



DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF AIR QUALITY

FILE COPY

Michael O. Leavitt  
Governor  
Dianne R. Nielson, Ph.D.  
Executive Director  
Russell A. Roberts  
Director

150 North 1950 West  
P.O. Box 144820  
Salt Lake City, Utah 84114-4820  
(801) 536-4000 Voice  
(801) 536-4099 Fax  
(801) 536-4414 T.D.D.

August 30, 1995

DAQE-775-95

James VanOrman  
Hill Air Force Base  
OO-ALC/EM  
7276 Wardleigh Road  
Hill Air Force Base, Utah 84056-5990

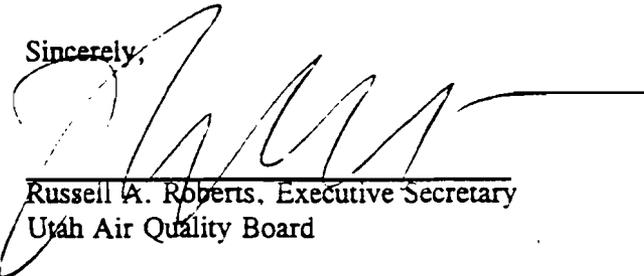
Re: Approval Order to Modify AO for Engine Test Facilities. Davis County, CDS-A2

Dear Mr. VanOrman:

The attached document is an Approval Order for the above referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Dwight V. Bird. He may be reached at (801) 536-4048.

Sincerely,



Russell A. Roberts, Executive Secretary  
Utah Air Quality Board

RAR:DVB:aj

cc: Davis County Health Department  
Mike Owens, EPA Region VIII  
Mike Graziano



# **STATE OF UTAH**

## **Department of Environmental Quality**

### **Division of Air Quality**

#### **APPROVAL ORDER TO MODIFY AO FOR ENGINE TEST FACILITIES**

**Prepared By: Dwight V. Bird, Engineer**

#### **APPROVAL NUMBER**

**DAQE-775-95**

**Date: August 30, 1995**

#### **Source**

#### **HILL AIR FORCE BASE**

**Russell A. Roberts  
Executive Secretary  
Utah Air Quality Board**

*Abstract*

*Hill Air Force Base has requested a modification to the consolidated Approval Order (AO) for all of its aircraft engine test facilities. The AO covers eight test facilities (either hush houses or test stands), one of which is grandfathered, and two of which are replacements for grandfathered stands. This AO will supersede DAQE-469-94, dated June 9, 1994. This modification clarifies the location of the test stands and hush houses, and allows for the use of JP-5 jetfuel, which is required for Navy Aircraft.*

The above-referenced project has been evaluated and found to be consistent with the requirements of the Utah Air Conservation Rules (UACR) and the Utah Air Conservation Act. A public comment period was not required for this project. This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order:

General Conditions:

1. This AO applies to the following company:

Hill Air Force Base  
OO-ALC/EM  
7274 Wardleigh Road  
Hill Air Force Base, Utah 84056-5137  
Phone: (801)-777-0359  
FAX: (801)-777-4306

The equipment listed below in this AO shall be operated at the following location:

PLANT LOCATION:

See Condition #5 for location of buildings.

Universal Transverse Mercator (UTM) Coordinate System: (4,525,000) meters Northing,  
(425,000) meters Easting

2. Definitions of terms, abbreviations, and references used in this AO conform to those used in the UACR, Utah Administrative Codes (UAC), and Series 40 of the Code of Federal Regulations (40 CFR). These definitions take precedence unless specifically defined otherwise herein.
3. Hill Air Force Base shall install and operate the Aircraft Engine Test Facilities according to this AO requested in the Notices of Intent dated October 14, 1994, January 7, 1994, January 20, 1993, and April 15, 1987.
4. A copy of this AO shall be posted on site. The AO shall be available to the employees who operate the air emission producing equipment. These employees shall receive

instruction as to their responsibilities in operating the equipment according to all of the relevant conditions listed below.

