

Date 2-8 Hour 8:50

To Anthony

WHILE YOU WERE OUT

M Captain George

Of _____

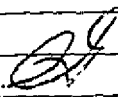
Phone 726-4751
Area Code Phone Number

FAX _____
Area Code Phone Number

Telephoned	<input checked="" type="checkbox"/> Returned Call	<input type="checkbox"/> Left Package
Please Call	<input type="checkbox"/> Was In	<input type="checkbox"/> Please See Me
Will Call Again	<input type="checkbox"/> Will Return	<input type="checkbox"/> Important

Message

Date Castle was
put on closure list -
4-12-91

 Signed

A District engineer evaluates your project before an **Authority to Construct** is issued. The evaluation is based on your application, plans you provide for all equipment and background information on the proposed operation. It is up to you to demonstrate that your equipment can operate in compliance with all District rules and regulations.

When Do I Receive A Permit To Operate?

After an **Authority to Construct** has been issued and construction is complete, District personnel will inspect the facility in operation to verify that equipment performs as required. If it does, the District issues a **Permit to Operate** which may contain specific operating conditions for equipment. The permit must be renewed annually.

Can I Operate Without A Permit To Operate?

If you are operating equipment without a **Permit to Operate**, you are subject to legal action. You must submit an application, and all information required for permit evaluation. Only then may you continue to operate your equipment.

Bay Area Air Quality Management District
939 Ellis Street,
San Francisco, CA 94109

Air Quality Permits



**Bay Area Air Quality
Management District**
939 Ellis Street,
San Francisco, CA 94109
(415) 771-6000



Permits, What Are They And Who Needs Them?

Air quality permits, like city and county building permits, are part of doing business. In Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara and the southern portion of Solano and Sonoma counties, they are issued by the Bay Area Air Quality Management District, a regional government agency responsible for controlling air pollution.

Permits, which are required by State law, are needed:

- For new equipment that may cause air pollution
- Before modifying existing equipment that may cause air pollution
- When a business changes ownership, or
- When equipment is transferred from one location to another

By granting a permit, the District indicates that equipment should be able to meet all air quality standards.

Both large and small businesses are covered by District rules and regulations. Typical large businesses requiring permits include bulk petroleum operations, refineries, and power plants. Typical small businesses include dry cleaners, gasoline service stations, auto body shops, coating operations and printers.

Permits for new or modified facilities must be obtained before construction starts. Failure to do so will result in increased fees and possible civil or criminal penalties.

Why Regulate Equipment?

Air pollution's impact on public health, the environment and the economy has prompted regulation from all levels of government, including the California Legislature law that established the District in 1955. District permits authorized by the State Legislature in 1972, are the primary tool used to ensure that businesses comply with air quality control laws. Thus, the permit system benefits everyone who lives or works in the Bay Area.

How Does The Permit System Work?

The permit system requires review of equipment design, and once installed, inspection of the equipment to ensure compliance with District regulations. Equipment requires two types of permits: an **Authority to Construct**, followed by a **Permit to Operate**. Both are issued under the same permit application. A permit fee is assessed based on the size

and complexity of equipment and costs of review and enforcement.

How Do I Apply For A Permit?

If you need a permit you must submit the following, either in person or by mail:

- A permit application form (completed on both sides)
- Detailed description of your equipment
- Detailed information on materials and operations

Apply at District headquarters, 939 Ellis Street, San Francisco, CA. 94109. An engineer assigned to handle your application will contact you regarding the application fee and any additional information needed. Processing time varies depending on the complexity of the application.

When Do I Need An Authority To Construct?

You must file an application for an **Authority to Construct** before construction begins to ensure that all District rules and regulations are considered. This allows you to make required design changes in the blueprint planning stage.

Name: MENDEZ
Room: 2324

Avoid waiting in line to checkout with

Z I P > O U T
Check-Out

For your convenience, the details needed to check you out were taken care of when you checked in. On the morning of your departure, an itemized statement including all charges incurred through late the previous evening will be delivered under your door by 6 a.m. If the statement meets with your approval, just drop off your key and you're on your way.

Hilton

Welcome

The Hilton logo, featuring a stylized 'H' symbol above the word 'Hilton' in a cursive script.

- Check that door and window latches are secured whenever you are in your room. For further safety, ensure the door is double locked.
- Identify all visitors through the viewport in the door before admitting them to your room.
- Hotel staff will not make room checks or turn down beds after 7:30 p.m. If people claim to be hotel employees, before you open the door, first ask them their name and department and then verify it by phone.
- Hotel staff will not disturb you unless you have a message or an emergency. Should you receive an unusual phone call, please inform us.

Touch

6

- Complimentary safety deposit boxes are provided 24 hours a day for your valuables. Please contact the front desk.
- Please help us make your stay a safe and comfortable one.

Thank you.



EMISSIONS BANKING allows for the deposit of air pollution reductions which occur as companies shut down old sources or voluntarily reduce emissions by adding new control equipment to existing sources. Emission reductions for banking may also occur when a company changes its process or reformulates to less polluting materials, curtails its permitted hours of operation, or accepts more stringent operating conditions.

To qualify for a banking credit, new controls must go beyond the control levels already required by Bay Area Air Quality Management District (District) regulations or Best Available Retrofit Control Technology (BARCT) levels in the Clean Air Plan.

The emissions deposited may be used as offsets to mitigate increases in emissions from new projects which are subject to District permit requirements. Deposits may also be traded or sold to other companies for their use.

The District established its emissions bank on March 7, 1984. Because the Board of Directors adopted a **no net increase permit program** on July 17, 1991, banking activity is expected to increase. In the past, emissions offsets were required only for very large projects with greater than 40 tons a year of precursor organic compounds, or 100 tons a year of nitrogen oxides. **Offsets are now required for all new projects which will increase either pollutant by more than one ton a year.**

WHAT IS THE NO NET INCREASE PERMIT PROGRAM ?

The **no net increase permit program** is required by the California Clean Air Act of 1988. It affects all air districts which have not attained the state ambient air quality standard for ozone. This includes the Bay Area. The program insures that future increases in emissions of ozone forming compounds that result from new permit activities must be offset by reductions of the same pollutant.

WHAT IS THE DISTRICT'S SMALL FACILITY BANK ?

The Board of Directors recognized that small, existing sources and new facilities, with emissions less than 25 tons per year, may have difficulty in providing offsets. To assist these facilities in obtaining offsets required by the **no net increase permit program**, a Small Facility Bank has been established under Regulation 2-4-414.

Offsets will be provided at no cost to facilities which qualify. To qualify, an applicant must first use all banking credits they already hold in the District's Emissions Bank. The source must also install Best Available Retrofit Control Technology (BARCT) on all existing sources and Best Available Control Technology (BACT) on all new or modified sources.

HOW ARE EMISSION REDUCTIONS BANKED ?

Within 18 months of the change resulting in qualified emission reductions, an applicant for emissions reduction credit must submit a completed District banking application. The fees for banking of emissions are calculated identically to those for new and modified sources under Regulation 3, Section 311. If the shutdown or control of a source is undertaken to provide offsets for a new project, the District will issue a banking certificate for any qualifying emission reductions which exceed the offsets required for the new project at no charge.

HOW ARE ACTUAL EMISSION REDUCTIONS CALCULATED ?

The emission credits that qualify for banking are based on the highest "real" level of emissions for a consecutive twelve month period within the five years immediately preceding the banking application date. Calculation procedures can be found in Regulation 2-2-605. The burden of quantifying the emission reduction is placed on the applicant, and is subject to District approval.

To qualify as an "actual emission reduction," the decreases must also be permanent and enforceable, in addition to being real and quantifiable.

HOW LONG ARE BANK DEPOSITS VALID ?

Banking Certificates are permanent until used by either the depositor or the transferee. Future changes to District regulations, which could change the way reductions are generated, will not affect the face value of a Banking Certificate already held.

HOW ARE EMISSION CREDITS TRADED ?

A company may transfer a Banking Certificate to another party, in part, or as a whole, by surrendering the certificate to the District for reissuance. There is no fee associated with this transaction. However, a nominal fee is assessed whenever all or a portion of a Banking Certificate is withdrawn from the bank for the purpose of providing offsets.

WHAT ARE OFFSET RATIOS ?

Offsets are always required at greater than a one to one ratio. To determine the amount of emission offsets required for a project - tons of offsets per ton of increase in emissions - several factors are considered, including the pollutant involved and the facility's emissions in tons per year. Any changes in offset ratios will not affect the face value of a Banking Certificate already issued. District offset ratios are specified in Regulation 2, Rule 2, Sections 302 and 303.

HOW MUCH DO OFFSETS COST ?

The cost of purchasing an existing Banking Certificate to use as an offset is determined by the market value and is **not** controlled by the District.

Emission offsets in the District's Small Facility Bank are provided at no cost to qualifying applicants. However, some costs may be incurred by the purchaser in order to qualify, particularly if installation of Best Available Retrofit Control Technology (BARCT) on existing sources is required.

WHAT REDUCTIONS DO NOT QUALIFY FOR BANKING ?

There are a number of restrictions on what emission reductions will qualify for a banking certificate. All reductions must exceed any reductions required by measures in the District's Air Quality Management Plan, or District rules and regulations, or federal or state laws.

Emission reductions due to the control or shutdown of sources which are exempt from District permit requirements cannot be banked. Also, reductions cannot be banked from sources such as gasoline service stations and dry cleaners, where the District determines that no "real" emission reduction is likely to result, because of the "elastic" nature of the services supplied.

The **Bay Area Air Quality Management District** is the regional agency in the Bay Area that regulates stationary sources of air pollution such as factories, industrial sites and gasoline stations. The District has jurisdiction in nine counties - Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara, Marin, Napa, southwest Solano and southern Sonoma.



Emissions Banking Information	(415) 749-4704
Permit Services	(415) 749-4990
Enforcement	(415) 749-4795
Public Information	(415) 749-4900
Smog Phone	1 (800) 794-SMOG
All other calls	(415) 771-6000

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109



Emissions Banking

**Bay Area Air Quality
Management District**
939 Ellis Street,
San Francisco, CA 94109
(415) 771-6000

Castle ERCs - No errors

Get copy of bill (Canella)
regarding ERCs.

Do whatever we need to do to
get ERCs

Put proposal together - sources
that we think could get
credits. Search records
for info, or get it from
Castle.

Publicize and document all
we do

EPA is planning on Region IX
becoming the lead for the US
on conformity determinations.

NEPA?

~~Step 1/2/3/4/5~~ →

BAAQMD - New June 15, 94 Reg 2.
60 days to final determination
after completeness

90 days - 180 days on Public Notice.

→ If under 50 tons, the BAAQMD
will find the offsets.

VOC, NO_x \$10,000 - 20,000 per ton

18 months to file application.

Steven Aronson

Use of Federal money or any federal
agency involvement will require
conformity determination.

**Base Closure Workshop Series:
Air Issues Affecting Base Closures
October 19, 1994**

Registration List Revised 10/18/94 3:00 p.m. - Final

Registrant	Title/Organization/Address	Telephone Number
Bill Alilam	Environmental Engineer Air Program Manager Mare Island Vallejo, California 94592	707 646 6375 Fax 707 646 6365
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Cori Ayala	Chief Consultant Assemblyman Sal Cannella Post Office Box 942849 State Capitol Sacramento, California 94249 001	916 445-8570 Fax 916 445 8549
Terry L. Barrie	Associate Transportation Planner CalTrans District 4 111 Grand Avenue Oakland, California	510 286-5592 Fax 510 286-5513
Michael Bartunek	Mechanical Engineer Mare Island Naval Shipyard BRAC Technical Division 1881 Howe Street Fairfield, CA 94533	707 646 1514 Fax 707 646-3659
Frank Baynard (Major)	Base Realignment & Closure Western Region MCAS El Toro Santa Ana, California 92709	714 726 4342 Fax 714 726 3394
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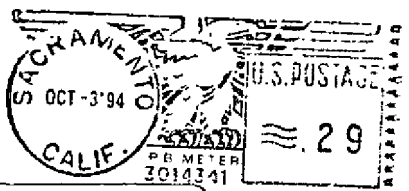
Registrant	Title/Organization/Address	Telephone Number
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Kelly F. Watson	Yim, Okun & Watson 3745 Whitehead Street, #101 Mather, California 95655	916 368 1591 Fax 916 368 9219
Dara Lynn Wheeler	Governor's Office of the Planning and Research 1400 Tenth Street Sacramento, California 95814	916 322 3170 Fax 916 322 3785
Heather Wheeler	Governor's Office of the Planning and Research 1400 Tenth Street Sacramento, California 95814	916 322 3170 Fax 916 322 3785
Ben Williams	Deputy Director Administration/Special Projects Governor's Office of Planning and Research 1400 Tenth Street Sacramento, California 95814	916 322 3170 Fax 916 322 3785
Dave Wilson	Administrative Assistant East Bay Conversion & Reinvestment Commission 530 Water Street, Fifth Floor Oakland, California 94607	510 834-6928
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Helene Sahardi York	Vice President Bay Area Council 200 Pine Street, #300 San Francisco, California 94104	415 981 6600 Fax 415 981 6408

580 W to 238
238 to 880 North

~~Hagen~~ Hagenburger Rd / Coliseum
turn Left, then L at Hagenburger Rd
3/4 Rd

California Base Closure Environmental Committee
c/o Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

FIRST CLASS



State of California
GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET • SACRAMENTO, CA • 95814

RECEIVED
OCT - 6 1994

San Joaquin Valley Unified
Air Pollution Control District

Mr. Seyed Sadredin
San Joaquin Valley UAPCD
1999 Tuolumne Street, #200
Fresno, California 93721

Anthony Mendez



BASE CLOSURE WORKSHOP SERIES:

Air Issues Affecting Base Closures and Reuse

Wednesday, October 19, 1994

— A M E N D E D A N N O U N C E M E N T —

This is part of a series of workshops to assist local military base reuse authorities, local governments, state agencies, and other interested parties in dealing with some of the issues that they face in planning for and implementing the reuse of former military facilities. This workshop is sponsored by the California Base Closure Environmental Committee and the law firm of Yim, Okun and Watson.

PURPOSE AND INSIGHTS TO BE GAINED

One of the major issues affecting planning and reuse of former military facilities by local reuse authorities is complying with local, state, and federal air quality requirements.

Many reuse activities will require the need for local air pollution control or air quality management district permits. In addition, mitigation (emission reductions from existing sources) may be required to implement reuse plans.

This workshop is intended to provide a practical, hands-on forum for discussing air issues related to closure, realignment, and reuse of military bases. Also, smaller group discussions are planned to examine specific issues in each local air basin.

Participants are encouraged to bring specific questions and concerns for discussion. Ample time will be provided for question and answer periods and attendee interaction.

WHO SHOULD ATTEND?

This workshop is geared toward managers and staff from local base reuse authorities responsible for overseeing air quality issues involving base reuse projects. In addition, local planning agencies, base closure planners for the military, and others that will be involved in base reuse decisions should benefit from this workshop.

ABOUT THE SPONSORS

California Base Closure Environmental Committee was established by the Governor to ensure the expedited environmental restoration of the closing military bases. In addition, the committee has been actively involved in expediting the quantification for future use of emission reductions generated by closing bases. Committee members include representatives from the California Environmental Protection Agency, Governor's Office of Planning and Research, U. S. Department of Defense, and the U. S. Environmental Protection Agency.

Yim, Okun and Watson, a professional law corporation, provides legal services, especially in the area of toxics and environmental issues, regarding base closure and reuse to the County of Sacramento for Mather Air Force Base and the East Bay Conversion and Reinvestment Commission for Alameda Air Station. Yim, Okun & Watson is a MBE/WBE firm.

PANELISTS

Steven Arenson is currently a community planner with the U.S. Air Force Center for Environmental Excellence, Regional Compliance Office, Western Region in San Francisco. He has professional degrees in Civil Engineering and Urban and Regional Planning, and currently works in the Media Branch of AFCEE, concentrating primarily on air emission aspects of environmental compliance.

Ms. Cori Ayala is Chief Consultant to Assemblyman Sal Cannella and has been involved in legislative work for the past 10 years. She has been on staff with Assemblyman Cannella since he was elected to office in 1990. In recent years, she has worked on issues surrounding base closure, developing legislation to facilitate reuse opportunities for former base properties.

William de Boisblanc is the Manager of the New Source Review Section and the Permit Services Division of the Bay Area Air Quality Management District. He is a registered mechanical engineer and has been with the district for over 22 years. His duties include managing the district's emissions bank and approving offset transactions for major new and modified sources.

Randal Friedman is a staff member of the Navy's State Environmental Coordination office in San Francisco. He is presently working on implementation of various aspects of the Clean Air Act. Mr. Friedman has 18 years of experience in environmental issues including work for the California Coastal Commission and the California Department of Health Services, Toxic Substances Control Division. He has worked for the Navy for the past six years.

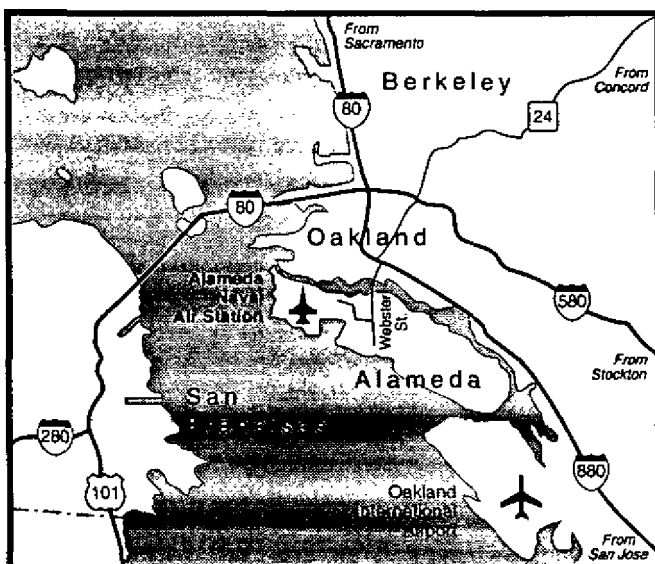
Debbie Jordan, a Ph.D. in chemical engineering from UC Berkeley, is Chief of the Operating Permits Section, Air & Toxics Division, U.S. EPA Region 9. She has responsibility for implementing Title V of the Clean Air Act, the new permitting program created by the Clean Air Act Amendments of 1990. She also works on the new federal program for controlling air toxics.

Leslie M. Krinsk is Senior Staff Counsel with the California Air Resources Board. A member of ARB for 18 years, she provides legal advice to the executive office and staff, all 34 California air districts, and the public. She reviews air district rules regarding the creation and banking of emission reduction credits.

Lt. Col. Sam Rupe is the Air Force environmental regional counsel for the western region of the United States, which includes the states and territories covered by EPA Regions IX and X. He previously served as the Deputy Staff Advocate at the Air Force Center for Environmental Excellence (AFCEE), Brooks Air Force Base, Texas. At AFCEE, he participated in the NEPA planning for disposal and reuse of Air Force closure bases as well as for special projects directed by the Pentagon.

