

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D. C.
20332-5000

REPLY TO
ATTN OF:

LEEE

04 JUN 1986

SUBJECT: Engineering Technical Letter (ETL) 86-8:
Aqueous Film Forming Foam (AFFF) Waste Discharge Retention
and Disposal

TO: ALMAJCOM/DEE	AFRCE-ER	AFRCE-CR	AFRCE-WR	AFRCE-B
AFRCE-SAC	AFIT/DET	NGB/DEE	AF/REX	AFDW/DE

1. Purpose. This ETL provides design guidance and policy on collection, containment, and disposal of wastewater discharges from preaction AFFF sprinkler systems to be installed in new or existing hangar facilities under the Military Construction Program (MCP). AFFF collection and containment facilities previously installed according to the AFR 88-15 are exempt from this ETL. Paragraph 15-74j of the interim draft edition of AFR 88-15, Criteria and Standards for Air Force Construction, will be revised to incorporate the guidance contained in this ETL. The current policy of allowing permanent collection and containment facilities to retain AFFF wastewater discharges from hangar facilities is not cost effective or practical. Design guidance and policy included in this ETL blends minimal amounts of new construction with the installation's Spill Prevention Control and Countermeasures (SPCC) Plan to contain and dispose of an AFFF discharge.

2. This ETL is effective upon receipt and is applicable to all military construction projects described in para 1 above to include those currently under design.

3. Referenced Publications.

- a. AFR 8-7, Air Force Engineering Technical Letters (ETL).
- b. AFR 88-15, Air Force Design Manual - Criteria and Standards for Air Force Construction.

4. Policy.

a. General. Direct discharges of foam solution into watercourses can violate stream water quality standards, and will therefore be contained to prevent discharges from entering streams or leaving the installation. AFFF solution discharges can adversely impact biological wastewater treatment processes and can cause foaming in aeration basins and similar plant components if the AFFF concentrations exceeds limits stated below. If discharge is to a

domestic wastewater treatment plant, the amount of the AFFF concentrate in the plant influent shall not exceed 100 parts per million (PPM) by weight for a 6% mixture or 50 PPM for a 3% mixture (a 3% solution is more restrictive at the plant due to the strength of its concentrate). For an on-base wastewater treatment plant, the above concentrations will require that the discharge be contained and bled into the influent of the sanitary plant at a controlled rate. If an installation's wastewater collection system is connected to a regional wastewater system, no restrictions may be imposed on the discharge of AFFF wastewater provided the foam concentration in the regional system's plant influent is within the previously specified limits. Additional restrictions may be imposed by the regional system authorities. Permission should be obtained from the regional system authorities prior to project development.

b. Flow Diversion. Normally hangar floor drains are connected to the sanitary sewerage system, after passing through an oil water interceptor or separator. Containing an AFFF discharge within the sanitary sewerage system may not normally be feasible without incurring substantial sanitary operational problems. If this is the case, the main drain line from the floor drains will be intercepted at a point prior to the entrance of domestic sewage into the line. A diverter box or manhole should be installed, with a diverter line, to connect to the storm drainage system. Flow diversion into the storm drainage system shall be accomplished by gravity flow conditions. High volume pumping is not practical and not recommended. The inlet of the diverter line shall be higher than the sanitary drain line to permit normal floor drainage to flow to the oil interceptor/separator and then to the sanitary sewerage. The sanitary sewer line outlet from the diverter box shall be designed to close when a high volume flow enters the diverter box/manhole. This is to prevent an uncontrolled AFFF discharge into the sanitary sewerage system. Other means for diverting the AFFF discharge may be employed provided that its design is adequate to meet the above conditions and that the system is cost effective when compared with above diversion system. For existing hangars changes to hangar floor drains will not normally be required. New piping to the storm drainage system will be designed to discharge waste foam within thirty minutes after activation of the AFFF system if permitted by the capacity of the existing floor drain line. In any event the capacity of the new piping will be at least equal to that of the existing floor drain system piping. It is not the intent to replace existing drainage piping for the purpose of increasing the AFFF discharge capacity.

c. Containment. Once the AFFF discharge has been diverted into the storm drainage system, it shall be contained for controlled disposal. Containment of the discharge shall be by temporary or expedient measures which will be incorporated into the installation's Spill Prevention Control and Countermeasures (SPCC) Plan. The method and location of containment shall be determined by the designer. The containment procedures to be included will be based on expedient control measures.

d. Responsibility of Designer. It will be the MCP project designer's responsibility to design any new construction required to divert and contain an AFFF discharge. Development of any procedures to contain and dispose of the AFFF wastewater will also be the designer's responsibility. The installation's SPCC plan will be modified to include these procedures. The plan will be modified by the designer with concurrence from the Base Civil Engineer.

FOR THE CHIEF OF STAFF

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