5. The approved installations shall consist of the following equipment:
  - A. Building 222 One hush house with two aircraft bays  
AQUIS# 3647  
AQUIS# 34680
  - B. Building 268 Three test cells  
#8 AQUIS# 3654  
#11 AQUIS# 3652  
#12 AQUIS# 3644
  - C. Area 5134 Sound Suppressor model #A/F 32A-25  
AQUIS# 3648
  - D. Pad 24 Hush house model #A/F37T10  
Near building 8 AQUIS not assigned
  - E. Pad 18 Two hush houses model #A/F37T10  
Pad 27 AQUIS# 34346  
Near building 8 AQUIS# 34399
  - F. Pad 17 Hush house model #A/F37T10  
Near building 8 AQUIS# 3645
  - G. Area 10901 Mobile test stand model AM37T-21A  
AQUIS# 3002
  - H. Area 10901 Mobile test stand
  - I. Near building 33 Engine test cell #A/M37T-9
6. This AO shall replace the AO dated November 27, 1987, (BAQE-068-87).
7. The Executive Secretary shall be notified in writing upon start-up of the two new facilities near building 901, as an initial compliance inspection is required. Eighteen months from the date of this AO the Executive Secretary shall be notified in writing of the status of construction/installation if construction/installation is not completed. At that time the Executive Secretary shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-1-3.1.5, UAC.

#### Limitations and Tests Procedures

8. Visible emissions from any point or fugitive emission source associated with the installation or control facilities shall not exceed 20% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. Visible emissions from intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15-second intervals over a six-minute period shall not apply. Any time interval with no visible emissions (i.e. there are no emissions) shall not be included.

9. The following limits shall not be exceeded without prior approval in accordance with R307-1-3.1, UAC:
  - A. 1,400 F-16 (Engines F-100/110/120/200/220) engine tests per 12-month period
  - B. 110 F-4 (Engine J-79) engine tests per 12-month period
  - C. 200 F-18 engine tests per 12-month period
  - D. 300 C-130 (Engine T-56) engine tests per 12-month period

The total number of tests from all of the cells, hush houses, and test stands on the base combined shall not exceed the above specified limits by aircraft engine category. Tests conducted in the test stands outside building 222 shall not be considered part of the total F-16 test limitation above because these are grandfathered test stands. However, their emissions shall be included in the emissions inventory report for the facility. Records of the number of tests by the aircraft/engine category shall be kept on a daily basis for all tests conducted. For each test, the type of engine, date and time of test, and duration of each test in different test modes (idle, intermed, military, afterburner) shall be recorded. Compliance with the annual limitations shall be determined on a rolling 12-month total. Hill Air Force Base shall calculate a new 12-month total based on the first day of each month using data from the previous 12 months. Records of tests conducted, including rolling 12-month totals shall be made available to the Executive Secretary or his representative upon request, and shall include a period of two years ending with the date of the request.

### **Fuels**

10. The owner/operator shall use only JP-4, JP-5 or JP-8 as fuels in the engines. If any other fuels are to be used, an AO shall be required in accordance with R307-1-3.1, UAC.
11. The sulfur content of any fuel burned shall not exceed 0.85 pounds per million BTU heat input. Sulfur content shall be decided by ASTM Method D-4239-89, or approved equivalent. The sulfur content shall be tested if directed by the Executive Secretary.

### **Federal Limitations and Requirements**

12. This source is required to pay an annual emission fee upon start-up [or if an existing facility, upon issuance of this AO]. The fee will be based on calculated annual emissions listed at the end of this AO. This fee is valid until inventory data for one year are available for the source. The owner or operator of this source will be billed upon start-up for all emissions that are considered "chargeable" as of that date.