Ben Williams is deputy director of Administration and Special Projects for the Governor's Office of Planning and Research. He currently coordinates policy and actions for military base closures and recommends measures to expedite successful reuse.

DIRECTIONS



From Interstate 880 South (from Sacramento)

Exit at 11th/12th Street, continue straight through light. Off-ramp turns into Brush Street. Continue on Brush under freeway and turn left to 5th Street (one way - turn left only). Stay in left lane. As you cross Broadway (six blocks) stay to left to ramp clearly marked "Alameda." This will take you through a tunnel that turns into Webster Street. Continue to Atlantic and turn right (at College of Alameda). Continue on Atlantic to Main Street and turn right following signs to "Main Gate." After being cleared through Main Gate, continue to right to 2nd Street. Turn left on Avenue "C." BOQ will be on left in three blocks.

From Interstate 880 North (from Oakland Airport)

Exit at Broadway, turn right onto Broadway. Turn right after one block onto 7th Street. Continue two blocks to Webster Street and turn right. This will take you through a tunnel that continues on Webster Street. Continue to Atlantic and turn right (at College of Alameda). Continue on Atlantic to Main Street and turn right following signs to "Main Gate." After being cleared through Main Gate, continue to right to 2nd Street. Turn left on Avenue "C." BOQ will be on left in three blocks.

BASE CLOSURE WORKSHOP

Preliminary Workshop Schedule

Date: Wednesday, October 19, 1994

Location: Alameda Naval Air Station
Bachelor Officers Auditorium
Alameda, California

Speakers and panelists are from the Environmental Protection Agency, the California Air Resources Board, local air pollution control and air quality management districts, Governor's Office of Planning and Research, Assembly Member Cannella's Office, and the military. Current information on specific speakers and topics will be provided the day of the workshop, or call for updates.

8:00 – 8:30 Registration, Coffee and Pastries

8:30 – 8:40 **Welcome and Opening Remarks**

8:40 – 9:00 **Updates on State Effort to Expedite Closure and Reuse**

As the central point of contact for state coordination on issues related to closure and re-use of military bases, the Office of Planning and Research will summarize efforts to date. ↗

9:00 – 9:20 **Recent State Legislation, AB 3204 (Cannella)**

AB 3204, currently awaiting the Governor's approval, will affect the disposition of air emission reduction credits at closing military bases. *Ben Williams - Governor's Office of Planning & Research*
AS. Cory Ayala

9:20 – 10:30 Session I: **Overview of Air Permitting Process**

Debbie Jordan; Leslie Krinsk; Bill DeBoisblanc
Representatives from EPA, ARB, and the Bay Area Air Quality Management District will provide an overview of local, state, and federal requirements as they relate to base closures and reuse, including a discussion of emission reduction credits (ERCs).

10:30 – 10:45 Break

10:45 – 11:15 Session II: **Air Quality Conformity**

Steven Aronson AFCEE/CCR-S
While property transfers from the military to local communities may be exempt, other federal actions supporting reuse may be subject to general air quality conformity requirements, which prohibit or restrict federal actions which either cause or contribute to violations of Federal Clean Air Act standards or delay their attainment.

11:15 – 12:15 Session III: **Military Perspective**

Randall Friedman; Mary Kay Faryan; Sam Ruppe; Bob Butener
Representatives from the military will discuss conformity, ERCs, lessons learned, and other issues affecting closure and reuse of bases.

12:15 – 1:15 Lunch

1:15 – 2:30 Session IV: **Small Group Break-Outs**

This session is intended to provide participants an opportunity to discuss air basin specific issues and concerns and lessons learned to date with local air pollution control and air quality management district representatives. Representatives are expected from the following districts: Bay Area Air Quality Management District, South Coast Air Quality Management District, Sacramento Metropolitan Air Quality Management District, San Joaquin Valley Unified Air Pollution Control District, Mojave Desert Air Quality Management District, and Monterey Bay Unified Air Pollution Control District.

2:30 – 2:45 Break

2:45 – 4:00 **Discussion of Small Group Findings**

Each small group will be expected to share major issues and concerns, and any findings or recommendations with the larger group.

4:00 – 4:15 **Wrap-up**

GENERAL INFORMATION

Date and Time

Wednesday, October 19, 1994, 8:30 am – 4:15 pm. Registration will begin at 8:00 am

Location

Alameda Naval Air Station, Bachelor Officers Auditorium, Alameda, California (see map)

Registration Fee

A registration fee of \$15.00, payable to *Yim, Okun and Watson* covers materials, lunch, and morning and afternoon refreshments. Payment must be received by October 14 to ensure enrollment. Enrollment will be limited, so early registration is recommended. Enrollments may be offered after October 14 on a space available basis — please call first to avoid inconvenience. Refunds will be granted if requested in writing by October 14.

Program and Speaker Changes

Agenda topics and speakers may change. Current information will be provided the day of the workshop, or call for updates.

Hotel Accommodations

The sponsors cannot provide specific lodging information or make reservations. However, general information on nearby hotels will be provided upon request.

If you have questions

Contact Cathy Dizon or Susan Yonts of Yim, Okun, and Watson at (916) 368-1591, Fax (916) 368-9219.



**BASE CLOSURE WORKSHOP SERIES:
Air Issues Affecting Base Closure and Reuse
ENROLLMENT FORM**

Complete this form (make additional copies for multiple registrants) and send it with your check for \$15.00 to:

Yim, Okun & Watson
Attention: Base Closure Air Quality Workshop
3745 Whitehead Street, Suite 101
Mather, California 95655

Checks should be payable to *Yim, Okun & Watson*

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State

Zip

Daytime telephone

THE MILITARY BASE REUSE FORUM

a Participatory Forum for Exchange of Base Closure and Reuse Information and Strategies

Publishers: Yim, Okun & Watson, A Professional Corporation

Volume I, Issue 2, October 1994

Thank you for your overwhelming response to *The Military Base Reuse Forum!*

In our first issue, we announced our goal: to document, preserve, and share common problems and strategies, both good and bad, learned among the closing base communities. We want our communities to rely upon this publication as a useful resource for addressing the complex issues they are and will be facing.

Many of you have commented that this publication fills a critical need among closing communities. Others have offered to contribute articles or comment upon issues raised. We welcome your input and assistance to enhance the value of this publication as a management tool for closing communities. Send articles, comments, thoughts and other streams of consciousness to: Yim, Okun & Watson, A Professional Corporation, Editors of The Military Base Reuse Forum, 3745 Whitehead Street, Suite 101, Mather, California 95655, Telephone (916) 368-1591, Fax (916) 368-9219.

Successful base closure and reuse require that the local community lead, not follow. Reuse planning and local community decision making should be the central focus of the base closure and reuse process, and should become the principal drivers for coordination of the other parallel, but related processes such as military property disposal and environmental cleanup. In this way, these other parallel processes are not

Successful base closure and reuse require that the local community lead, not follow.

merely theoretical exercises undertaken in a vacuum, but are relevant to the community's needs, practical in nature and time-sensitive.

Other participants in the process will follow the lead of the local community, only if such leadership is informed, intelligent and timely. Strong local leadership requires that the local reuse authority devote the resources to actively participate in the process, and keep itself informed so that it may intelligently participate.

The importance of keeping informed cannot be

overemphasized. This task is made easier, however, if local communities realize that the obstacles that they face are not unique. Information should be shared between local closing communities so that common but innovative strategies may be employed to streamline the process.

Leadership also requires a comprehensive approach to base closure and reuse. Things happen very quickly. The process is not linear. Land use planning by the local community affects military property disposal policies and environmental cleanup. Environmental cleanup in turn affects land use planning, marketing, and financing. Military caretaking and transition policies will affect the ability of the communities to create development strategies for both interim and long-term uses.

The key is coordination between the large number of players and different processes.

Communities have been quick to

Reuse planning and local decision making...should become the principal drivers for coordination of...parallel but related processes such as...property disposal and...cleanup.

criticize the lack of coordination by others such as the military and the federal and state agencies. This criticism may equally apply to the local community itself. Within local government, the various departments such as planning, public works, housing, airports and finance often act independently without adequate focus upon the common goal of successful reuse. Communities want the military and the regulatory agencies to speak with one voice; the converse is equally important.

Communities, the military and regulatory agencies have addressed the complex base closure problems with varying degrees of success. Analysis of the "successful" closures and reuse plans suggest several key principles:

1. A local reuse authority having widespread representation should be immediately *(continued on page 6)*

INSIDE -- FEATURED FORUM TOPIC:

Air Quality: Emission Reduction Credits and Conformity

Current Status of California Reuse Efforts

(Note: Source: Governor's Office of Planning and Research, revised September 6, 1994)

Military Base	Number of Acres	Local Reuse Authority Formed	Reuse Plan	Environmental Impact Statement	First Deed or Lease Transfer	New Employment
Mather Air Force Base, BRAC I, Closed	5715	Yes	Yes	Yes	Yes	25
Hamilton Air Force Base, BRAC I, Partly Closed	1057 +	Yes	No	(Parcel 1, yes)	No	0
Presidio of San Francisco ¹ , BRAC I, Partly Closed	1480	N/A	N/A	N/A	N/A	0
George Air Force Base, BRAC I, Closed	5347	Yes	Yes	Yes	Yes	0
Norton Air Force Base, BRAC I, Closed	2288	Yes	Yes	Yes	Yes	250
Salton Sea Navy Base ² , BRAC I, Closed	20000	N/A	N/A	N/A	N/A	0
Sacramento Army Depot, BRAC II, Closed	485	Yes	Yes	Yes	No	0
Hunter's Point Naval Annex, BRAC II, Transferred	522	Yes	No	Yes	Yes	100
Moffett Field Naval Air, Station ³ , BRAC II	1500	N/A	N/A	N/A	N/A	N/A
Fort Ord Army Base, BRAC II	28000	Yes	Yes	Yes	Yes	0
Castle Air Force, BRAC II	2777	Yes	Yes	Yes	Yes	50
Long Beach Naval Station, BRAC II	509	Yes	Yes	No	Yes	0
Tustin Marine Corps Air Station, BRAC II	1600	Yes	No	No	No	0
Alameda Air Station, BRAC III	1734	Yes	No	No	No	0
Naval Public Works, Alameda ⁴ , BRAC III	None ⁵	N/A	N/A	N/A	N/A	N/A
Mare Island Naval Shipyard, BRAC III	5460	Yes	Yes	No	No	0
El Toro Marine Corps Air Station, BRAC III	4738	Yes	No	No	No	0
Naval Hospital, Oakland, BRAC II	183	Yes	No	No	No	0
San Diego Naval Training Center, BRAC III	546	Yes	No	No	Yes	300
Treasure Island Naval Station, BRAC III	408	Yes	No	No	No	0
March Air Force Base, BRAC III	7000	Yes	Yes	No	No	0

Notes:

- 1 The Presidio has been transferred to the National Park Service.
- 2 Not applicable due to the remote location of the base.
- 3 Moffett is a federal to federal transfer and does not require local input or an EIS.
- 4 NPWC is an administrative operation and does not involve reuse of facilities, but rather transfer of functions.
- 5 Tenant at Oakland Army Base.

Leveling the Playing Field:

Understanding the Military's Obligation for Environmental Cleanup

To effectively negotiate property transfers from the military to the local reuse authorities, the local communities must understand the military's obligations for environmental cleanup. To develop effective marketing and financing plans, the communities must further understand how these obligations differentiate military base property from other development opportunities in the region. In many private transactions, seller assurances that it will complete cleanup before transfer of title and further cleanup contamination found after title passes are frequently not available. The military must do both. In private transactions, the financial ability of the seller to assure cleanup is always questioned. More confidence is typically placed in the U.S. Government, particularly by lenders. Thus, in many ways, development of contaminated property at a former military base is more not less attractive to private investors and lenders.

In many ways, development of contaminated property at a former military base is more not less attractive to private investors and lenders.

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) [42 U.S.C. Section 9601 et seq.] both authorizes the federal government to investigate, contain and remove hazardous waste, and provides authority for funding the cleanup of hazardous waste sites. Under CERCLA, the US EPA is required to devise a national response plan for hazardous waste cleanup and may then seek reimbursement for the cost from any responsible party (42 U.S.C. Section 9604-9607). In the alternative, EPA may order a responsible party to clean up a site where there is an actual or threatened release of hazardous waste (42 U.S.C. Section 9606(a)).

In 1986, Congress enacted the Superfund Amendments and Reauthorization Act (SARA), Public Law Number 99-499, 100 Stat 1613, which amended CERCLA in a number of respects. Section 120(h) was added to address the issue of hazardous waste on federally-owned sites (42 U.S.C. Section 9620).

Of principal importance to military base closing communities:

1. Section 120(a) provides that federal agencies are subject to the same provisions of CERCLA as private entities. Sections (b)-(f) outline a comprehensive program designed to identify and cleanup hazardous waste sites.
2. Section 120(h) governs the transfer of property owned by the federal government which is known to contain hazardous waste (42 U.S.C. Section 9620(h)). Section 120(h)(1) provides that when an agency enters into a "contract for the sale or other transfer" of real property on which hazardous waste was stored for a year or more, or known to have been released or disposed of, the contract must contain notice of the location, type and quantity of the waste, and notice of the time at which the storage, release, or disposal took place (42 U.S.C. Section 9601(h)(1)). Section 120(h)(2) dictates the form and manner of the notice. Section 120(h)(3) governs the contents of deeds.
3. Section 120(h)(3) provides that each deed entered into for the transfer of contaminated property owned by the United States must contain the information required in the subsection (1) notice requirement. In addition, the deed must contain a covenant warranting: "(i) all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer; and (ii) any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States." Finally, any deed transferring contaminated property must contain "a clause granting the United States access to the property in any case in which remedial action or corrective action is found to be necessary after the date of such transfer...." (42 U.S.C. Section 9620(h)(3)).
4. In 1992, Congress acknowledged that the closure of certain military installations was causing economic hardship, and that cleanup was causing delay in the property transfer and thus its development (Public Law Number 102-426, Section 2). In an effort to balance the economic and environmental considerations, Congress encouraged remedial action at federal facilities to be expedited in order to insure environmental safety as well as facilitate a timely transfer of property to mitigate the adverse economic impacts on the community. Under the provisions of the Community Environmental Response Facilitation Act (CERFA), Congress amended Section 120(h)(3) as follows: "For the purposes of subparagraph (b)(i), all remedial action described in such subparagraph has been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the administrator to be operating properly and successfully. The carrying out of long term pumping and treating, or operation and maintenance, after the remedy has been demonstrated to the administrator to be operating properly and successfully does not preclude the transfer of the property." 42 U.S.C. Section 9620(3)(C).

Featured Forum Topic --

Air Quality Regulations: Emission Reduction Credits and Air Quality Conformity Determinations

(Part 1 of 2)

140 years ago, Chief Seattle of the Duwamish People made an impassioned plea to the President of the United States to protect the Indian way of life at the time the federal government was offering to buy their land. He stated:

"How can one buy or sell the air, the warmth of the land? That is difficult for us to imagine. If we don't own the sweet air and the bubbling water, how can you buy it from us?"

Obviously Chief Seattle had never met lawyers. The air has become a legal, marketable commodity, and "clean air credits" commonly known as air emission reduction credits, are valuable for military base closure and reuse purposes. This increasingly scarce commodity may create a significant hurdle to any large scale development, including the reuse of military bases.

All of California's major closing bases are located in "non-attainment" areas where air pollution levels exceed federal standards. California itself has adopted ambient air standards that are more stringent than the federal standards for criteria air pollutants. New sources of air pollution relocating in "non attainment" areas must offset their air quality impact to cause "no net increase" in criteria air pollutants. Emission reduction credits (ERCs) may be required to achieve this offset before permits to construct or operate are issued. In addition, under the Federal Clean Air Act, certain federal actions must affirmatively demonstrate that they will not cause further violations of Federal Clean Air Act standards or delay their attainment; that is, the federal action must be in "conformity" with the Clean Air Act goals.

Background

Since as early as the Air Pollution Control Act of 1955, Congress has shown concern for the problems of air pollution. The Clean Air Act amendments of 1970 required states that did not meet and maintain national ambient air quality standards (NAAQS) to submit an attainment plan. Pursuant to the Federal Clean Air Act and revisions, the US EPA established ambient air pollutant concentration standards and emissions limitations for individual sources. These standards are designed to protect public health and welfare.

Pursuant to the 1990 Clean Air Act amendments, US EPA classified air basins as either "attainment" or "non-attainment" for each criteria air pollutant, based upon whether or not the NAAQS have been achieved. California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. Under the California Clean Air Act, patterned after the Federal Clean Air Act, areas have been designated as attainment or non-attainment with respect to the state ambient air quality standards.

The California Health and Safety Code Section 40914(a) requires that air districts design a plan to achieve an annual reduction in district-wide emission of 5% or more for each non-attainment criteria pollutant or its precursor, averaged every consecutive 3-year period beginning at base year 1987. Stationary and mobile sources of pollutants in California are regulated by the California Air Resources Board and 34 independent entities: air quality management districts for multiple-county regions or air pollution control districts for single county regions.

This extensive regulation of air quality in California poses two distinct issues for closing military bases and reuse communities:

- a. The preservation and use of air emission reduction credits to support redevelopment;
- b. Air quality conformity determinations as prerequisites for federal sponsorship of redevelopment activities.

1. Emission Reduction Credits

Pursuant to the Federal Clean Air Act and EPA policy statements, the California Clean Air Act requires that air pollution control districts or air quality management districts (collectively "districts") maintain a permitting program which is designed to achieve "no net increase" in emissions of non-attainment pollutants or their precursors from all permitted new or modified stationary sources. Among other things, compliance with this mandate includes reducing the emissions trigger level for offsets under programs typically known as "new source review" (NSR) programs. This modification is anticipated to increase competition for offsets significantly. Sources which choose to modify their existing facility or locate new facilities which increase air pollutant emissions above specified levels must obtain emission reductions from other sources to offset the proposed increase. Again, no net increase in emissions of non-attainment pollutants is allowed within an air district.

Featured Forum Topic --

**Air Quality Regulations: Emission Reduction Credits and
Air Quality Conformity Determinations (continued)**

The New Source Review Task Force, a subcommittee of the California Air Pollution Control Officers Association (CAPCOA) was assembled to assist the California Air Resources Board in evaluating the requirements of the California Clean Air Act and to recommend changes to permitting programs necessary for compliance. A technical support document was prepared by the ARB entitled "Permitting Program Guidance for New and Modified Stationary Sources in Non-Attainment Areas," and contains the Task Force recommendations and is the basis of many of the proposed changes. The proposed changes contained in the guidance document includes revisions to the calculation provisions, the creation of a community emissions bank, a source emissions bank, and mobile source offset provisions. The "offsets" or emission reduction credits have become a major tool in air quality attainment plans. For example, in non-attainment areas, a facility that produces air emissions can obtain ERCs from the local air district prior to closing and then transfer these ERCs to any future facility which will cause or increase air pollutant emissions above specified levels. The ERCs would entitle the future facility to produce comparable or lower levels of air emissions. Without an ERC, it may be difficult or impossible for a facility to obtain needed air permits to conduct activities on closing military bases.

