the preparation of the plans and specifications. The engineer's report, accompanying the plans and specifications, should cover erosion and air and water pollution prevention elements.
- b. Permanent control measures should be included in the construction contracts as bid items or should be included as incidental to other bid items.
- c. Similarly, temporary measures should be included as bid items or incidental parts hereof.
- d. The engineer may order the accomplishment of unanticipated control measures by change order, supplemental agreement, day labor, or force account.
- e. Permanent and temporary control measures should be maintained by the contractor during the life of the contract. Thereafter, the airport owner should accept responsibility for maintenance of permanent measures.

11. HOW TO OBTAIN ADDITIONAL COPIES OF THIS PUBLICATION. Obtain additional copies of this circular, AC 150/5370-7, Airport Construction Controls to Prevent Air and Water Pollution, dated 26 April 1971, from the Department of Transportation, Distribution Unit, TAD 484.3, Washington, D.C. 20590.



CHESTER G. BOWERS
Director, Airports Service