### **Records & Miscellaneous**

13. All records referred to in this AO which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or his representative upon request. Records that are to be kept include number of engine tests by category (Condition number 9)

14. All installations and facilities authorized by this AO shall be adequately and properly maintained. All pollution control vendor recommended equipment shall be installed, maintained, and operated. A copy of all manufacturers' operating instruction for pollution control equipment and pollution emitting equipment shall be kept on site. These instructions shall be available to all employees who operate the equipment, and shall be made available to compliance inspectors upon their request.
15. The owner/operator shall comply with R307-1-3.5, UAC. This rule addresses emission inventory reporting requirements.
16. The owner/operator shall comply with R307-1-4.7, UAC. This rule addresses unavoidable breakdown reporting requirements. The owner/operator shall calculate/estimate the excess emissions whenever a breakdown occurs. The total of excess emissions shall be reported to the Executive Secretary as directed for each calendar year.

Any future modifications to the equipment approved by this order must also be approved in accordance with R307-1-3.1.1, UAC.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including the UACR.

Annual emissions for this source (all aircraft engine test facilities) are currently calculated at the following values:

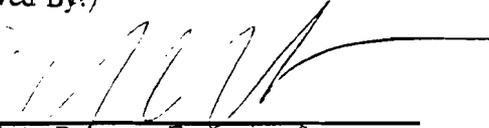
	<u>Pollutant</u>	<u>Tons/yr</u>
A.	Particulate . . . . .	3.32
B.	PM <sub>10</sub> . . . . .	3.32
C.	SO <sub>2</sub> . . . . .	8.87
D.	NO <sub>x</sub> . . . . .	73.39
E.	CO . . . . .	42.22
F.	Hydrocarbons (as VOC) . . . . .	4.24

These calculations are for the purposes of determining the applicability of Prevention of Significant Deterioration and Nonattainment area major source requirements of the UACR. They are not to be used for purposes of determining compliance.

In accordance with the requirements of Title V of the 1990 Clean Air Act, the following pollutants may be subject to an operating permit fee. Both the fee rate and the class of pollutants are subject to change by state, the federal agencies, or both.

	<u>Pollutant</u>	<u>Tons/vr</u>
A.	PM <sub>10</sub> .....	3.0
B.	SO <sub>x</sub> .....	9.0
C.	NO <sub>x</sub> .....	73.0
D.	VOC .....	4.0

Approved By:



Russell A. Roberts, Executive Secretary  
Utah Air Quality Board



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)  
HILL AIR FORCE BASE, UTAH

RECEIVED  
JAN 06 1995  
Air Qual

4 Jan 95

OO-ALC/EME  
7274 Wardleigh Road  
Hill AFB UT 84056-5137

Mr. Russell A. Roberts  
150 North 1950 West  
P.O. Box 144820  
Salt Lake City Utah 84114-4820

Dear Mr. Roberts

The attached Approval Order #BAQE-642-88 for a spray booth and an oil/water separator needs to be eliminated. The spray booth is presently covered in the Consolidated Paint Booth Permit (DAQE-1006-94, 29 Nov 94) and the oil/water separator does not require an air permit.

If you have questions, please contact Ms. Bonnie Miller at 777-1449. Thank you for your cooperation in this matter.

Sincerely

LYNN S. HILL  
Chief, Environmental Compliance Div  
Environmental Management Directorate

Attachment:

1. AO BAQE-642-88

cc:

388 FW/LSWE  
MSgt Prymek

# MEMORANDUM

**To:** Russell Roberts, Director, Division of Air Quality

**Through:** Lynn Menlove, Manager, New Source Review Section, Division of Air Quality

**From:** Dwight Bird, Environmental Engineer *DB 7/16*

**Date:** August 17, 1995

**Subject:** Modification for Hill AFB aircraft engine test stand Approval Order (DAQE-0469-95)

**File Path:** f:\aq\engineer\dbird\wp\memos\hillairc.mem

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## Description

Hill AFB submitted a request dated October 14, 1994, to modify language in their Aircraft Engine Test Facility consolidated Approval Order. The changes in language are necessary to clarify the location of the test stands, and to add JP-5 to the list of acceptable fuels. JP-5 is similar in formulation to JP-8, but with a higher flash point. This fuel is required by Navy aircraft that will land on aircraft carries, as a safety precaution.