ERCs may be created from the closure or downsizing of military operations. The military considers ERCs as its "personal property," subject to its usual rules for property transfer to the local communities. Regulations governing transfer of ERCs were not included in the recently issued Pryor Amendment regulations, but are expected to be shortly issued separately. Local communities must either acquire the ERCs necessary to support from the military or other sources. ERCs may be difficult and costly to obtain from non-military sources.

II. Air Quality Conformity Determinations

The 1990 amendments to the Federal Clean Air Act revised Section 176(c)(1) to provide:

"No department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an implementation plan after it has been approved or promulgated under Section 74110 of this Title....The assurance of conformity to such an implementation plan shall be an affirmative responsibility of the head of such department, agency or instrumentality."
(42 U.S.C. Section 7506(c)(1)).

The Federal Act goes on to define conformity to an implementation plan as:

"(a) conformity to a implementation plan's purpose of eliminating or reducing the severity in number of violations of the national ambient air quality air standards and achieving expeditious attainment of such standards; and

"(b) that such activities will not (i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

The Federal Clean Air Act places an affirmative responsibility on the federal agency to conform to the state's implementation plan for achievement of federal air quality standards, and requires that the conformity determination be based on the most recent estimate of emissions and further requires that these estimates be derived from "the most recent population, employment, travel and congestion estimates as determined by the metropolitan planning organization or other agency authorized to make such estimates."

Property transfers from the military to the local reuse authorities were exempted from conformity determinations under US EPA regulations for general conformity issued in November 1993. However, other federal sponsoring agency actions, such as the decision of the Federal Aviation Administration (FAA) to sponsor a local community's airport layout plan or finance airport operations, are not exempt from the conformity requirements. Arguably, a federal conformity determination is a necessary prerequisite to implementation of any activity requiring federal sponsorship, other than the transfer of the property from the military itself.

Next month, our Featured Forum topic will explore in depth local community strategies to acquire and preserve ERCs & to assure conformity findings do not hinder implementation of reuse plans.

Continued from Page 1: Key Principles Underlying Successful Base Reuse

formed to develop the community reuse plan. The time for "denial" following the final decision to close the base is very brief. Opportunities for successful reuse may be very time sensitive.

2. Federal, state, McKinney homeless assistance, and real and personal property screening must be conducted early to identify and inventory that property available to the local reuse authority for reuse planning. Non-traditional property interests, such as air emission reduction credits, mineral or water rights, sewer capacity, and easements must also be assessed.

3. Areas of opportunity and constraints should be identified and mapped for the entire base. Opportunities should be evaluated locally, regionally, statewide and nationally. The physical boundaries of the base should not artificially confine reuse planning and opportunity identification. The proximity of other closing bases with similar reuse goals must also be critically examined. Constraints should include environmental cleanup considerations and be evaluated for time sensitivity as well as permanence.

4. A comprehensive strategy for realizing identified reuse opportunities and removing constraints should be formulated early. This strategy will be continually refined. It should include strategies for interim reuse, acquisition of utilities and other infrastructure, financing improvements and marketing opportunities. Interim leasing strategies may profitably exploit valuable short-term land use opportunities, even if such land uses may not ultimately be part of the long-range plans. Acquisition and upgrading of utilities and other infrastructure are necessary prerequisites to implementation of reuse plans. Public funds should be used to leverage private capital. Marketing should extend beyond the region so that real net economic growth is achieved.

The local reuse authority must evaluate its ability to plan for reuse through its zoning and entitlement process as well as its direct ownership

planning, even if ultimately owned by the military, federal or state governments or the private sector, and property available for direct reuse planning when owned by the local reuse authority or other local jurisdictions. The local reuse authority must evaluate its ability to plan for reuse through its zoning and entitlement process as well as its direct ownership.

7. The preliminary reuse plan should influence other parallel processes. NEPA and CEQA compliance should evaluate the reuse plans prepared by the local communities, not plans developed by the military. The reuse plan should help design cleanup strategies, cleanup standards and priorities, as well as develop marketing and financing strategies.

5. A preliminary reuse plan should be prepared with widespread community and expert input. The plan must be realistic, capable of implementation, and able to be financed.

6. The preliminary reuse plan should identify both property to be indirectly affected by reuse

8. At some point discussion must end, and a community reuse plan must be formally adopted and supported by the local entity with actual land use authority.

9. The adopted community plan will initiate local general plan amendment and entitlement processes, establish reuse priorities, schedules for timing and phasing of development and infrastructure upgrades, and a comprehensive marketing strategy. Environmental cleanup should be coordinated closely with reuse so that cleanup standards, budgeting, priority setting, investigations, remedy selection and timing best enhance reuse potential. Methods to streamline and enhance the entitlement and environmental permitting process will add value to the reuse plans and enhance marketability.

Environmental cleanup should be coordinated closely with reuse so that cleanup standards, budgeting, priority setting, investigations, remedy selection and timing best enhance reuse potential

10. The local reuse authority must assess its needs for retained easements and other property rights to

assure compatible land uses and avoid inverse condemnation or eminent domain concerns. For example, transfers from the military to other federal or state entities or to the private sector must be subject to easements benefitting the LRA and necessary to support new roads, allow re-routing of infrastructure, and/or preserve airport overflight corridors.

11. The adopted community plan should form the basis for the military's comprehensive property disposal record of decision. The pros and cons of the nature of the various available property conveyance methods (public benefit conveyance, Pryor economic development, negotiated sale) should be evaluated by the local reuse authority.

12. Caretaking by the military until property is conveyed to the local reuse authority must be consistent with the adopted community plan, and the property disposal record of decision.

13. Parcel-specific proposals implementing the community plan and the property record of decision must be evaluated by the regulatory agencies for risk exposures to human and ecological receptors and to prevent disruption of ongoing cleanup efforts. Such evaluations assist in minimizing liability for the local reuse authority.

14. Successful reuse is dependent upon a cooperative not adversarial process, with the common goal kept firmly in focus by all participants.

In future issues of The Military Base Reuse Form, these key principles will be analyzed in depth. Our goal is to share common problems and strategies, so that information may be more efficiently managed, and all, not just a few, base conversions made successful.

Resources: Federal Assistance for Local Reuse Planning and Development

Financial assistance for reuse planning and development is very important to successful reuse. The importance of federal money is more critical in California because:

- a. Proposition 13 enacted in 1978, imposes severe limitations on the ability of the local communities to fund increasing demands for services. The lack of property tax funding limits options of reuse authorities and makes reuse much more difficult.
 - b. The shifting of responsibility for previously state-funded programs from the state to local communities has also decreased available local general revenues.
-

Two important sources of federal assistance are:

1. Department of Defense, Office of Economic Adjustment (OEA). OEA plays a critical role in local area efforts through the award of planning grants and provision of technical assistance. OEA's stated main initial objective is to "aid in establishing a community-based reuse group and to insure that the group is sufficiently representative of the community to warrant OEA's financial support."

OEA provides technical and planning assistance grants to local planning entities and recently to states, for projects ranging from analysis of expected tax revenues to be generated from proposed business ventures to aiding the conversion of surplus base facilities to civilian ventures. OEA has committed to average grants of \$1 million over 5 years and in exceptional cases, up to \$3.5 million over 5 years. OEA generally requires a 25% match, which may come from local sources or federal programs such as community development block grants.

Through the California community development block grant program, the Department of Housing and Community Development makes grants to small cities and counties for different community development activities. Eligible applicants are generally counties with a population under 200,000 and cities with a population under 50,000. Eligible participants in California include communities surrounding Fort Ord, Castle Air Force Base in Merced

County, and Solano County, which is affected by Mare Island. Jurisdictions are able to apply for up to \$800,000 annually, and \$1.2 million during any two consecutive years. Eligible activities include housing, rehabilitation, water and sewage projects, and economic development projects.

2. Department of Commerce, Economic Development Administration (EDA). In addition to the planning and technical assistance provided by OEA, EDA provides funding for reuse projects such as construction of infrastructure improvements and revolving business loan programs. OEA and EDA have entered into a memorandum of understanding to differentiate the focus of their planning and infrastructure money. A typical EDA grant ranges from \$75,000 to \$100,000, but grants exceeding \$1 million are not uncommon. These grants generally require a 25% match.

The EDA also offers sudden and severe economic dislocation grants to help communities develop and implement local economic adjustment strategies. A provision included in the 1994 Department of Commerce Authorization Act, now permits EDA to make grants for on-base projects that are needed to make private development possible. Such grants may be used for the necessary extensive repairs and upgrade on infrastructure, such as water, sewer, utilities and streets.

Resources: Governor Appoints Judy Ann F. Miller as Director of Military Base Retention for the Governor's Office of Planning and Research

Judy Miller of Alexandria, Virginia, was appointed in late August 1994 by Governor Pete Wilson as assistant to the Governor and Director of Military Base Retention for the Governor's Office of Planning and Research. She most recently served as Acting Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations and Environment, a position she held from January 1993 to April 1994. She has also served in several other capacities for the United States Air Force and the Army over 11 years, including: Principal Deputy Assistant Secretary for the Air Force (1990-94) and Deputy Assistant Secretary of the Army (1983-90).

This appointment is viewed by the Governor's office as a key component of the strategy to protect California during the 1995 round of base closures. Ms. Miller will work with local community officials, state agencies, and other interested parties to coordinate a statewide effort to avert, to the greatest extent possible, the number of additional California base closures. She will assist in the development of local strategies for individual bases, convene conferences to share technical information, meet and confer with officials of the Department of Defense and individual military services regarding the status of California bases, and disseminate this information to the public. She may be contacted through the Governor's Office of Planning and Research at (916) 322-3170.

Legislative Update

This month, *The Military Base Reuse Forum* looks at some of the laws considered in 1994 in California.

AB 1495 (Peace), signed by the Governor June 6, 1994. Enacted the Bergeson-Peace Infrastructure Bank Act that creates the California Infrastructure Bank within the California Housing Finance Agency, which would be renamed the California Housing and Infrastructure Finance Agency. Provides the Bank with responsibilities designed to carry out the purposes of the Act. Creates within the State Treasury the California Infrastructure Bank Fund which shall include various bond accounts.

AB 3204 (Cannella), signed by the Governor September 29, 1994. Prescribes procedures by which the federal government or a base reuse authority, as specified, may apply to a district for registration, certification, or other approval of any emission reductions related to the termination reduction of operations at a military base, as specified. Requires a district to quantify and bank the emission reductions for a closing or realigning military base with 180 days of a request by a base reuse authority.

SB 354 (Ayala), signed by the Governor September 25, 1994. Authorizes a lead agency to utilize an environmental impact statement prepared pursuant to federal law as the environmental impact report for a federal military base reuse plan, as defined, if specified conditions are met. Makes related declarations of legislative intent.

Upcoming Issues:

- Innovative ERC and Conformity approaches
- Summary of Federal Assistance Grant Awards
- Utility System Transfers
- McKinney Act Updates

SB 1257 (Ayala), signed by the Governor March 30, 1994. Requires the Secretary for Environmental Protection, in coordination with appropriate federal, state, and local agencies, to expand one-stop permit programs to provide for the development of defense installations converted to non-military use. Makes related legislative findings and declarations.

AB 3821 (Connelly), signed by the Governor September 25, 1994. Requires the California Defense Conversion Council to provide a central clearing house for all base reuse and defense conversion activities in the state, to develop and recommend to the Governor and the Legislature a strategic plan for federal, state, and local defense conversion and training programs, and to provide a central location for all military base reuse, community assistance and training funding, regulations, and application procedures.

SB 1925 (Thompson), vetoed by the Governor September 30, 1994. Authorizes contracting agencies that have employed former federal employees whose jobs were lost as a direct result of the closure of military installations in California to authorize those employees to receive public service credit for their federal service under specified conditions, and would prescribe employee and employer payment provisions. Authorizes contracting agencies to elect to be under an alternative provision containing no payment standards.

Subscription Information for *The Military Base Reuse Forum*

Subscription Rate: \$90 per year (\$75 for public entities and non-profit groups) 9 issues per year.

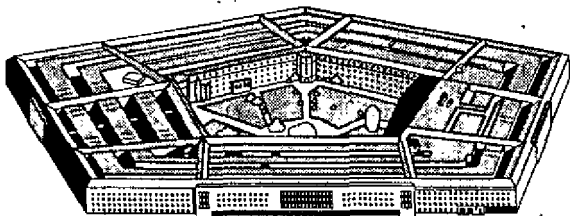
Publication Office: Yim, Okun & Watson, a Professional Corporation,
3745 Whitehead Street, Suite 101, Mather, California 95655
Telephone (916) 368-1591 Facsimile (916) 368-9219

Make checks payable to "Yim, Okun & Watson" and mail to the address listed above.

About the Editors...

Yim, Okun & Watson, a Professional Corporation, provides legal services regarding base closure and reuse to the County of Sacramento for Mather Air Force Base and the East Bay Conversion and Reinvestment Commission for the Alameda Naval Air Station. Randall A. Yim, a principal of Yim, Okun & Watson, is a member of the California Military Base Reuse Task Force, appointed by the Governor as the member with expertise in toxic cleanup. Yim, Okun & Watson is located at the former Mather Air Force Base, a 1988 base closure and a Superfund site.

DRAFT DOD ERC POLICY



Mary Kay Faryan,
Environmental Counsel
Naval Base San Francisco
(415) 395-4082

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DRAFT DOD BASE CLOSURE POLICY



- Allows DoD component to address both reuse and DoD needs
- Requires consultation between installation and reuse group

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DRAFT ERC POLICY



- Draft DoD base realignment and closure emissions trading policy developed by CAA implementation subcommittee, currently undergoing DoD coordination
- ERC's to be treated in separate policy so not included in DoD rule on revitalizing base closure communities and community assistance
- Final DoD policy expected by end of November 1994



STEPS IN THE PROCESS



- Step#1: Survey all BRAC/DBRAC installations by [date TBD] for 1988, 1991 and 1993 closures and within 12 months after BRAC 1995 approval. Survey must include
 - List of existing air permits, sources and whether permits are transferable
 - Where ERC programs exist, list of potential sources and estimated quantities of reductions



STEPS IN THE PROCESS (CONT.)



- Step #2: Make preliminary allocation of permits/ERC's into the following categories
 - Permits/ERC's needed for Installation Restoration Program
 - Permits/ERC's needed for operation of a unit, etc., transferring to a receiving location including those needed to satisfy conformity,
 - Permits/ERC's needed for other identified DoD requirements
 - Permits/ERC's needed for other identified federal agency requirements
 - Permits/ERC's needed to support reuse

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DRAFT DOD POLICY — FUNDING



- BRAC available to purchase ERC's needed for any BRAC realignments
- BRAC available to fund documentation/application for ERC's to be used for BRAC realignment
- Redevelopment authority expected to reimburse costs to document/apply

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STEPS IN THE PROCESS (CONT.)

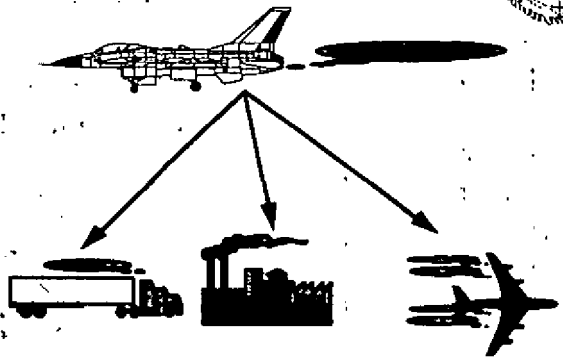


- Step #3: Make a final allocation of permits/ERC's after consultation with reuse group





AIR QUALITY ISSUES AT CLOSING BASES:



THE MILITARY PERSPECTIVE

Randal Friedman
Naval Base San Francisco
(415) 395-3916



ERC'S



- Difficult/costly to quantify
- May "lose" some of benefit
 - Districts "reserve" for attainment
- Solution: Transfer of permits
 - Minimal documentation
 - Assures continuation of existing land use
- ERC's necessary when
 - Future land use uncertain
 - Future land use has different emission



OVERVIEW



- Air quality issues significantly affect reuse potential
- Air quality issue resolution facilitated by early reuse planning
 - Need for ERC's
 - Application for Conformity Mobile Offsets
- Competition will likely exist

2



CONFORMITY OVERVIEW



- If your reuse plan has planes, highways, or some federal funding/approval you'll need to do this
- Mobile offsets may be required
 - Source will be closing base
 - Source difficult to quantify

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MOBILE OFFSET SOURCES



- Planes (all activities below 3,000 feet)
- Government vehicles
- Ground support equipment (varies)
- Employee trips
- Misc. e.g. on-base housing



LESSONS LEARNED



- Records are not good, may require assumptions to fill in gaps
- Reuse needs will be surprisingly large given scope of requirements
- You'll need every ton you can get
- A solid reuse plan is critical for resolving air issues early and identification of potential mitigation



SUCCESS WITH ERC'S/ CONFORMITY



- Suggestion: work with your base early on to fully quantify!!



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COMPETING INTERESTS



- As conformity requirement is better understood, more will be done
 - e.g. transportation projects, universities, other DoD projects, prisons, etc.
- Closing bases represent a scarce "pool" of mitigation
- Given preference for other government agencies, requests may come for these offsets
- The better documented the reuse need, the stronger the case for "reservation" of mobile offsets

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CBCEC Base Closure Workshop Series:
Air Issues Affecting Base Closure and Reuse
19 October 1994

**AIR FORCE CENTER FOR
ENVIRONMENTAL EXCELLENCE**
WESTERN REGIONAL COMPLIANCE OFFICE

GENERAL CONFORMITY

IMPACTS ON BASE REUSE

STEVEN ARENSON, PE
AFCEE/CCR-S, (415) 705-1673



AFCEE/CCR-S (ARENSON) 10/13/94

STATUTORY FRAMEWORK

"No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to a [State Implementation Plan]."