## Emissions

There will be no change in emissions from this modification, because emissions are restricted by the type and number of tests allowed.

## BACT

There was no BACT determination for this modification

## Recommendation

The attached approval order should be sent (it contains ~~redline~~ and ~~strikeout~~ text identifying language changes in conditions 5, and 10).

## Fees

There is no fee required for this modification

DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF AIR QUALITY

Michael O. Leavitt      150 North 1950 West  
Governor                P.O. Box 144820  
Dianne R. Nielson, Ph.D.      Salt Lake City, Utah 84114-4820  
Executive Director      (801) 536-4000  
Russell A. Roberts      (801) 536-4099 Fax  
Director                (801) 538-4414 T.D.D.

DAQE-~~XXX~~-95

~~August 17, 1995~~ June 9, 1994

Mike Graziano  
Hill Air Force Base  
OO-ALC/EM  
7274 Wardleigh Road  
Hill Air Force Base, Utah 84056-5137

Re:    ~~Modified~~ Approval Order To Consolidate Permit For All Aircraft Engine Tests  
      Davis County CDS A1 NA    Title V Major

Dear Mr. Graziano:

The attached document is an Approval Order for the above referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Dwight Bird. He may be reached at (801) 536-4048.

Sincerely,

---

Russell A. Roberts, Executive Secretary  
Utah Air Quality Board

RAR:DB:dn

cc:    Davis County Health Department  
      EPA Region VIII, Mike Owens

4.2.4-166

C.	NO <sub>x</sub> .....	73.0
D.	VOC .....	4.0

Approved By:

---

Russell A. Roberts, Executive Secretary  
Utah Air Quality Board

**Abstract**

*Hill Air Force Base has requested a modification to the consolidated Approval Order for all of its aircraft engine test facilities. The Approval Order covers ~~There will be~~ eight test facilities (either hush houses or test stands), one of which is grandfathered, and two of which are replacements for grandfathered stands. This Approval Order will supersede ~~DAQE-469-94~~ ~~BAQE-0680-87~~, dated June 9, 1994 November 27, 1987. This modification clarifies the location of the test stands and hush houses, and allows for the use of JP-5 jetfuel, which is required for Navy Aircraft.*

The above-referenced project has been evaluated and found to be consistent with the requirements of the Utah Air Conservation Rules (UACR) and the Utah Air Conservation Act. A 30-day public comment period was held and all comments received were evaluated. The conditions of this Approval Order (AO) reflect any changes to the proposed conditions which resulted from the evaluation of the comments received. This air quality AO authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

**General Conditions:**

1. This AO applies to the following company:

Hill Air Force Base  
OO-ALC/EM  
7274 Wardleigh Road  
Hill Air Force Base, Utah 84056-5137  
Phone: (801)-777-0359  
FAX: (801)-777-4306

The equipment listed below in this AO shall be operated at the following location:

**PLANT LOCATION:**

See condition #5 for location of buildings.

Universal Transverse Mercator (UTM) Coordinate System: (4,525,000) meters Northing, (425,000) meters Easting

2. Definitions of terms, abbreviations, and references used in this AO conform to those used in the UACR, Utah Administrative Codes (UAC), and Series 40 of the Code of Federal Regulations (40 CFR). These definitions take precedence unless specifically defined otherwise herein.
3. Hill Air Force Base shall install and operate the Aircraft Engine Test Facilities according to ~~this Approval Order~~ ~~the information submitted requested~~ in the Notices of Intent dated ~~October 14, 1994~~, January 7, 1994, January 20, 1993, and April 15, 1987.
4. A copy of this AO shall be posted on site. The AO shall be available to the employees who operate the air emission producing equipment. These employees shall receive instruction as

to their responsibilities in operating the equipment according to all of the relevant conditions listed below.