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19 October 1994

**DEFINITION OF CONFORMITY
(CAAA-1990)**

Federal actions must conform to
the *purpose* of the applicable
State Implementation Plan (SIP)



CONFORM TO SIP PURPOSE

FEDERAL ACTIVITIES MUST NOT

- Cause or contribute to new violations of any standard
- Increase the frequency or severity of any existing violations
- Interfere with timely attainment or maintenance of any standard
- Delay emission reduction milestones
- Contradict SIP requirements



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19 October 1994

CONFORMITY RULES

- Transportation Conformity Rule final on 16 Nov 93
- General Conformity Rule final on 30 Nov 93
 - General conformity rule effective 31 Jan 94
- Requires States to adopt conformity rule requirements within 12 months
- Applies to Federal agencies until states' conformity procedures are approved



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FEDERAL ACTIONS COVERED BY CONFORMITY

- Federal actions related to transportation plans, programs, and projects under Title 23 U.S.C. or Federal Transit Act subject to **Transportation Conformity** requirements
- All other Federal actions subject to **General Conformity** regulations



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19 October 1994

WHERE CONFORMITY APPLIES

- General Conformity Rule applies
 - In areas designated "non-attainment" for any of six criteria pollutants for which EPA has established NAAQS
 - In areas that attain the clean air standards and are designated as "maintenance" areas
- EPA intends to publish a supplemental Notice of Proposed Rulemaking to apply conformity in selected attainment areas



EMISSION TYPES

The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors that meet the following criteria:

- Caused by a Federal action
- Reasonably foreseeable
- Indirect emissions can practically be controlled by the Federal agency through its continuing program responsibility



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19 October 1994

DETERMINATION NOT REQUIRED IF:

- Emissions < *de minimis* levels and not regionally significant (10% of total emission budget for the area)
- Action is exempt or presumed to conform
- Action is covered by transportation conformity rule



DE MINIMIS THRESHOLDS

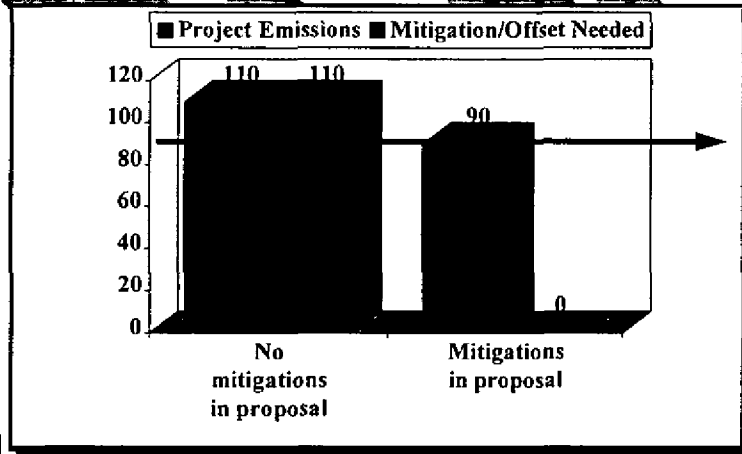
- Careful on how to describe proposal
- Proposal development can mean difference between *de minimis* or full-blown determination
- Carefully crafting proposal can lead to no need for mitigation or offsets



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19 October 1994

IMPORTANCE OF MITIGATIONS IN DESIGNING THE PROPOSAL



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FEDERAL AGENCY RESPONSIBILITIES

- Conformity determination must be based on analysis using criteria in General Conformity Rule
- Must consider comments from any interested party
- Federal agency may adopt another agency's analysis, but must make its own determination



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19 October 1994

A LOOK AT CERTAIN CONFORMITY CRITERIA

- Emissions are "specifically identified and accounted for" in EPA-approved SIP
- Emissions are "consistent with" post-1990 EPA-approved SIP
- Historic baseline comparison approach
- Modeling
- Offsets



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ANALYSIS ASSUMPTIONS

- Latest planning assumptions
- Latest emissions estimation techniques
- Modelling based upon latest EPA guidelines
- Reflect total emissions for each of the following years:
 - CAA mandated attainment year
 - Year of peak emissions
 - Year(s) SIP specifies an emissions budget



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19 October 1994

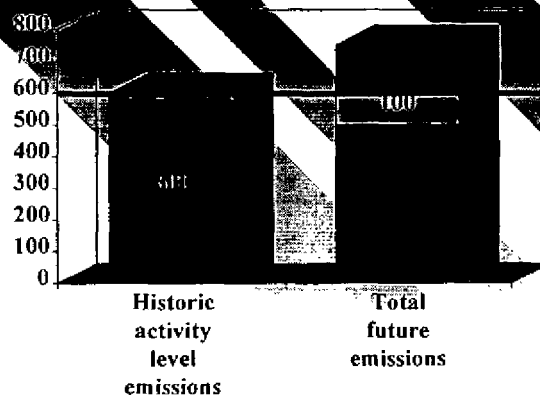
HISTORIC BASELINE COMPARISON APPROACH

- Painless, agency-friendly criteria
- No post-1990 EPA-approved SIP
- Calculate historic baseline emissions
 - Baseline year
- Future total vs baseline emissions
- If < baseline emissions, then conform
- If > baseline emissions, then only > exceeding portion nonconforms



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USING HISTORIC BASELINE COMPARISON TO TRIM NONCONFORMANCE



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19 October 1994

OFFSETS

- **Must be:**
 - Quantifiable
 - Consistent with SIP
 - Surplus to reductions required by SIP
 - State and Federally enforceable
 - Permanent
- Offsets from emissions trading program?



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REPORTING REQUIREMENTS

- Federal agencies must provide a 30-day notice describing their action and the **DRAFT** conformity determination.
- The 30-day notice must be sent to:
 - EPA Regional Office
 - State and local air quality agencies
 - Federal Land Managers (if within 100 km of Class I area)
 - Lead planning agency (where applicable)
 - Metropolitan Planning Organization (MPO, where applicable)
- Within 30 days of making a **FINAL** conformity determination, must again notify the above agencies



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19 October 1994

PUBLIC PARTICIPATION

- Federal agency must make public its *DRAFT* conformity determination
 - Place a notice in local newspaper
 - Provide 30 day for written public comment
- For *DRAFT* conformity determination, Federal agency must
 - Upon request, supply supporting materials which describe analyses and conclusions for applicability analysis and draft conformity determination
- Within 30 days of *FINAL* conformity determination, Federal agency must:
 - Upon request, make available public comments and its documented response to comments
 - Place a notice in local newspaper



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FREQUENCY OF CONFORMITY DETERMINATION

- Conformity status lapses after 5 years, unless Federal action is completed or continuous program commenced to implement the action
- If action is changed after conformity determination and total emissions increase, then a new conformity determination is required



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Air Permitting Issues: EPA's Perspective

Deborah Jordan
October 19, 1994

Air Permits

- Operating Permits
- Authorities to Construct

Federal Operating Permit

- New Clean Air Act req't.
- Existing bases: application deadlines '95-'96 (varies by district)
- Quantifying emissions is required

Authority to Construct

- Any construction that could emit or control pollution requires ATC
- For new emissions units, state-of-the-art control technology will be required
- If emissions increase, offsets may be necessary
 - Offset: a decrease to more than compensate for an increase in emissions

Bank of Emission Reduction Credits (ERCs)

- Bank is a system of preserving emission reductions
- Party that banks the ERCs retains control of their use
- Air districts have the right to take credits they need

Emission Reduction Credits

- Where do they come from?
 - Shutdowns of emission units
 - Over-control




Emission Reduction Credits

- Requirements
 - **Permanent:** for new source growth, credits must remain in place for life of source
 - **Quantifiable:** amount can be determined using reproducible techniques
 - **Surplus:** in excess of any regulatory or plan requirement
 - **Enforceable:** through permit



How to create ERCs

- Quantify emission reductions
- Bank credits to the extent possible
- Be aware of time constraints



Allocation of reductions

- New activities from reuse groups
- New activities at realigned bases
- Remediation at closing bases
- Conformity demonstration for certain new activities requiring federal approval



Summary

- Existing bases and new activities require operating permits and/or authorities to construct
- Offsets are needed by new activities
- Quantifying reductions is important

STATE ROLES IN BASE CLOSURE AND REUSE

**BEN WILLIAMS
GOVERNOR'S OFFICE OF PLANNING
AND RESEARCH**

**Alameda, California
October 19, 1994**

CONTENTS:

California Military Base Closures & Major Active Bases

1995 Military Base Closure Process

Executive Order W-81-94

Base Closure Legislation Signed by Governor Wilson in 1994

Summary of S 2534 (McKinney Base Closure Reform)

Current Status of California Base Closures

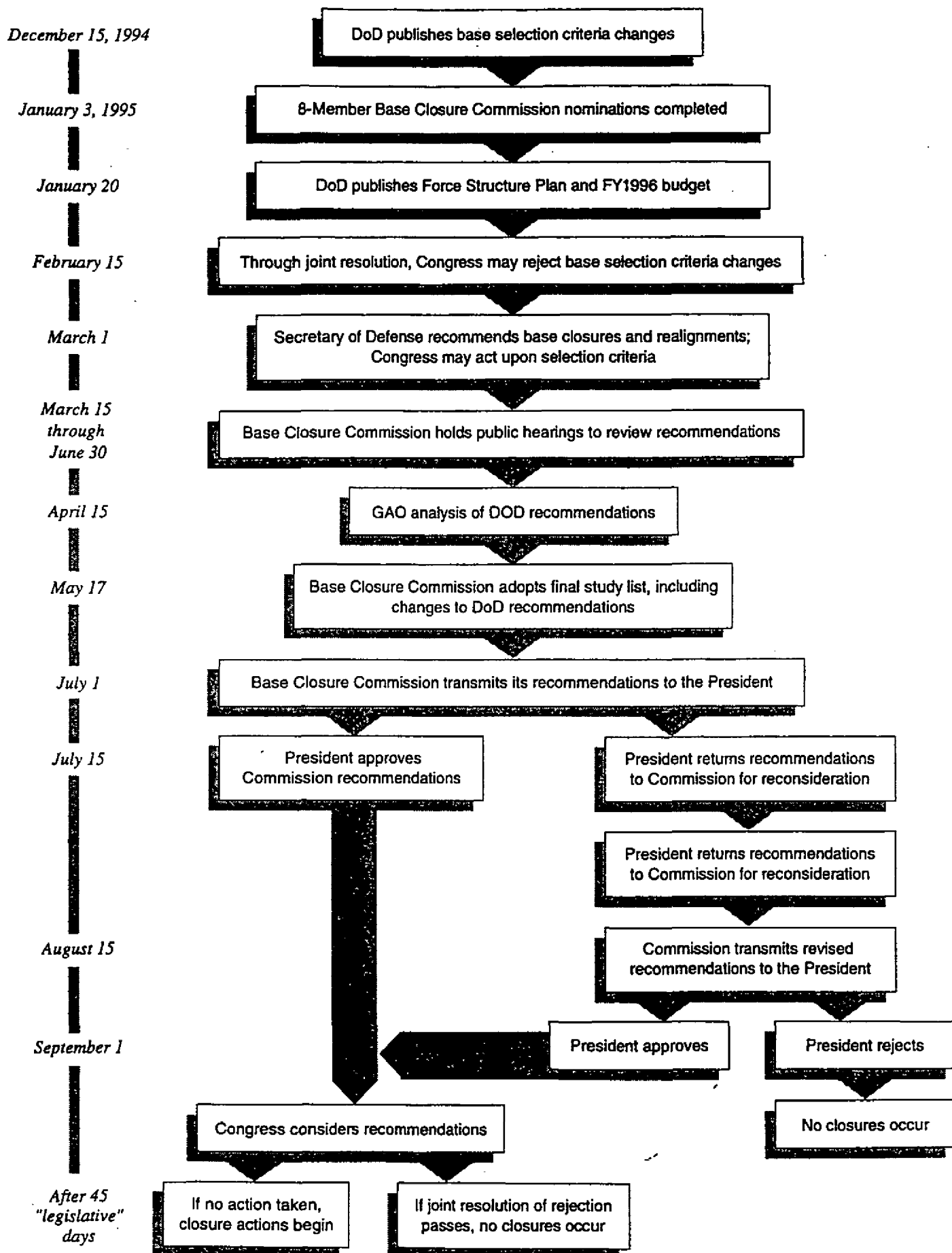
California Military Base Closures and Major Active California Military Bases

BASE CLOSURES:
1 Round 1 Closure, 1988
2 Round 2 Closure, 1991
3 Round 3 Closure, 1993



1995 Military Base Closure Process

BASE CLOSURE AND REALIGNMENT ACT



EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA



WILSON
GOVERNOR OF THE STATE OF CALIFORNIA

FEB 2 1994

5:15 P.M.
Tony Mullen

EXECUTIVE ORDER W-81-94

WHEREAS, California currently is faced with the closure or realignment of 22 major military bases, and faces the possible closure of additional bases in 1995; and

WHEREAS, these base closures have deepened the effects of the current recession in California and have caused severe economic dislocations in communities that are located adjacent to closing bases; and

WHEREAS, the California Military Base Reuse Task Force has issued its report on base closures and has documented numerous barriers that threaten to inhibit the successful economic reuse of military base facilities unless mitigated by local, State and federal actions; and

WHEREAS, the State of California has provided leadership in matters that affect closing bases, such as the remediation of toxic hazards, and has facilitated local initiatives planning for reuse of closing military facilities; and

WHEREAS, government at all levels must recognize that much greater efforts will be required to assist in military base reuse and to implement the recommendations of the California Military Base Reuse Task Force;

NOW, THEREFORE, I, PETE WILSON, Governor of the State of California, by virtue of the power and authority vested in me by the Constitution and statutes of the State of California, do hereby issue this order to become effective immediately, to promote the speedy conversion of closing California military bases and maximize their contribution to our State's economy.

1. State Military Base Reuse Policy

- a. It is the policy of the State of California that the successful economic conversion of military bases shall be given priority consideration in the implementation of State programs, regulatory pursuits, and allocation of resources for State-funded capital outlay projects. State agencies, departments, boards, and commissions (hereinafter referred to as "State agencies") shall regard base conversion as a priority matter and shall assist and cooperate with local base reuse entities to the maximum extent possible within their statutory mandates.

2. One Stop Public Access

- a. The Director, Office of Planning and Research shall be the lead state public contact for redevelopment of military bases. In addition, the Office of Planning and Research shall coordinate a comprehensive program to implement the recommendations of the Military Base Reuse Task Force through State and Federal legislation. All departments and agencies shall cooperate in this effort.

- b. ✓ The heads of all State agencies, departments, boards, and commissions shall designate a single point of contact for military base reuse issues and report the name of this individual to the Director, Office of Planning and Research or shall inform the Director that the agency anticipates no programmatic or reuse involvement in closing bases. The single point of contact shall be an individual who can represent the agency in policy matters relative to military base reuse.
- c. The Director, Office of Planning and Research shall notify all State agencies, departments, boards, and commissions which have designated a point of contact for base closures of the potential availability of base property and request notification of any interest within 60 days of such notice. Any final State reuse proposals shall conform with emerging local base reuse plans, unless a strong overriding State interest can be demonstrated.

3. Expedite Economic Assistance

- X a. The Secretary of Trade and Commerce shall develop and refine an ongoing program to aggressively market military base properties to State, national and international business interests, in consultation with local base reuse entities. The Secretary shall name a point of contact for each closing or realigning base and shall be the lead State agency for marketing base property.
- X b. The Secretary of Trade and Commerce, in conjunction with the Defense Conversion Council shall assume responsibility for developing and implementing all redevelopment strategy and funding assistance.

4. Expedited Regulatory and Resource Reviews

- X a. The Secretary of Resources and the Secretary of the California Environmental Protection Agency, in coordination with the Director of the Office of Planning and Research and the Secretary of Trade and Commerce, shall establish a resource and regulatory coordinating council, which shall involve representatives of appropriate departments, boards, and commissions having statutory oversight of regulatory and environmental issues affecting base reuse. The council shall periodically inform regulatory agencies of the status of base reuse planning and shall ensure that State actions are coordinated and consistent. The council shall resolve conflicts to the maximum extent possible.
- X b. The Secretary of the Resources Agency shall prepare a resource assessment and inventory for all closing bases, identifying natural resources and opportunities that may be present. These assessments shall be made available to local base reuse entities and State agencies.
- c. ✓ The Office of Planning and Research and the Resources Agency shall prepare advisory guidelines for use by local military base reuse entities to assist them with the integration of the environmental impact statements prepared by the federal agencies of jurisdiction the environmental impact reports required by the California Environment Quality Act. These guidelines shall be designed to minimize duplication and delays which may arise during the federal and State environmental reviews of proposed base reuse actions.
- d. ✓ All State regulatory and resource protection agencies are directed to coordinate any base specific activities involving hazardous waste remedial actions with the State member of the Base Cleanup Team.

PAGE THREE

- ? e. The California Environmental Protection Agency is directed to work with Federal agencies and the military to develop formal documents that will serve as certifications acceptable to future tenants and lenders that all necessary remedial actions have been taken at closing military bases.

5. Reporting

- ? a. The California Military Base Reuse Task Force may reconvene to hold public hearings, as appropriate, to ensure that the actions mandated by this order are carried out, and shall report to me on progress by September 1.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 24th day of February 1994.

Pete Wilson

Governor of California

ATTEST:

Tommy Miller

Acting Secretary of State



BASE CLOSURE LEGISLATION
ENACTED AND SIGNED BY GOVERNOR WILSON
DURING THE 1994 LEGISLATIVE SESSION

AB 1495 AUTHOR: Peace
 TITLE: Economic development and infrastructure
 ENACTED: 06/06/94
 CHAPTER: 94

SUMMARY:

Enacts the Bergeson-Peace Infrastructure Bank Act that creates the California Infrastructure Bank within the California Housing Finance Agency, which would be renamed the California Housing and Infrastructure Finance Agency. Provides the Bank with responsibilities designed to carry out the purposes of the Act. Creates within the State Treasury the California Infrastructure Bank Fund which shall include various bond accounts.

AB 2010 AUTHOR: Brulte
 TITLE: Redevelopment agencies: actions
 ENACTED: 08/26/94
 CHAPTER: 326

SUMMARY:

Authorizes the Inland Valley Development Agency to determine at a noticed public hearing that the amendment of a redevelopment plan for the Norton Air Force Base Redevelopment project area is not subject to the California Environmental Quality Act. Prohibits the funds of a redevelopment agency from being used to finance an action brought against a public agency, as specified.

AB 3204 AUTHOR: Cannella
 TITLE: Air pollution: closed military bases.
 ENACTED: 09/29/94
 CHAPTER: 1162

SUMMARY:

Prescribes procedures by which the federal government or a base reuse authority, as specified, may apply to a district for registration, certification, or other approval of any emission reductions related to the termination reduction of operations at a military base, as specified. Requires a district to quantify and bank the emission reductions for a closing or realigning military base within 180 days of a request by a base reuse authority.

AB 3755 AUTHOR: Honeycutt
 TITLE: Military base reuse
 ENACTED: 09/30/94
 CHAPTER: 1261

SUMMARY:

Requires the California Defense Conversion Council to hold special information meetings throughout the state on base reuse problems and issues and to review and comment on plans of state agencies that may substantially affect military base reuse. Also specifies a procedure for the recognition of a single local reuse entity for each military base closure in the state.

AB 3759 AUTHOR: Gotch
 TITLE: Military Base Reuse Authority Act
 ENACTED: 09/29/94
 CHAPTER: 1165

SUMMARY:

Enacts the Military Base Reuse Authority Act to authorize counties and cities located wholly or partly within the boundaries of a military base to establish a military base reuse authority to prepare, adopt, finance, and implement a plan for the future use and development of the territory occupied by the military base. Makes other related provisions.

AB 3769 AUTHOR: Weggeland
 TITLE: Air Force Base Redevelopment
 ENACTED: 09/29/94
 CHAPTER: 1170

SUMMARY:

Expands the definition of "affected taxing entity" to include specified local governmental taxing agencies in areas where there is no prior property tax assessment. Authorizes the March Joint Powers Authority, which is composed of the County and City of Riverside, the City of Moreno Valley, and the City of Perris to establish the March Joint Powers Redevelopment Agency and authorizes the agency to engage in redevelopment activities, as specified.

SB 899 AUTHOR: Mello
 TITLE: Reuse authority
 ENACTED: 05/09/94
 CHAPTER: 64

SUMMARY:

Authorizes specified local agencies in Monterey County to establish the Fort Ord Reuse Authority to prepare, adopt, finance, and implement a plan for the future use and development of the territory occupied by the Fort Ord military base in Monterey County. The authority would be governed by a 13-member board. Authorizes the board to acquire and dispose of existing real property and facilities within Fort Ord.

SB 900 AUTHOR: Mello
 TITLE: Redevelopment: Fort Ord
 ENACTED: 05/20/94
 CHAPTER: 87

SUMMARY:

Defines "redevelopment agency" for the purposes of the transfer of property at military bases pursuant to specified provisions of federal law to mean the Fort Ord Reuse Authority except with respect to property transferred to, or to be transferred to, the California State University or the University of California.

SB 1035 AUTHOR: Thompson
 TITLE: Mare Island Redevelopment Project Area
 ENACTED: 09/29/94
 CHAPTER: 1168

SUMMARY:

Adds to the Community Redevelopment Law a provision defining "affected taxing entities" to include, for the purposes of redevelopment project areas established within the boundaries of a former military base, any local governmental taxing agency that will have service and administrative responsibilities within a proposed taxing area where there is no prior property tax assessment. Authorizes the establishment of a Mare Island Redevelopment Project Area.

AB 4 a

AUTHOR: Baca
TITLE: Economic development: Norton Air Force
Base
ENACTED: 09/26/94
CHAPTER: 57

SUMMARY:

Extends to 2/1/95 the date for allocation of up to \$10,000,000 to fund special employment training agreements that are related to, and in response to, the establishment of a federal Defense Finance and Accounting Services facility at the existing site of Norton Air Force Base if the base is selected as the site for the federal facility.

THE MCKINNEY ACT & BASE CLOSURES SUMMARY OF S 2534 REFORMS

- Applies to all future closures; communities affected by previous closures may apply to DoD within 60 days of enactment to employ the new provisions; DoD must approve the request
- Directs Department of Health and Human Services (HHS) and Department of Housing and Urban Development (HUD) to halt processing of any McKinney transactions for 60 days
- Provides an initial period (9 months) for local base redevelopment authority to prepare a reuse plan for the base
- Requires all state, local, and homeless assistance interests to be filed with the local base redevelopment authority; nevertheless, final property disposal decisions remain with DoD, under existing property disposal laws
- Requires the local base redevelopment authority to consult with homeless assistance representatives in the preparation of the base reuse plan
- Requires the local base redevelopment authority to include in the reuse plan uses to address the needs of the homeless, based upon the need for homeless assistance in the community affected by the base closure
- Provides that any properties conveyed for the purpose of assisting the homeless shall revert to the local reuse authority at such time as they cease to be used for homeless assistance
- Requires HUD to review the reuse plan and determine if it meets the needs of the homeless
- Prescribes criteria to be used by HUD in determining adequacy of the plan
- If HUD determines the reuse plan adequately addresses homeless needs, the plan would be accepted by DoD for reuse of base properties by the homeless and the property would not be subject to any further homeless screening
- If HUD determines the reuse plan does not adequately address homeless needs, it must provide detailed reasons for the finding and a statement of the actions that the redevelopment authority may undertake in order to address that determination
- If, upon resubmission of a revised base reuse plan by the base reuse authority, HUD again determines that the plan does not adequately meet the needs of the homeless, HUD will review homeless applications received and make disposal decisions, which are transmitted to DoD as guidance for its property disposal actions
- Where the Secretary of Health and Human Services (HHS) has approved a homeless application prior to enactment of the bill, the local base redevelopment authority may offer equivalent property elsewhere on or off the base, subject to approval by HHS
- The timelines in the bill may be extended by DoD



PETE WILSON
GOVERNOR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814



LEE GRISSOM
DIRECTOR

**CALIFORNIA MILITARY BASE CLOSURES
CURRENT STATUS OF REUSE EFFORTS
Revised October 6, 1994**

NOTE: The Base Closure and Realignment Commission (BRAC) recommended military bases for closure in 1988, 1991 and 1993. This information is subject to revision and may not be current in all cases. The best source of accurate, detailed information on re-use status is the local base re-use planning entity. If there are any changes, please call the Office of Planning and Research at 916-322-3170.

.....

BRAC I (1988)

Mather Air Force Base CLOSED.....page 2

Hamilton Air Force Base ...PARTLY CLOSED.....page 5

Presidio Army BaseTRANSFERRED.....page 7

George Air Force BaseCLOSED.....page 9

Norton Air Force BaseCLOSED.....page 11

Salton Sea Naval Test Range.....CLOSED.....page 13

BRAC II (1991)

Sacramento Army Depot.....page 14

Hunter's Point Naval AnnexCLOSED.....page 16

Moffett Field Naval Air Station TRANSFERREDpage 18

Fort Ord Army Base.....CLOSED.....page 20

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Long Beach Naval Station.....CLOSED.....page 24

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BRAC III (1993)

Alameda Naval Air Station and Aviation Depot.....page 28

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Naval Hospital, Oakland.....page 35

Naval Training Center, San Diego.....page 36

Naval Station, Treasure Island.....page 38

March Air Force Base.....page 40

SUMMARYpage 42

Bulletin: Three California military bases closed on September 30; the Presidio, Fort Ord, and Long Beach Naval Station.

MILITARY BASE CLOSURES ANNOUNCED IN DECEMBER 1988 - BRAC I

MATHER AIR FORCE BASE

Location: The base is located in the unincorporated portion of Sacramento County, 12 miles southeast of downtown Sacramento.

Projected Closure: CLOSED

Area and Facilities: Mather is composed of 5,715 acres and 970,000 square feet of buildings and auxiliary facilities. It includes a 11,300 foot runway and a parallel 6,100 foot runway; four aircraft hangars; office and industrial structures; 18 dormitory buildings; and 1,276 units of single family housing.

Background: Immediately following the closure announcement for Mather in 1988, Sacramento County formed a commission to plan for the reuse of the base. The Sacramento Area Commission on Mather Conversion (SACOM-C) and its subcommittees grew to over 150 members. Simultaneously with the SACOM-C preparation of a reuse plan, the Rancho Cordova Chamber of Commerce began preparation of a reuse plan. The ultimate plan approved by the Sacramento County Board of Supervisors in the fall of 1991 represented a consolidation of the SACOM-C and Rancho Cordova Chamber of Commerce reuse plans. Following the Board of Supervisors approval of the reuse plan, the SACOM-C disbanded and the Mather Internal Study Team (MIST) was formed by the County. MIST is comprised of county staff representing various departments. A number of Community Advisory Boards continue to participate with MIST in the reuse planning and plan implementation process.

Plan Status: The Air Force Record of Decision (ROD) in March 1993 gave 1,791 acres to the County as a public benefit conveyance for use as a regional general aviation airport. "A Finding of Suitability to Lease" (FOSL) has been signed. The County will execute a long-term airport lease with the Air Force in October 1994, with a delayed effective date of January 1995, at which time the Air Force will have completed the Air Quality Conformity Determination. Both United Parcel and Airborne Express have expressed an interest in Mather.

Other conveyances will be as follows:

- * The Army National Guard and the Department of Veterans Affairs will receive direct property transfers from the DOD.

- The U.S. Forest Service and California Department of Forestry have a short-term lease with the Air Force for an airport facility. After the County leases the airport, these agencies will negotiate a long-term lease with the County.

- The Sacramento Housing and Redevelopment Authority (SHRA) will execute a lease by the end of the year of 28 acres and 300 housing units for low income and homeless housing under the McKinney Act. Rehab work is expected to begin in December with occupancy in April 1995. SHRA has received a \$12.8 million grant from HUD for this transitional housing project. In addition, SHRA is negotiating to buy 1,271 units of housing which would be renovated by two private

development firms.

- A chapel has been sold. A "Finding of Suitability to Transfer" (FOST) is complete and deed transfer is expected soon.
 - Another chapel will be leased and a FOSL has been prepared.
 - * A sports complex will be deeded this fall to the Rancho Cordova Parks and Recreation District who are currently operating the complex under an interim agreement with the Air Force.
 - The County Parks Department will sign a long-term lease this fall for a regional park area.
 - The County will purchase the golf course for \$6 million. Both a FOSL and a FOST have been prepared. The County is operating the course under a short-term lease until a deed transfer can occur.
 - * The California Department of Toxic Substances Control will sign a long-term lease for office space with the County, with occupancy by November.
 - * The Office of Emergency Services and the Department of Forestry are negotiating with the County to develop an emergency response operation at the airport. A law enforcement consortium is also negotiating to develop a training facility.
- An open house at the base will be held on October 6.

Toxics: The base is a NPL site with all surface contamination expected to be abated by December 1995. The present contamination is isolated in concentrated areas and should not interfere with most of the transfer to civilian control. As of October 1993, the Air Force has spent \$83 million, and expects it will take another \$200 million, to remediate the site.

Utilities: A Supplemental ROD is being negotiated for the public conveyance of the water and sewer system to the County. The roads will be donated to the County. The Air Force will negotiate with the County for the sale for the electric, gas and telephone lines. The County, in turn, will sell these systems. If negotiations are unsuccessful, the Air Force will auction the systems at public sale. Sacramento Municipal Utility District (SMUD) estimates that it will take \$3 million to bring the electric system at Mather up to code, and they have indicated that they will not pay more than \$1 for the system. Pacific Gas and Electric, PG&E, has indicated it has no interest in acquiring the gas system at Mather.

PacBell is undecided about what conduits can be reused at Mather. While there is currently some PacBell service straight through to users at Mather, most of the telephone distribution on the base is handled by the Air Force.

Financing Tools: The County plans to use Chapter 4 of the California Community Redevelopment Law to finance redevelopment at Mather through the use of tax increment revenue and bonded debt.

Grant Awards: OEA grant (\$367,500) to Sacramento County ('93)
CA TCA grant (\$12,500) to City of Sacramento ('93)
FAA AIP grant (\$175,000) to Sacramento County ('90)
HUD grant (\$12.8 million) to the County for transitional housing ('93)
Defense Conversion Assistance Program Grant (\$2 million) to Sacramento Parks and Recreation/ Sacramento Conservation Corps for start-up of Mather Regional Park ('94)
EDA grant application is being developed for \$8 million infrastructure

improvement project at Mather Airport.

Key Contacts: Rob Leonard (916-440-7991) is the County's Director of Military Base Conversion, 700 H Street, Suite 7650, Sacramento, CA 95814. Lt. Col. Scott Gerhart (916-364-4009) is the Air Force Base Transition Coordinator for Mather.

<i>Local Reuse Authority Formed</i>	<i>YES</i>
<i>Reuse Plan</i>	<i>YES</i>
<i>Environmental Impact Statement</i>	<i>YES</i>
<i>1st deed or lease transfer</i>	<i>YES</i>
<i>New Employment</i>	<i>-25-</i>

HAMILTON AIR FORCE BASE

Location: The base is entirely within the incorporated limits of the City of Novato in Marin County.

Date of Closure: Closed (Parcels 1 & 2) Open (Parcel 3)

Background: Hamilton Air Force Base initially closed in 1975, but the airfield (parcel 2) was transferred to the Army and the housing (parcel 3) was transferred to the Navy. The remaining property (parcel 1) was offered for sale, but a developer's plan for dense housing led to a community referendum overturning this reuse plan. The Army offered the airport to the community for \$1, but was refused. The Marin community has a strong slow-growth attitude, fed in part by the rush-hour gridlock on the Rt.101 corridor and the environmental constraints on the remaining nondeveloped properties.

Parcel 1, comprising 402 acres, including a number of old barracks and utility buildings, and located in the middle of the base, was auctioned by GSA in 1985. The winning bid of \$45 million came from a developer whose plans were later turned down by the community. A second developer, with City backing, now plans a \$275 million project in two phases calling for about 845 housing units, a range of 420,000 to 632,000 square feet of office space and 75,000 square feet of retail space. The project includes "capping" the landfill with a thick layer of soil. Special federal legislation in November 1993 reduced the original bid price of \$45 million to \$15 million due to the environmental limits of the property and to the inability to develop the landfill area. Parcel 1 has an approved Environmental Impact Report (EIR) and a plan approved by the City. A Memorandum of Agreement concerning historic preservation requirements has been signed by GSA, the developer, and the State Office of Historic Preservation. Phase 1 of the project involves office and housing development. Phase 2 also contains housing as well as a retail center, offices, parks, and open space. Upon close of escrow, the City will receive phase 2 of the property for \$1 and the developer will purchase back those portions of the property slated for residential, office and retail uses. The developer's concern about the community's reuse plan for the surrounding property and EPA clean-up timing constraints have delayed the project.

Parcel 2, which includes the airfield, was transferred by the Air Force to the Army after closure in 1975. The airfield was included on the 1988 closure list. The Army published its Notice of Surplus in November 1993 and the City expects to take over the property in 1995. The property, comprising 655 acres, is in a 100-year floodplain, and includes the runway, taxiway, flight line, and a few ancillary structures. The community has voted against airport development on this property. CalTrans and other local airport planning agencies in the Bay Area have also dropped Hamilton from their plans. The California State Coastal Conservancy is providing technical assistance to the City of Novato in proposing a public benefit conveyance for the purpose of wildlife and wetland restoration and preservation.

Parcel 3, which was transferred by the Air Force to the Navy in 1975, is comprised of approximately 1,500 housing units for Naval personnel who are in the process of vacating the property. However, the Navy's scheduled departure for March 1995 may be slipped to 1996. The City originally established the Hamilton Reuse Commission (HRC) to plan for this parcel. However, after the Navy decided to discontinue using the housing facilities in 1993 as a result of the BRAC III closures in the Bay Area, Marin County requested regional representation on the Commission. An agreement between the City and the County was reached and a new Hamilton Advisory Commission was formed. It includes 25 members, and is controlled by a multi-agency board with two representatives from the City, two from the County and two members at large that recommend to the Novato City Council. The final approval authority is the Novato City Council. A reuse plan is expected in October 1995. This plan will be comprehensive including the Army and Navy parcels as well as reflecting and planning around the sale parcel development approvals.

The reuse plan will research the condition of the existing housing units and determine which units can be retained for housing. The condition of infrastructure will be assessed, and buildings that the local community may wish to use for public facilities will be identified. Providing affordable housing and homeless facilities to serve the Novato area are goals of the reuse plan.

Toxics: Hamilton is not an NPL site. Other than the landfill, contamination is not extensive. The Navy estimates clean-up costs to be \$3 million.

Utilities: Utilities are an issue only at the Navy housing parcel. Naval Public Works, which is scheduled to close, currently provides all utilities and maintains all infrastructure at these 1500 units.

Financing Tools:

Grants: Application pending for OEA grant of \$1.4 million

Key Contacts: Rod Wood (415-897-4311) is the City Manager with responsibility for reuse at Hamilton, 901 Sherman Avenue Novato, CA 94945. Arnold Rossi (415-561-2805) is with the DOD Base Transition Office.

Local Reuse Authority Formed	YES
Reuse Plan	NO
EIS (parcel 1)	YES
1st deed or lease transfer	NO
Employment	-0

PRESIDIO OF SAN FRANCISCO

Location: The base is entirely within the jurisdiction of the City and County of San Francisco.

Projected Closure: TRANSFERRED

Area and Facilities: The Presidio encompasses 1,480 acres. The site contains 870 structures (510 are listed as historic), a national cemetery, 18 hole golf course and two hospitals.

Background: The Presidio was announced for closure in 1988. Federal law in 1972 created the Golden Gate National Recreation Area (GGNRA) which stipulated that if the Presidio was closed as a military base, it would become part of the GGNRA under National Park Service (NPS) management. Based on BRAC III recommendations, the Headquarters of the Sixth Army, including 380 military personnel, will remain at the Presidio. The Army, as a tenant, will occupy, operate and maintain 277 buildings, 600 units of family housing, and the golf course or about 30% of the base. The Army will pay \$12 million in rent and operating fees which will help offset the \$38 million annual cost to maintain the converted base as a national park.

Plan Status: The National Park Service's Final General Management Plan Amendment (GMPA) and the Final EIS for the Presidio was released in August 1994. The plan calls for preserving the cultural, natural, and recreational resources of the Presidio as well as transforming the buildings into centers of research, learning and education. Approximately 27% of the Presidio's 870 buildings will be removed, increasing the Park's open space from 780 acres to 1,000 acres.

The Plan envisions the main post as a visitor activity center, housing visitor services, public events, and international, environmental and cultural programs. Fort Scott will be rehabilitated for conference and training use and overnight accommodations. Crissy Field will be redesigned to balance preservation with public use; wetlands, riparian corridors, and dunes will likely be restored, maintenance buildings removed, the historic airfield restored, recreational facilities expanded, and bike routes and pedestrian paths improved. The Letterman complex will be utilized for a scientific research and education center; the NPS recently entered into negotiations with the Tides Foundation and UCSF concerning their potential tenancy at the Letterman complex.

Legislation is pending in the U.S. Congress that would create a public trust to manage assigned areas at the Presidio.

Toxics: Though not a NPL site, the Presidio has 10 landfills, underground storage tanks, and other areas where hazardous materials were released.

Utilities: PG&E owns 80% of the gas system at the Presidio, and the remaining 20% will be transferred to them. Although the gas system was renovated in the '80's, PG&E estimates that the maintenance costs for this system may not be recouped by anticipated revenue. The Army will pay PG&E \$700,000 to make up for this revenue shortfall.

The Army has transferred the electric system to the NPS. The system needs to be upgraded, and the NPS has put the project out for

bid.

The Army recently rebuilt the water and sewer system.

Financing Tools: Legislation is pending in the U.S. Congress that would create a public-private Presidio Trust to renovate and lease the Presidio buildings and reinvest profits in the park. The Trust could raise money privately through bond sales, borrowing and leasing.

Grant Awards: None

Key Contacts: Bob Chandler (415-556-0245) is the project director for the NPS, Presidio of San Francisco, CA 94102. Larry Florin is San Francisco's Manager of Military Base Conversion. (415-749-2400)

<i>Local Reuse Authority Formed</i>	<i>na*</i>
<i>Reuse Plan</i>	<i>na</i>
<i>Environmental Impact Statement</i>	<i>na</i>
<i>1st deed or lease transfer</i>	<i>na</i>
<i>New employment</i>	<i>-0-</i>

* The Presidio will transfer to the National Park Service

GEORGE AIR FORCE BASE

Location: The base is located within the incorporated limits of the City of Victorville, adjacent to unincorporated San Bernardino County land and the city of Adelanto.