5. The approved installations shall consist of the following equipment:

- |               |  |  |
|---------------|--|--|
| A.            | Building 222   | One hush house with two aircraft bays<br>AQUIS# 3647<br>AQUIS# 34680     |
| B.            | Building 268   | Three test cells<br>#8 AQUIS# 3654<br>#11 AQUIS# 3652<br>#12 AQUIS# 3644 |
| C.            | Area 5134  | Sound Suppressor model #A/F 32A-25<br>AQUIS# 3648                        |
| D.            | Pad 24<br>Near building 8  | Hush house model #A/F37T10<br>AQUIS not assigned                         |
| E.            | Pad 18<br>Pad 27<br>Near building 8  | Two hush houses model #A/F37T10<br>AQUIS# 34346<br>AQUIS# 34399          |
| F.            | Pad 17<br>Near building 8  | Hush house model #A/F37T10<br>AQUIS# 3645                                |
| G.            | Area 10901   | Mobile test stand model AM37T-21A<br>AQUIS# 3002                         |
| H.            | Area 10901   | Mobile test stand  |
| I.            | Near building 33   | Engine test cell #A/M37T-9   |
| <del>A.</del> | <del>Building 589 with hush house</del>  |  |
| <del>B.</del> | <del>Building 222 with hush house model #A/F37T-10</del>                               |  |
| <del>C.</del> | <del>Building 268 with one model #A/F32T-9 noise suppression system</del>              |  |
| <del>D.</del> | <del>Test facilities #1 and #2 in building 8 using model #A/F37T-10 hush house</del>   |  |
| <del>E.</del> | <del>Building 222 F-16 sound suppressor (grandfathered)</del>                          |  |
| <del>F.</del> | <del>Two new model AM37T-21A mobile test stands to be anchored near building 901</del> |  |

6. This AO shall replace the AO dated November 27, 1987, (BAQE-068-87).

7. The Executive Secretary shall be notified in writing upon start-up of the two new facilities near building 901, as an initial compliance inspection is required. Eighteen months from the date of this AO the Executive Secretary shall be notified in writing of the status of construction/installation if construction/installation is not completed. At that time the Executive Secretary shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-1-3.1.5, UAC.

#### **Limitations and Tests Procedures**

8. Visible emissions from any point or fugitive emission source associated with the installation or control facilities shall not exceed 20% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. Visible emissions from intermittent sources shall use procedures similar to Method 9, but

the requirement for observations to be made at 15-second intervals over a six-minute period shall not apply. Any time interval with no visible emissions (i.e. there are no emissions) shall not be included.

9. The following limits shall not be exceeded without prior approval in accordance with R307-1-3.1, UAC:
  - A. 1,400 F-16 (Engines F-100/110/120/200/220) engine tests per 12-month period
  - B. 110 F-4 (Engine J-79) engine tests per 12-month period
  - C. 200 F-18 engine tests per 12-month period
  - D. 300 C-130 (Engine T-56) engine tests per 12-month period

The total number of tests from all of the cells, hush houses, and test stands on the base combined shall not exceed the above specified limits by aircraft engine category. Tests conducted in the test stands outside building 222 shall not be considered part of the total F-16 test limitation above because these are grandfathered test stands. However, their emissions shall be included in the emissions inventory report for the facility. Records of the number of tests by the aircraft/engine category shall be kept on a daily basis for all tests conducted. For each test, the type of engine, date and time of test, and duration of each test in different test modes (idle, intermed, military, afterburner) shall be recorded. Compliance with the annual limitations shall be determined on a rolling 12-month total. Hill Air Force Base shall calculate a new 12-month total based on the first day of each month using data from the previous 12 months. Records of tests conducted, including rolling 12-month totals shall be made available to the Executive Secretary or his representative upon request, and shall include a period of two years ending with the date of the request.