Projected Closure: CLOSED

Area and Facilities: George Air Force Base (GAFB) covers 5,347 acres which includes two parallel runways (9,116 and 10,050 feet), 6.3 million square feet of ramp space and associated facilities; 1,641 units of housing; 14 dormitory buildings with 1,400 bed capacity; a hospital with a dental clinic; and various office and industrial structures.

Background: GAFB was announced for closure in December 1988 and actually closed four years later in December 1992. There has been a lack of consensus between the recognized reuse entity, the Victor Valley Economic Development Authority (VVEDA), which is a Joint Powers Authority with redevelopment powers comprised of the County of San Bernardino, the Cities of Victorville, Hesperia, and the town of Apple Valley; and the City of Adelanto which has chosen not to join the reuse agency. Thirty-two lawsuits have been filed, which have delayed economic recovery. Court orders stayed the VVEDA redevelopment plan and delayed implementation of the terms of the lease between the Air Force and VVEDA.

Plan Status: The Air Force issued a Record of Decision (ROD) in January 1993 which provided for a public benefit conveyance of 2,300 acres of the airport to VVEDA. The Air Force has executed a lease of the airport to VVEDA (about 2,300 acres). However, the airport lease was challenged in court by Adelanto and the court has stayed the transfer until certification of an EIR for the VVEDA Interim Operating Plan. This occurred on August 10, 1994. In the meantime, the Army has expressed an interest in leasing two buildings in the leased area for transshipment of troops to Ft. Irwin.

VVEDA is negotiating with the Air Force to lease the remainder of the base under an "economic development conveyance" similar to the one negotiated at Norton. "Public benefit conveyance" requests granted are:

- * Approximately 34 acres of officer housing overlooking the golf course, has been assigned to U.S. Health and Human Services (HHS) for disposal to homeless providers under the McKinney Act.
- * The Bureau of Prisons is awaiting transfer of 860 acres.
- Sale of the Credit Union is being negotiated.
- The chapel has been sold and is awaiting deed transfer.
- * The golf course will either be sold by GSA, or included in a negotiated sale package to VVEDA after a government appraisal is completed.

Toxics: George Air Force Base is a NPL site with an estimated cleanup cost of \$70-80 million. Groundwater cleanup has been going on since 1990 and is expected to continue for 20-30 years.

Utilities: Southern California Edison is preparing a bid for the electric system. Southwest Gas Co. may not be interested in purchasing the existing natural gas distribution system. However, all facilities will be served by the existing system until new lines are installed and/or negotiations are completed. The natural gas distribution system was upgraded by the Air Force circa 1987 and is capable of serving all buildings on base in its present condition.

The Public Utilities Commission has granted Edison a waiver from PUC rules, so that Edison can install a utility meter on a church structure which has been sold. Edison will bill the church, and deduct that amount, plus an amount for line loss, from the George AFB bill. An Absolving Service Agreement has also been signed by Edison and the church.

Financing Tools: Because VVEDA is a JPA, it formed its own redevelopment area. Joint Powers Redevelopment Authorities can incur bonded debt and use a variety of tax revenues to finance acquisition and development of properties.

Grant Awards: OEA grant (\$100,000) to Riverside/San Bernardino ('93)
CA TCA grant (\$16,650) to Riverside/San Bernardino County ('93)
EDA grant to VVEDA (\$50,000 in '90-91 and \$8.5 million for '94-98)
OEA grant to VVEDA (\$630,000 in '89-94)
FAA grant to VVEDA (\$118,000 in '91)

Key Contacts: Peter D'Errico (619-246-6115) is the Executive Director of VVEDA, Box 3007, Victorville, CA 92393. Dr. Gary Gray (619-246-5360) is the Air Force's Base Transition Coordinator at George AFB.

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	YES
1st deed or lease transfer	YES
New employment	-0-

NORTON AIR FORCE BASE

Location: The base is within the incorporated limits of the City of San Bernardino. It is surrounded by unincorporated areas of San Bernardino County and the cities of Redlands, Loma Linda, Highland, and Colton.

Closure Date: Closed

Area and Facilities: The base covers 2,288 acres including a 10,000 foot runway, offices, warehouses and industrial structures.

Background: Norton AFB was announced for closure in 1988. The Inland Valley Development Authority (IVDA) was organized as a joint powers authority (JPA) in January 1990 to handle the reuse of Norton AFB. The members include the County of San Bernardino and the Cities of Colton, Loma Linda, and San Bernardino. The members of IVDA and the Cities of Redlands and Highland organized an additional JPA, the San Bernardino International Airport Authority (SBIAA), in June 1992, to accept the public benefit transfer of the airport facility at Norton.

Plan Status: IVDA submitted its base reuse plan in June 1991, and the Federal Aviation Authority (FAA) approved the airport layout the following summer. In June 1993, the Air Force filed the final EIS and in December 1993 issued a partial ROD covering 1500 of the base's 2,288 acres.

The airport and most of the airport related facilities were conveyed to the airport authority. The airport authority has received a 5-year, \$20 million grant from the FAA Military Airport Program for construction purposes, the first such grant ever awarded in California. The airport is expected to be operational by January 1995, offering commercial services first and later adding passenger service. Lockheed Aircraft is leasing a facility at the airport to rehabilitate 747 aircraft.

The Air Force has accepted IVDA's bid of \$52 million to purchase 575 acres, using an "economic development conveyance" provision under the Pryor regulations, which require only the signature of the Secretary of the Air Force. IVDA would pay \$52 million, without interest, over a 15 year period, using a 40-60% profit split on lease and sale revenues. This allows IVDA to outlay funds now for improving roads, sewers, utilities and buildings at the site.

Other conveyances will be:

- The DOD will locate a Defense Finance and Accounting Service (DFAS) center at Norton, employing 25-40 people by October, and employing up to 750 when fully operational.
- Thirty-five acres will go to the U.S. Forest Service.
- Western Eagle, a homeless provider, originally requested the entire base under the McKinney Act. The request was later scaled back to five warehouses. However, due to organization problems, it was unable to fulfill its obligations. Housing now used by March AFB personnel will be screened for McKinney beginning in early 1995.

In September, the San Bernardino Police Department will begin leasing a temporary facility at Norton while a new headquarters building is built downtown.

IVDA broke ground in July for a \$9 million road improvement project funded in part by EDA.

Toxics: NPL site

Utilities: The utility system is outmoded. The Air Force may convey the electric and gas system to IVDA as part of their bulk sale purchase. IVDA would then negotiate with Southern California Edison to install new underground utilities as reuse occurs. Southern Edison would operate the old system as it builds a new one. The water and sewer system were conveyed through public benefit to IVDA.

Financing Tools: Because IVDA is a JPA, it formed its own redevelopment area. Joint Powers Redevelopment Authorities can incur bonded debt and use a variety of tax revenues to finance acquisition and development of properties.

Grant Awards: OEA planning grants (\$781,000)
EDA grant for \$6.5 million for road and upgrade of water lines.
General Telephone and OEA grant (\$50,000) to develop a small business incubator program.

Key Contacts: Bill Bopf (909-885-4832) is Executive Director of IVDA, 201 North E Street, 2nd Floor, San Bernardino, CA 92401.
Richard Bennecke (909-382-2007) is the Air Force's Base Transition Coordinator.

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	YES
1st deed or lease transfer	YES
New employment	-250-

SALTON SEA NAVY BASE

Location: The base is located in the unincorporated area of Imperial County, on the southwest corner of the Salton Sea.

Projected Closure: CLOSED

Area and Facilities: The base consists of nearly 20,000 acres, two-thirds of which are under water. There are about 20 small buildings which are in severe disrepair, since the base has been largely abandoned since the early 1960s.

Plan status: No planning entity has emerged in this remote, undeveloped area. The Federal screening process, which expires in May 1994, has resulted in an expression of interest by the U.S. Bureau of Land Management and the U.S. Fish and Wildlife Service.

Toxics: The base was operated by the Atomic Energy Commission from 1945-61 for classified research and testing. Significant contamination has not been found on land, though the water area is untested.

Key Contact: Roberta Burns is Imperial County's Assistant Administrative Officer with responsibility for Salton Sea Navy Base (619-339-4290), 940 West Main Street, Suite 208, El Centro, CA 92243.

Local Reuse Authority Formed	na*
Final Reuse Plan	na
Completed EIS	na
1st deed or lease transfer	na
New Employment	-0-

* Not applicable due to the remote location of the base

MILITARY BASE CLOSURES ANNOUNCED IN APRIL 1991 - BRAC II

SACRAMENTO ARMY DEPOT

Location: The Depot is located within the city limits of Sacramento, in an industrial area.

Projected Closure: The City of Sacramento is applying for Economic Development Conveyance of the site and anticipates taking title in Spring 1995.

Area and Facilities: The base occupies 485 acres, primarily including industrial and warehouse structures. The Army Reserve, California National Guard, and the Navy and Marine Corps Reserve Center will retain a total of 79 acres.

Background: The Army issued its Draft Environmental Impact Statement (DEIS) for base closure and reuse in January 1994. The Sacramento Army Reuse Commission adopted the reuse plan in June 1994, and the final EIS is expected in April 1995.

Plan Status: The Sacramento Army Depot Reuse Commission proposed that the Depot site be used for industrial purposes. The reuse plan has been presented to the City Council. Property requests include the following:

- The California Department of Corrections has requested 30 acres for a prison reception center. The request is supported by the City of Sacramento. The Corrections proposal includes an unprecedented agreement, subject to state budget approval, for the State to provide \$10 million to the City for youth crime prevention, job training, and neighborhood revitalization programs.

- * Sacramento State University requested a building for a Manufacturing Technology Center

- * Sacramento Fire Department requested 18 acres of vacant land for a training facility

- * CalTrans requested 43 acres for training activities

- * A community college district requested one warehouse for district-wide storage

The City will request the remaining portions of the base under an "economic development conveyance" provided for by the Pryor Amendment regulations. A decision is due in the fall 1994. The City is now in the process of designating this part of Sacramento, including the base, as a redevelopment area.

Packard Bell, the computer company whose plant in Northridge was damaged by an earthquake earlier this year, is considering locating an assembly plant and distribution center with 3000 jobs on 100 acres at the Depot. The decision to locate at the Depot hinged on SB 344, signed by Governor Wilson on September 23, designating the Army Depot as a state enterprise zone. This designation allows Packard Bell to qualify for tax incentives.

Toxics: NPL site. Cleanup is now underway and the site may be taken off the NPL by 1995 because of the effectiveness of the clean-up program.

Utilities: PG&E is studying gas lines at the Depot now. There may be only selected upgrades necessary. SMUD has indicated that it will not buy the electric system, and PacBell is not interested in the telephone system.

If the City receives the Depot under an economic development conveyance, it will operate as a private developer for the entire parcel. The utility systems would be maintained in "as is" condition until such time as it has funds to redo the utility systems, or sells the property to a private developer.

The Army estimates infrastructure requirements at the Depot to be as follows: \$3 million for water, \$11 million for sewer, \$3 million for rail, \$1 million for the gas system, \$2 million for the electric system, \$1 million for roads and \$1 million for the telephone lines for a total of \$22 million.

Financing Tools: The City of Sacramento plans to designate the depot site and the surrounding area as a redevelopment area. The depot site is a California enterprise zone program area, allowing tax advantages to firms locating within the area.

Grant Awards: OEA grant for \$199,010 to Sacramento ('93)
TCA grant for \$12,500 to the City (94)

Key Contacts: Bill Farley, Economic Development Manager (916-264-7223) and Debra Nyland, Business Development Coordinator (916-264-7145) are Sacramento's project directors for the Depot, 1231 I Street, Suite 200, Sacramento, CA 95814. Roger Staab is the DOD Base Transition Coordinator (916-388-3035)

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	YES
1st deed transfer or lease	NO
New employment	-0-

HUNTERS POINT NAVAL ANNEX

Location: The base is within the City of San Francisco, adjacent to the Bayview/Hunters Point District.

Projected Closure: CLOSED

Area and Facilities: The base occupies 522 acres, including docks, machine shops, warehouses, and office buildings. Effectively, Hunters Point Naval Shipyard (HPNSY) has been closed since the 1970's.

Background: In 1974, HPNSY was closed. The Navy retained the shipyard as one parcel, and a ship repair company signed a lease as a master caretaker tenant. In 1985, discussions between the Navy and the city lead to selection of HPNSY as a homeport for the USS Missouri battlegroup. Civilian tenants, who by this time numbered over 900, were told they would have to leave. This group organized as the Businesses of Hunters Point, and efforts by the Navy to dislodge them were blocked. By 1988, the Missouri homeport concept was cancelled. In 1991, BRAC II closed HPNSY, giving the City the right to negotiate a direct property transfer.

Plan Status: The present prospect is for fee title transfer of non-public trust lands to the City at nominal cost. HPNSY has been divided into 5 parcels for purposes of remediation. In January 1994, the Navy and City signed a memorandum of understanding outlining the transfer of the first parcel and subsequent parcels for \$1, with the city managing the remaining property and all civilian tenants. However, a delay due to detection of previously unknown contamination, has postponed city management. The San Francisco Board of Supervisors has advised the Redevelopment Agency to contract for interim property management with a non-profit corporation so that when management is handed over to the city, this corporation will assume responsibility for managing the base.

A number of small artisan shops are leased out on a "grandfather" basis. About 20-30 buildings are expected to be released by the Navy this fall after "Findings of Suitability to Lease", FOSLs, are completed. Set construction by a film production company has also just begun at Hunters Point.

Astoria Metals (Portland, OR) is awaiting a lease from the Navy to develop a ship-breaking business at HPNS which would employ about 300 people. Remediation for this activity is being negotiated, with ship-breaking expected to begin this fall.

Toxics: NPL site. Fifty two remedial investigation sites have been identified, some of which are beyond remediation. Liability is a major concern to the City and County of San Francisco. The Navy estimates clean-up costs to be \$335 million.

The 1995 DOD Authorization Act, which has passed the U.S. House of Representatives, includes an amendment offered by Congresswoman Pelosi, requiring preference in contract awards to companies which make a serious effort to hire local residents for clean-up and construction activities at bases scheduled for closure or realignment in their communities.

Utilities: In 1990, PG&E took over the gas and electric systems at Hunter's Point. The Navy guaranteed a specific revenue stream for ten years in exchange for upgrading the electric system. The gas system was abandoned.

Financing Tools: The City plans to use existing redevelopment law.

Grant Awards: OEA planning grant \$1.2 million (includes Treasure Island) EDA grant application pending for an inventory of infrastructure and transportation analysis for \$700,000.

Key Contacts: Larry Florin is the City's Coordinator for Base Conversion (415-749-2532), 770 Golden Gate Avenue, San Francisco, CA 94102. Commander Al Elkins is the Navy's Base Transition Coordinator

Local Reuse Authority Formed	YES
Reuse Plan	NO
Environmental Impact Statement	YES
1st deed transfer or lease	YES
New employment	-100-

MOFFETT FIELD NAVAL AIR STATION

Location: The base is within the unincorporated portion of Santa Clara County, but is in the sphere of influence of the Cities of Sunnyvale and Mountain View. It is bordered by these two Cities, NASA Ames Research Center and San Francisco Bay.

Closure Date: The Navy transferred Federal custody of the major portion of NAS Moffett Field over to NASA on July 1, 1994; the military family housing portion is retained by the DOD.

Area and Facilities: The base consists of approximately 1,500 acres. There are two runways of 9,200 and 8,150 feet, barracks and administrative buildings, and aircraft hangars. Additionally, there are 800 units of military family housing which is managed by Onizuka Air Station of the Air Force. The airfield is used by NASA, California Air National Guard, Reserve units of the Army, Navy and Marines, and various defense contractors such as Lockheed Missiles and Space Corp. and ESL Corp. (subsidiary of TRW). Airfield operations are performed by the California Air National Guard under an agreement with NASA.

Background: The Base Closure and Realignment Commission recommended that Moffett Field be transferred to NASA. NASA and several Silicon Valley contractors--strongly supported by Sunnyvale, Mountain View and other neighboring cities--agreed that the base should remain a federal enclave, to allow its continued use in research and shipment of defense and space program equipment. The City of San Jose initially expressed an interest in reuse of Moffett as a civilian airport, to relieve congestion at San Jose International Airport. However, the Cities of Mountain View and Sunnyvale were opposed.

Moffett is a federal-to-federal transfer which is exempt from NEPA. However, NASA has prepared an Environmental Assessment which analyzed impacts of its continued operation of the facility to the year 2010.

Toxics: NFL site. Cleanup is underway. The Navy has taken responsibility for all cleanup, including later discoveries, and estimates clean-up costs to be \$30 million for Fiscal Years 1994 through 1999 as discussed in the Navy's BRAC clean-up plan.

Grant Awards: None

Key Contacts: Charles Castellano is the Chief of the Moffett Transition Office (415-604-0903), Ames Research Center, Mail Stop 213-1, Moffett Field, CA 94035.

<i>Local Reuse Authority Formed</i>	<i>na*</i>
<i>Reuse Plan</i>	<i>na</i>
<i>Environmental Impact Statement</i>	<i>na</i>
<i>1st deed transfer or lease</i>	<i>na</i>
<i>New employment</i>	<i>na</i>

• Moffett is a federal-to-federal transfer and does not require local input or an EIS

FORT ORD ARMY BASE

Location: The base lies within 3 different political jurisdictions: the unincorporated portion of Monterey County, and the cities of Seaside and Marina. The cities of Sand City, Monterey and Del Rey Oaks border portions of the base, and Salinas' city limit comes within about one mile of the northeastern perimeter.

Closure Date: CLOSED

Area and Facilities: The base consists of approximately 28,000 acres and includes a small airfield; barracks; recreational areas; offices and stores; 6,366 family housing units; and a four mile stretch of beaches and sand dunes. Approximately two-thirds of the base land is undeveloped open space.

Background: The Fort Ord Task Force originally opposing closure in 1991, expanded after closure and became the Fort Ord Reuse Group. A county-wide community planning effort resulted in a June 1992 Task Force Strategy and a December 1992 preliminary base reuse plan. However, the Cities of Marina and Seaside throughout the process felt that their concerns were not given a weight commensurate with the impact the closure had upon their communities. This dispute has been resolved through enactment of SB 899 which creates a multi-jurisdictional, 13 member, Fort Ord Reuse Authority (FORA) which will plan, manage, finance, and implement the community plan.

Plan Status: The Army ROD of December 1993 calls for retention of 1,300 acres, mostly within the incorporated limits of Seaside, for a Presidio of Monterey Annex at which housing for the Defense Language Institute and Naval Postgraduate School is located. However, the Army is now expected to reduce the size of this enclave and is negotiating with the City of Seaside for the management and sale of two golf courses. Conveyances will include:

- The beach and dune area west of Highway 1, about 2000 acres, will probably become a state park.