#### **Fuels**

10. The owner/operator shall use only JP-4, ~~JP-5~~ or JP-8 as fuels in the engines. If any other fuels are to be used, an AO shall be required in accordance with R307-1-3.1, UAC.
11. The sulfur content of any fuel burned shall not exceed 0.85 pounds per million BTU heat input. Sulfur content shall be decided by ASTM Method D-4239-89, or approved equivalent. The sulfur content shall be tested if directed by the Executive Secretary.

#### **Federal Limitations and Requirements**

12. This source is required to pay an annual emission fee upon start-up [or if an existing facility, upon issuance of this AO]. The fee will be based on calculated annual emissions listed at the end of this AO. This fee is valid until inventory data for one year are available for the source. The owner or operator of this source will be billed upon start-up for all emissions that are considered "chargeable" as of that date.

#### **Records & Miscellaneous**

13. All records referred to in this AO which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or his representative upon request. Records that

are to be kept include number of engine tests by category (Condition number 9)

- 14. All installations and facilities authorized by this AO shall be adequately and properly maintained. All pollution control vendor recommended equipment shall be installed, maintained, and operated. A copy of all manufacturers' operating instruction for pollution control equipment and pollution emitting equipment shall be kept on site. These instructions shall be available to all employees who operate the equipment, and shall be made available to compliance inspectors upon their request.
- 15. The owner/operator shall comply with R307-1-3.5, UAC. This rule addresses emission inventory reporting requirements.
- 16. The owner/operator shall comply with R307-1-4.7, UAC. This rule addresses unavoidable breakdown reporting requirements. The owner/operator shall calculate/estimate the excess emissions whenever a breakdown occurs. The total of excess emissions shall be reported to the Executive Secretary as directed for each calendar year.

Any future modifications to the equipment approved by this order must also be approved in accordance with R307-1-3.1.1, UAC.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including the UACR.

Annual emissions for this source (all aircraft engine test facilities) are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	Particulate . . . . .	3.32
B.	PM <sub>10</sub> . . . . .	3.32
C.	SO <sub>2</sub> . . . . .	8.87
D.	NO <sub>x</sub> . . . . .	73.39
E.	CO . . . . .	42.22
F.	Hydrocarbons (as VOC) . . . . .	4.24

These calculations are for the purposes of determining the applicability of prevention of significant deterioration and nonattainment area major source requirements of the UACR. They are not to be used for purposes of determining compliance.

In accordance with the requirements of Title V of the 1990 Clean Air Act, the following pollutants may be subject to an operating permit fee. Both the fee rate and the class of pollutants are subject to change by state, the federal agencies, or both.

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM <sub>10</sub> . . . . .	3.0
B.	SO <sub>x</sub> . . . . .	9.0



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)  
HILL AIR FORCE BASE, UTAH

RECEIVED

OCT 18 1994

Air Quality

14 Oct. 94

OO-ALC/EME  
7274 Wardleigh Road  
Hill AFB UT 84056-5137

Mr. Dwight V. Bird  
State of Utah  
Division of Air Quality  
P.O. Box 144820  
Salt Lake City Ut 84114-4820

Re: Approval Order DAQE-469-94

Dear Mr. Bird

After reviewing Approval Order #DAQE-469-94, please modify General Conditions, Paragraph 5, to read as follows:

Condition 5. Approved Installations

- |  |   |
|--|---|
| A. Building 222                        | One hush house with two aircraft bays<br>AQUIS# 3647<br>AQUIS# 34680            |
| B. Building 268                        | Three engine test cells<br>#8 AQUIS# 3654<br>#11 AQUIS# 3652<br>#12 AQUIS# 3644 |
| C. Area 5134                           | Sound suppressor model A/F 32A-25<br>AQUIS# 3648                                |
| D. Pad 24<br>Near building 8           | Hush house model #A/F37T10<br>AQUIS not assigned                                |
| E. Pad 18<br>Pad 27<br>Near building 8 | Two hush houses model #A/F37T10<br>AQUIS# 34346<br>AQUIS# 34399                 |
| F. Pad 17<br>Near building 8           | Hush house model #A/F37T10<br>AQUIS# 3645                                       |