- The U.S. Bureau of Land Management (BLM) will operate 15,000 acres or more for habitat mitigation.

- DOD will locate a Defense Finance & Accounting Service in a renovated hospital building at Fort Ord. Operations should begin in Spring 1995 with 500-700 employees.

- 1,340 acres for a California State University (CSU) campus was deeded to CSU on August 29, the first deed transfer of land at a closing military base in California. Fifteen million dollars has been appropriated in the federal budget to the CSU project, and \$9.3 million was appropriated in the state budget. This campus will serve 1000 students in 1995 and approximately 13,000 by 2010.

- 960 acres was transferred to UC Santa Cruz for a Science, Technology, Education and Policy Center. The Center ultimately will employ 10,000 people and include 5-7 million square feet of office, laboratory and production space.

• Congress has earmarked \$5 million for a Monterey Institute of International Studies.

* The community plan includes a campus of Golden Gate University, Monterey Peninsula Community College, Monterey Institute for Research in Astronomy, and Monterey Peninsula Unified School District.

Toxics: Fort Ord is on the NPL list. Soil and water contamination and unexploded ordinance are a problem. An 8,000 acre inland impact area (bombing range) may prove impossible to fully remediate. Current plans call for transfer of this area to the BLM as part of a basewide habitat management plan. Clean up cost estimates range from \$187-\$357 million.

Utilities: PG&E has estimated that upgrades to the gas and electric systems will be in the \$10 million range. Revenue from reuse tenants (CSU, UC, DFAS and the Army) will support PG&E's investment to upgrade the system.

Negotiations are underway for the conveyance of the telephone system to PacBell.

The Army maintained its own wells and distribution system at Fort Ord. The system was recently annexed into the Monterey Water Resources Agency, and includes a water-pumping limitation due to salt water intrusion. The scarcity of water may limit development in this region. More than one water agency may be interested in taking over the Fort Ord system.

Financing Tools: The Fort Ord Reuse Authority is not a JPA and cannot use current provisions of the Community Redevelopment Law. For this reason, SB 1600 has passed the California Legislature and is awaiting Governor Wilson's signature, allowing FORA to establish a Redevelopment Agency of Fort Ord, with specific tax-increment advantages.

Grant Awards: CEA grant (\$1,200,000) to Monterey County ('93)
EDA grant (\$1 million) to the County for business revolving loan fund ('93).

CA TCA grant \$200,000 to the County ('93) and \$100,000 ('94)

CA HCD grant \$500,000 ('93)

EDA grant for \$10 is being developed for the purpose of utility upgrades

Key Contacts: Joe Cavanaugh is the Project Director of the Fort Ord Reuse Authority (408-883-3672), 445 Reservation Road, Suite E, Marina, CA 93933. Kathleen Clack is the Army Base Transition Coordinator (408-242-0444).

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	YES
1st deed transfer or lease	YES
New employment	-0-

CASTLE AIR FORCE BASE

Location: Most of the base lies within the unincorporated part of Merced County. Part, however, lies within the City of Atwater. The base is also adjacent to the City of Merced.

Projected Closure: September 1995

Area and Facilities: The base consists of 2,777 acres. The main base contains an airfield, aviation support buildings, warehouses, and a 52 bed hospital. Two housing units, separated from the main base, include 1,707 dormitory beds and 933 family housing units.

Background: The Castle Joint Powers Authority was formed almost immediately after closure was announced in 1991. The two cities, Atwater and Merced, and the County of Merced were given equal voting representation. The JPA is now recognized in State law (AB 69, signed in 1993) as a redevelopment agency and the official reuse authority for the base.

Plan Status: The Air Force issued its draft EIS in January 1994, and the final EIS is due in October. The ROD is expected soon after. The Castle JPA, which is responsible for reuse planning, expects to submit its airport reuse plan in October and its base reuse plan in November 1994. The plan will focus on a commercial airport, probably consolidating several small area airports, including those in Atwater and Merced.

A sewer line is now under construction, linking the base sewer system with that of Atwater, and financed in part by an EDA grant.

The Bureau of Prisons has expressed an interest in building a new facility at Castle. They would acquire 600 acres, using 300 acres for building purposes and 300 acres for wetland mitigation.

Five homeless providers requested facilities under the McKinney Homeless Act. HHS has approved two applications conveying ten housing units at the Castle Vista housing complex. Merced County did not support a homeless coalition due to increased concern about the impact of homeless projects on economic development activities.

Reuse Tenants: Cascade Drayage is leasing two warehouses and a hard surface storage area to store Ragu tomato products. At the height of the tomato processing season, 25-30 truckloads a day of Ragu tomato products are delivered to leased warehouses and open-air storage at Castle AFB. Cases are loaded on rail cars. A rail spur at Castle connects to the main Santa Fe line.

Lease negotiations are underway with seven companies, including Worldwide Aeros which expects to lease part of a hangar. This is a Ukrainian company, currently located at Atwater Airport, one of only three in the world to manufacture blimps. Currently, employment is 20 but initial employment at Castle is expected to be 80.

Toxics: Castle is a NPL site. Groundwater remediation is in progress.

Closure decision final ²² on 4-12-91

Utilities: PG&E supplies the base with gas and electricity. Gas lines on the base are not up to code and need to be replaced at a cost of about \$3 million. An electric system overhaul is estimated to be about \$7 million. However, the Public Utilities Commission requires that there be revenue-generating customers to justify this expenditure.

The City of Atwater's Water Department anticipates the need for an engineering study of the water and sewer system. However, no funds exist for such a study. Initial inspections indicate the system is not up to code. The City may determine that it is not feasible from a cost standpoint to take over the system.

Financing Tools: AB 69 in 1993 granted the Castle JPA expanded redevelopment authority on Castle Air Force Base in order to generate necessary revenues for infrastructure improvements. Tax increment revenue and bonded debt can be used to finance development.

Grant Awards: EDA grant (\$3,500,000) to Atwater for sewer connection
EDA grant (\$1,000,000 Revolving Loan Fund) to Merced ('93)
OEA grant (\$740,706) to Merced County ('93)
CA TCA grant (\$67,788) to Castle JPA ('93)
CA HCD grant (\$500,000) to match EDA revolving loan fund grant ('93)

Key Contacts: Dick Martin (209-357-3370) is Executive Director of the Castle JPA, P.O. Box 547, 2721 Winton Way, Atwater, CA 95301. Mike Miller (209-726-2170) is the Air Force's Base Transition Coordinator for Castle.

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	YES
1st deed transfer or lease	YES
New Employment	-50-

LONG BEACH NAVAL STATION

Location: The base is within the City of Long Beach and Los Angeles

Closure Date: CLOSED

Area and Facilities: The base closure consists of five physically separate parcels: the Naval Station includes dock space and structures (263 acres); the Naval Hospital (70 acres); and two Naval housing units within the City of Long Beach including 1,280 family units (132 acres); the Ocean Boulevard parcel containing a warehouse on a strip of land running along Ocean Boulevard (17 acres); and Naval housing within the San Pedro area of the City of Los Angeles (27 acres).

Background: In 1973, the Navy announced that it was reassigning 50 ships based in Long Beach, including 19,000 service personnel. This happened during a period when McDonnell Douglas had laid off 26,000 workers at its Long Beach plane manufacturing facility. In response to these job losses, the Long Beach City Council initiated a strong economic program so that, when the BRAC 1991 closure of the Naval Station was announced, the City's response was immediate. Responsibility for developing a reuse plan was given to the Naval Properties Reuse Committee, under the auspices of the city's Economic Development Commission.

Plan Status: The status of the five parcels is as follows:

- *The Naval Station proper will be divided between the Naval Shipyard and the Port of Long Beach. The breakwater spit area will go to the Port for development of a cargo facility area. All the structures and recreation facilities, other than the spit area, will go to the Shipyard.

- *The Cabrillo/Savannah parcel includes 1,280 units on 132 acres. Two hundred units on 26 acres have been transferred to HHS for a McKinney homeless project sponsored by the Christian Outreach Appeal (COA). (However, the COA's financial partner has pulled out of the project and COA is searching for a financial backer.) CSU/Long Beach Foundation will receive a parcel. Sixty-two acres have been transferred to the U.S. Department of Education for the Long Beach Unified School District, and 14 acres have been transferred to the Department of Labor for a Job Corps site. All structures, excluding the COA structures, will be demolished.

- The hospital site is divided into two parcels. Parcel A, containing the hospital, and Parcel B whose 35 acres revert to the City due to a reversion clause in the deed. The City is proposing a large retail center for the entire site, but there has been opposition from several neighboring communities. In addition, a homeless provider has requested the hospital parcel as has the Los Angeles County Office of Education. However, the McKinney rescreening process may conflict with previous agreements and a decision must be made by the Navy as to its future course of action.

- The San Pedro Reuse Committee has responsibility for planning both the Ocean Boulevard Parcel and the Taper Avenue housing area. At Ocean Boulevard, a homeless provider and the Los Angeles and Long

Beach school districts have expressed an interest in this strip of land. However, the Port of Los Angeles needs this parcel to build a rail spur to complete its new development project.

The Taper Avenue housing units located in San Pedro consist of about 45 buildings with 4 units in each structure. Recently, HUD declared two-thirds of this area unsuitable for homeless housing, due to its proximity to fuel storage tanks. These units had originally been requested by a homeless group under the McKinney Act. HHS must decide if this homeless provider is suitable, and the provider must decide if it is still interested in the parcel. The neighboring community is actively opposing a large homeless project.

Toxics: The Naval Station is not a NPL site although there is known toxic contamination at 8 sites. Remedial investigation/feasibility studies are due to be complete in the 4th quarter 1995.

Utilities: This issue is now being addressed by all parties. Southern California Edison is engaged in a preliminary assessment of the utility system.

Financing Tools: Development of the hospital parcel will be financed in the private market. The high school project at Savannah-Cabrillo will be financed through a bond sale, and the CSU project will issue private leases to businesses.

Grant Awards: OEA grant (\$381,000) to Long Beach

Key Contacts: Jerry Miller (310-570-3851) is the Economic Development Manager for the City of Long Beach, 230 Pine Avenue, Long Beach, CA 90802. Doane Liu is Chairman of the San Pedro Reuse Committee (310-547-0999). LCDR Kevin Barre (310-547-6875) is the Navy's Base Transition Coordinator for Long Beach NS.

<i>Local Reuse Authority Formed</i>	<i>YES</i>
<i>Reuse Plan</i>	<i>YES</i>
<i>Environmental Impact Statement</i>	<i>NO</i>
<i>1st deed transfer or lease</i>	<i>YES</i>
<i>New employment</i>	<i>-0-</i>

TUSTIN MARINE CORPS AIR STATION

Location: The base is within the City of Tustin with the exception of a small area containing the military housing in the City of Irvine.

Projected Closure Date: Final closure by 1999, with the first air squadron leaving for Miramar as early as August 1994.

Area and Facilities: The base covers 1,600 acres. There is a 3,000 foot runway, two blimp hangars listed on the National Register of Historic Sites, 12 barracks buildings, 140 office, storage and industrial buildings, and 1,539 housing units.

Background: The City never contested the closure of the Air Station when the closure decision was announced in 1991. Rather, the City Council immediately formed a base closure task force with representatives from all affected communities, including Orange County and the cities of Tustin, Irvine, and Santa Ana.

Plan Status: The community envisages an in-fill development in keeping with the surrounding community. This will include a 150 acre golf course, 80-100 acres of parkland, educational training facilities, residential neighborhoods, a corporate center focusing upon communications companies, and light commercial use.

The City contracted for preparation of the reuse plan (including zoning designations) and is preparing a joint EIS/EIR with the Marine Corps, funded primarily by the Marine Corps. A final reuse plan is due in March 1995.

Among the public conveyance requests are the following;

- * The California Air National Guard has requested 25 acres of prime land for a communications center, which is opposed by the City.
- * The Armed Forces Reserves have requested approximately 30 acres of land for the continued operation of a reserve center which is opposed by the City.
- * The U.S. Coast Guard has requested a 55 acre site containing 274 housing units to house Coast Guard personnel, which is opposed by the City. In fact, the Navy has agreed to Tustin's request to delay its decision on a U.S. Coast Guard request for housing until a fiscal impact study has been completed by the City in November.
- * A coalition of 26 homeless organizations is negotiating with the City to develop a strategy for accommodating the homeless at Tustin.

Toxics: MCAS Tustin is not a NPL site but it does have at least 11 potential hazardous substance contamination sites. EPA reportedly is evaluating the base for inclusion on the NPL.

Utilities: Southern Edison is engaged in a preliminary assessment of the utility system.

Financing Tools: The city plans to use California redevelopment law for development costs at Tustin.

Grant Awards: OEA grant (\$750,000) to Tustin ('92)
OEA grant (\$88,500) to Tustin ('92)
TCA grant (\$9,500)

Key Contacts: Christine Shingleton is Tustin's Assistant City Manager and is responsible for reuse planning at Tustin (714-573-3107), 300 Centennial Way, Tustin, CA 92680. Peter Ciesla is with the Closure Coordinator's Office for Tustin and El Toro (714-726-3389)

<i>Local Reuse Authority Formed</i>	YES
<i>Reuse Plan</i>	NO
<i>Environmental Impact Statement</i>	NO
<i>1st deed transfer or lease</i>	NO
<i>New Employment</i>	-0-

MILITARY BASE CLOSURES ANNOUNCED IN 1993 - BRAC III

NAVAL AIR STATION ALAMEDA NAVAL AVIATION DEPOT

Location: Most of the base is within the city limits of Alameda, although one of the airstrips protrudes into San Francisco Bay and, therefore, slightly into the City and County of San Francisco.

Projected Closure: Spring 1997

Area and Facilities: NAS Alameda covers 1,734 acres of dry land, including two intersecting runways (8,000 and 7,200 feet), a deepwater port, 1,513 housing units, and 2.5 million square feet of industrial space. The central core of NAS Alameda is a historic resource protected by the National Historic Preservation Act.

Background: The threatened closure of NAS Alameda in 1993 was adamantly opposed by the community. After the announcement of closure, the City of Alameda formed the Base Reuse Advisory Group to plan for reuse of NAS Alameda. An umbrella regional group, the East Bay Conversion and Reinvestment Commission (EBCRC) was formed by Congressman Ron Dellums, to act as a clearinghouse for all base reuse projects in the East Bay area. The group received a \$500,000 grant to undertake a one year pilot project outlining how a community closes a base. Five of its 37 members are on the Alameda Reuse and Redevelopment Authority.

Plan Status: The City of Alameda and Alameda County signed a joint powers authority agreement in April 1994. The Alameda Reuse and Redevelopment Authority is governed by a 9 member board comprised of 5 Alameda City Council members, the District 3 County Supervisor, the mayors of Oakland and San Leandro, and a representative from Congressman Ron Dellums staff. An interim reuse strategy is due in April 1995 and a final reuse plan should be ready by December 1995.

The Alameda Reuse Authority, in a letter to Secretary of the Navy, John Dalton, has requested a deference of "final determination on all outstanding property conveyance requests at NAS Alameda until the local Community Reuse Plan has been completed".

The FAA, city, and state officials have indicated that a public airport would be costly and possibly unworkable. A formal study will nevertheless be undertaken.

The U.S. Fish and Wildlife Service has requested 970 acres of land, including 375 acres of submerged lands for a wildlife refuge, to support a Least Tern nesting colony, located on the runway. Least Terns are an "endangered species." The Coast Guard has requested 582 housing units.

Seventeen homeless groups have indicated an interest in a total of 288 housing units. McKinney screening began on August 1.

The State Lands Commission is developing a strategy for reuse of military bases located on public trust lands. Approximately 70% of Alameda NAS is composed of fill material from San Francisco Bay.

Toxics: Although NAS Alameda is not currently an NPL site, EPA is

reportedly considering so listing it. There are 20 toxic sites under investigation, including two hazardous waste landfills. The Navy estimates the cost of cleanup at \$161 million. A draft "Base Cleanup Plan" was released in February 1994, but the cleanup levels used were based on existing use and not on residential use.

Utilities: PG&E, Alameda Bureau of Electricity, East Bay MUD and PacBell are in the process of discussing utility transfers.

Financing Tools: Under consideration at the moment.

Grant Awards: OEA grant (\$664,867) to Alameda County ('93)

Key Contacts: Don Parker (510-268-2870) is Executive Director of the Alameda Reuse Authority, 2263 Santa Clara Avenue, Alameda, CA 94612. Commander Al Elkins (415-395-3931) is the Navy's Base Transition Coordinator for NAVBASE San Francisco.

Local Reuse Authority Formed	YES
Reuse Plan	NO
Environmental Impact Statement	NO
1st deed transfer or lease	NO
New Employment	-0-

NAVAL PUBLIC WORKS, ALAMEDA

Location: This function is located on the Oakland Army Base which is located within the jurisdiction of the City of Oakland.

Projected Closure: The targeted closure date is Spring 1998. However, this date may change since it will be the last of the Bay Area BRAC facilities to close.

Area and Facilities: Naval Public Works Center (PWC) is headquartered as a tenant at the Oakland Army Base and has satellite operations at seven other sites around the Bay Area. PWC provides utility services, transportation services, maintenance and housing to customers at 17 installations on a cost reimbursable basis. PWC owns and manages 6,452 housing units at 11 Bay Area locations.

PWC has revenues of approximately \$270 million. The payroll for 1,618 civilian employees is approximately \$62 million. The housing operation budget is about \$40 million, and the cost of utilities is approximately \$90 million.

Plan Status: The impacted communities and the Navy are beginning to address the transfer of housing, utility systems, and management and maintenance functions at Hamilton, the Presidio, Mare Island, NAS Alameda, Oak Knoll Naval Hospital, and Treasure Island. PWC is also working with affected installations which are not closing, to ensure that services will continue. These are Concord Naval Weapons Station, the Coast Guard and Onizuka Air Force Base.

Toxics: NPWC is an office function. Toxic contamination is not an issue in this facility closure.

Grant Awards:

Key Contacts: Commander Al Elkins (415-395-3931) is the Navy's Base Transition Coordinator for NAVBASE San Francisco.

<i>Local Reuse Authority Formed</i>	<i>na*</i>
<i>Reuse Plan</i>	<i>na</i>
<i>Environmental Impact Statement</i>	<i>na</i>
<i>1st deed transfer or lease</i>	<i>na</i>
<i>New employment</i>	<i>na</i>

• NPWC is an administrative operation and does not involve reuse of facilities but rather transfer of functions.

MARE ISLAND NAVAL SHIPYARD

Location: The base lies entirely within the incorporated limits of the City of Vallejo.

Closure Date: All shipbuilding activity will end on Mare Island by April 1995. The base will close in April 1996.

Area and Facilities: The base covers 5,460 acres, 3,810 acres of which are wetlands or are submerged. There are 960 buildings, 4 dry docks, 20 ship berths, 2 shipbuilding ways, 3 finger piers, 21 large industrial sites, a school, 2 day care centers, medical clinic, 3 fire stations, a golf course, 2 athletic fields, 3 swimming pools, 9 tennis courts and riding stables. The 496 housing units may be leased by Travis Air Force Base.

Plan Status: Immediately after closure was announced in 1993, the City of Vallejo developed a two-tiered approach to reuse planning. The Mare Island Futures Legislative Committee addressed federal, state and local legislative issues and the Mare Island Futures Work Group developed a final reuse plan.

The Navy and the City of Vallejo are negotiating a "master lease" agreement which would define all functions and properties conveyed by lease to Vallejo, and those conveyed at closure. The "master lease" will include an agreement on the utility system transfer, police, fire, and maintenance services at the base.

On October 21, "Vallejo by Invitation" will be held at Mare Island. The event will focus on the opportunities available at the base and in this region. Invitations were mailed to commercial real estate brokers and related businesses, and targeted industries.

The State Lands Commission (SLC) is developing a strategy for reuse of military bases located on public trust lands. Mare Island, 70% of which is Bay fill and subject to the "public trust," will be a prototype for a cooperative project between the SLC and the City of Vallejo.

Public benefit conveyances for federal transfers have been requested by the following:

- The Coast Guard, a current tenant, wants to continue its search and rescue operation at the base.

- * The U.S. Fish and Wildlife Service has requested public benefit conveyance of nontidal wetlands for a National Wildlife Refuge and an environmental research center.

- The U.S. Forest Service has requested a facility for its regional headquarters, employing about 400 people.

- The Immigration and Naturalization service for a detention center.

- * The California State University system for unspecified facilities.

Toxics: The base is not a NPL site, but EPA is reportedly considering listing it. The Navy estimates that cleanup costs will be \$350 million.

Utilities: Transfer of the utilities will be included in the "master lease" agreement. The City will then negotiate with local utility providers. PG&E is completing its review of the gas and electric system, which appear to be in good condition.

Financing Tools: SB 1035, passed by the California legislature and awaiting Governor Wilson's signature, establishes a Mare Island Redevelopment Project Area and would utilize a combination of Community Redevelopment Law and Military Base Redevelopment Law created by AB 69 (Castle AFB) and SB 915 (Mather AFB). Tax-increment and bonding authority could be used to finance the cost of development.

Grant Awards: OEA grant (\$618,000) to Vallejo ('93)
OEA grant (\$680,000) to Vallejo ('94)
DOL grant (\$8 million) for manpower training and assistance
CA TCA grant (\$79,800) to Vallejo ('93)
CA TCA grant pending (\$90,700) to Vallejo ('94)

Key Contacts: Gil Hollingsworth (707-649-5452) is the conversion program manager for Vallejo. Dennis Kelly (707-646-9910) directs the Department of Defense's Mare Island base transition office.

Local Reuse Authority Formed	YES
Reuse Plan	YES
Environmental Impact Statement	NO
1st deed transfer or lease	NO
New employment	-0-

MARINE CORPS AIR STATION, EL TORO

Location: Most of the base lies within the unincorporated areas of Orange County. Three hundred acres are within the City of Irvine, and the City of Lake Forest abuts part of the base.

Projected Closure: 1999, but subject to acceleration

Area and Facilities: El Toro covers 4,738 acres, and includes 2 runways 8,000 feet long and 2 runways 10,000 feet long. There are aviation-related structures, hangars, maintenance buildings and 1,188 housing units.

Plan Status: The El Toro Reuse Planning Authority, a joint powers planning agency, has formed, consisting of a nine member Board of Directors - 5 Orange County Supervisors, 3 Irvine City Council members, and 1 Lake Forest City Council member. The Board is supported by a 50-member Executive Council, representing the County, 31 cities, the business community, university community and the unincorporated areas. The Executive Council, which is supported by five advisory committees, plans to develop three reuse plans, one of which will focus on creation of an airport and two of which will not include an airport. The three plans will be submitted to the Board of Directors, who will choose one to be submitted to the Navy. The reuse plan is due in September 1995.

Two other groups, the Orange County Regional Airport Authority and the South County Working Group, have organized both for and against an airport option, respectively. A referendum on the airport option at El Toro will be on the November 8 ballot.

Officials of the Irvine Company and the Department of the Interior (DOI) have discussed a possible land swap of El Toro in return for 10,000 acres that Irvine owns in the Santa Ana mountains adjacent to the Cleveland National Forest. The Navy has given DOI until November to file a proposal.

Toxics: NPL site.

Utilities: Southern Edison is doing a preliminary assessment of the gas and electric system.

Financing Tools: A JPA can form its own redevelopment area. Joint Powers Redevelopment Authorities can incur bonded debt and use a variety of tax revenues to finance development.

Grant Awards: A grant application for reuse planning has been submitted to OEA. A FAA grant for an airport feasibility study was made to Orange County.

Key Contacts: Jack Wagner is the Senior Staff Analyst for the JPA (714-834-6758). Peter Ciesla is with the base transition office (714-726-3389).

NAVAL HOSPITAL, OAKLAND

Location: The hospital, also known as Oak Knoll, lies within the city limits of Oakland.

Projected Closure: Fall 1996

Area and Facilities: Located on 183 acres in a park-like setting, the 9 story medical complex is surrounded by 75 buildings, including 81 housing units. The hospital structure does not meet hospital seismic requirements, but could be renovated as an office building for \$7-10 million.

Plan Status: The City of Oakland has created a 52 member Task Force, composed of local residents, businesses and three members of the City Council to develop reuse options for the property. The plan will probably focus on mixed-uses. The City has decided to form a joint powers authority with representation from the surrounding community and the County. A reuse plan is expected in September 1995, and a joint EIS-EIR will be prepared.

The Oakland Parks and Recreation Department has requested a public benefit conveyance of recreation facilities.

The hospital property is located on I-580, ten miles from downtown Oakland, and surrounded by residential communities, with some commanding East Bay views.

Toxics: Little contamination is expected. The Navy estimates clean-up to cost \$8 million.

Financing Tools:

Grant Awards: The City has applied for an OEA planning grant.

Key Contacts: Barry Cromartie is with the City of Oakland, and has responsibility for Oak Knoll reuse (510-238-6908), 1333 Broadway, 9th Floor, Oakland, CA 94612. Commander Al Elkins is the Navy's Base Transition Coordinator for all Bay area facilities (415-395-3931).

Local Reuse Authority Formed	YES
Reuse Plan	NO
Environmental Impact Statement	NO
1st deed transfer or lease	NO
New employment	-0-

NAVAL TRAINING CENTER, SAN DIEGO

Location: The Center is entirely within the city limits of San Diego.

Projected Closure: Must close by 1999

Area and Facilities: The NTC covers 546 acres of which 510 acres are targeted for closure. There are 297 buildings, including administrative buildings, classrooms, barracks, a newly completed \$4.6 million chapel, a \$4 million child care facility and a medical clinic.

Plan Status: The Mayor, as chair, has appointed a 26 member NTC Reuse Planning Committee, representing a wide array of community interests. A reuse plan is expected by the fall 1996. The Navy has hired a private firm to do a joint EIS/EIR for NTC San Diego.

In March 1994, the San Diego Port Commission voted to seek 175 acres of NTC property for expansion of Lindbergh Field under a public benefit conveyance. The City is already leasing a fire fighting school and pistol range, while a local food bank has an interim license for a warehouse facility.

The NTC has been designated as one of four regional headquarters for the National Civilian Community Corps service group. The Job Corps has begun operating its program at NTC with 50 staff members and 225 corps members, using a barracks and two administrative buildings.

The Navy is considering whether to retain 120 acres of the base's 546 acres for the construction of Navy housing. A shortage of military housing has led the navy to reconsider the only part of NTC on which housing can be built, because it is outside the airport noise confine.

The State Lands Commission (SLC) is developing a strategy for reuse of military bases located on public trust lands. The percentage of NTC land subject to the "public trust" is unknown at this time, and is subject to determination by the Navy and the State Lands Commission.

Toxics: Not a significant problem.

Utilities: San Diego Gas and Electric, SDG&E, supplies natural gas to a private co-generation facility run by Sithe Industries, which in turn supplies electricity and steam to NCT. SDG&E does not anticipate accepting the current electric and gas lines on the base.

Financing Tools:

Grant Awards: EDA grant (\$3 million) to the City of San Diego
TCA grant (\$100,000) to the City
OEA planning grant (\$496,000) to the City

Key Contacts: Tim Johnson is the Base Reuse Project Director (619-236-6732), 1200 3rd Avenue, Suite 1700, San Diego, CA 92101. LCDR Robert Citrano is the Base Transition Coordinator for the Navy (619-524-6526).

Local Reuse Authority Formed	YES
Reuse Plan	NO
Environmental Impact Statement	NO
1st deed transfer or lease	YES
New employment	-300-

MARCH AIR FORCE BASE

Location: The base is located in Riverside County, and is bordered by the cities of Moreno Valley, Perris and Riverside.

Projected Realignment and Closure: March 31, 1996

Area and Facilities: Approximately 5,000 of the base's 7,000 acres were declared excess of the needs of the Air Force. The remaining will be called March Air Reserve Base, which will include the airfield and associated areas. The base has 1,483 family housing units, a school, a 90-bed hospital, administrative buildings and numerous warehouse structures.

A few years ago, the Air Force signed a management agreement dedicating about 1,000 acres for threatened and endangered species, and identifying another 1200 acres as suitable for wildlife management. This land, plus approximately 1000 other wildlife sensitive acres, must be mitigated if development is to occur.

Plan Status: A March Joint Powers Authority has formed, with membership including the County of Riverside, and the Cities of Moreno Valley, Perris and Riverside. A draft land use plan has been completed as the preferred alternative for the EIS. The draft EIS is due to be published in April 1995.

March is currently in the reuse screening process. Thirty reuse requests and 20 McKinney requests have been made, among them the U.S. Forest Service (100 acres and a structure for the location of an emergency services center), and the VA (national cemetery expansion).

The March JPA, Air Force, Bureau of Land Management, U.S. Fish and Wildlife Service and the Riverside County Habitat Conservation Agency (RCHCA) have been studying opportunities to trade existing wildlife habitat areas at March for more or better habitat areas elsewhere. A land swap would mitigate development of habitat sensitive areas at March in return for setting aside land, or putting a conservation easement on land, outside March that might otherwise be developed.

Toxics: March is on the National Priorities List.

Utilities: The JPA has asked all utility providers to assess their systems at the base, including Southern California Edison, Southern California Gas, and the local municipal water districts.

Financing Tools: AB 3769 was passed by the California Legislature and is awaiting Governor Wilson's signature. It authorizes the March JPA to exercise expanded powers of redevelopment over March AFB.

Grant Awards: OEA grant \$170,000 to March JPA
OEA grant \$150,000 to March JPA
TCA grant for \$50,000 to March JPA

Key Contacts: Steve Albright is Executive Director of the March JPA

<i>Local Reuse Authority Formed</i>	<i>YES</i>
<i>Reuse Plan</i>	<i>NO</i>
<i>Environmental Impact Statement</i>	<i>NO</i>
<i>1st deed transfer or lease</i>	<i>NO</i>
<i>New employment</i>	<i>-300-</i>

MARCH AIR FORCE BASE

Location: The base is located in Riverside County, and is bordered by the cities of Moreno Valley, Perris and Riverside.

Projected Realignment and Closure: March 31, 1996

Area and Facilities: Approximately 5,000 of the base's 7,000 acres were declared excess of the needs of the Air Force. The remaining will be called March Air Reserve Base, which will include the airfield and associated areas. The base has 1,483 family housing units, a school, a 90-bed hospital, administrative buildings and numerous warehouse structures.

A few years ago, the Air Force signed a management agreement dedicating about 1,000 acres for threatened and endangered species, and identifying another 1200 acres as suitable for wildlife management. This land, plus approximately 1000 other wildlife sensitive acres, must be mitigated if development is to occur.

Plan Status: A March Joint Powers Authority has formed, with membership including the County of Riverside, and the Cities of Moreno Valley, Perris and Riverside. A draft land use plan has been completed as the preferred alternative for the EIS. The draft EIS is due to be published in April 1995.

March is currently in the reuse screening process. Thirty reuse requests and 20 McKinney requests have been made, among them the U.S. Forest Service (100 acres and a structure for the location of an emergency services center), and the VA (national cemetery expansion).

The March JPA, Air Force, Bureau of Land Management, U.S. Fish and Wildlife Service and the Riverside County Habitat Conservation Agency (RCHCA) have been studying opportunities to trade existing wildlife habitat areas at March for more or better habitat areas elsewhere. A land swap would mitigate development of habitat sensitive areas at March in return for setting aside land, or putting a conservation easement on land, outside March that might otherwise be developed.

Toxics: March is on the National Priorities List.

Utilities: The JPA has asked all utility providers to assess their systems at the base, including Southern California Edison, Southern California Gas, and the local municipal water districts.

Financing Tools: AB 3769 was passed by the California Legislature and is awaiting Governor Wilson's signature. It authorizes the March JPA to exercise expanded powers of redevelopment over March AFB.

Grant Awards: OEA grant \$170,000 to March JPA
OEA grant \$150,000 to March JPA
TCA grant for \$50,000 to March JPA

Key Contacts: Steve Albright is Executive Director of the March JPA

(909-656-7000). Gerry Maneri is the Air Force Base Transition Coordinator (909-655-4141).

<i>Local Reuse Authority Formed</i>	<i>YES</i>
<i>Reuse Plan</i>	<i>YES</i>
<i>Environmental Impact Statement</i>	<i>NO</i>
<i>1st deed transfer or lease</i>	<i>NO</i>
<i>New employment</i>	<i>-0-</i>

CALIFORNIA MILITARY BASE CLOSURES (BRAC ROUNDS 1-3):

Status of Air Emission Reduction Credit (ERC) Actions

October 17, 1994

DISTRICT	MILITARY BASE	STATUS OF ERC ACTION	ERCs PROPOSED FOR BANKING	ERCs PROPOSED FOR ATTAINMENT
BAAQMD (Bay Area Air Quality Management District)	Hamilton Army Air Field Presidio Army Base Hunter's Point Annex Naval Air Station, Moffet Field Mare Island Naval Shipyard Naval Air Station Naval Aviation Depot Naval Hospital Naval public Works Center Treasure Island Naval Station	<ul style="list-style-type: none"> District staff have not received ERC banking application(s) to date. 	--	Unknown
ICAPCD (Imperial County Air Pollution Control District)	Salton Sea Navy Base	<ul style="list-style-type: none"> District staff have not received ERC banking application(s) to date. 	--	Unknown
MBUAPCD (Monterey Bay Unified Air Pollution Control District)	Fort Ord	<ul style="list-style-type: none"> Fort Ord filed banking applications earlier this year; emission reductions banked are from 11 boilers: 8 of the boilers have been shutdown and 3 have been modified from dual fuel capability to natural gas fuel only. Several permits have been transferred to the CSU and UC systems. A Mobile Source ERC application has been filed but not processed. The Army still holds 60 to 70 permits and has a small quantity of ERCs banked. 	0.80 tons-NOx/yr 0.03 tons-SOx/yr 0.60 tons-CO/yr 0.08 tons-ROG/yr 0.27 tons-PM/yr	No

DISTRICT	MILITARY BASE	STATUS OF ERC ACTION	ERCs PROPOSED FOR BANKING	ERCs PROPOSED FOR ATTAINMENT
MDAQMD (Mojave Desert Air Quality Management District)	George AFB	<ul style="list-style-type: none"> George AFB staff have submitted an emission inventory report to the district. The report includes potential emission reduction sources for banking. This report has been put together by an independent consultant. 	Estimated Bankable Emissions: 278 tons-NOx/yr 457 tons-VOC/yr	To be determined
SCAQMD (South Coast Air Quality Management District)	Norton AFB Long Beach Naval Station Marine Corps Air Station El Toro Marine Corps Air Station March Air Force Base	<ul style="list-style-type: none"> District has issued ERCs to Norton AFB base for permitted and non-permitted equipment. District staff indicated 1991 and 1992 baseline years were used to determine recent operating history for Norton AFB. District staff indicated base closure occurred April, 1994, therefore, ERC application submittal deadline was July 1, 1994 (90 days from date of shutdown) for remaining emission reductions not already applied for by Norton AFB. Remaining bases are now under RECLAIM program. Bases will be issued RTCs, (Reclaim Trading Credits), which differ from ERCs. 	146 lbs-NOx/day 40 lbs-SOx/day 217 lbs-CO/day 269 lbs-ROG/day 55 lbs-PM/day	No
SDCAPCD (San Diego County Air Pollution Control District)	Naval Training Center	<ul style="list-style-type: none"> District staff have not received ERC banking application(s) to date. 	--	Unknown

DISTRICT	MILITARY BASE	STATUS OF ERC ACTION	ERCs PROPOSED FOR BANKING	ERCs PROPOSED FOR ATTAINMENT
SMAQMD (Sacramento Metropolitan Air Quality Management District)	Mather AFB Sacramento Army Depot	<ul style="list-style-type: none"> Mather AFB filed applications for stationary sources. Mather AFB has sent the district a letter of intent to bank mobile emission reductions (no aircraft emission reductions), however, no banking application has been filed. Army Depot has submitted a letter of intent to bank emission reductions, but has not filed a formal application. 	<u>Stationary</u> 23.0 tons-NOx/yr 1.6 tons-SOx/yr 7.3 tons-CO/yr 47.0 tons-ROG/yr 2.3 tons-PM10/yr <u>Aircraft</u> 385 tons-ROG/yr 115 tons-NOx/yr (estimates)	To be determined
SJVUAPCD (San Joaquin Valley Unified Air Pollution Control District)	Castle AFB	<ul style="list-style-type: none"> District has received banking applications from Castle AFB; 1 banking application for aircraft emission reductions has been withdrawn; emission reductions include 2 small boilers, 1 incinerator and 1 spray booth. 	Unknown	No

Military Base Closures

PROPOSED LEGISLATION (AB 3204 CANNELLA)

A significant number of military bases have been or will be closed before 1999 in California which will result in the loss of thousands of jobs. In response, several steps are underway to provide for the expeditious reuse of military bases which are scheduled for closure. Because emission offsets will be required for many of the reuse activities at closing bases, proposed legislation was drafted (AB 3204 Cannella) to assure emission reduction credits generated from reduced base operations are quantified and preserved. The purpose of this briefing paper is to provide the following: 1) background related to military base closures and reuse; 2) summary of proposed State legislation (AB 3204 Cannella); and 3) summary of proposed federal legislation.

BACKGROUND:

- Emission reduction credit banking is a program used by local air pollution control districts or air quality management districts (districts) to preserve emission reduction credits (ERCs) for later use as emission offsets;
- Reuse of closed military bases may require a significant amount of emission offsets;
- Many closing bases lack incentives to apply for ERCs;
- District rules/regulations require timeliness of application filing following equipment shutdown before emission reductions may be eligible for banking. In some cases, emission reductions that have already occurred at a closed base may not be eligible to be banked;
- District banking application filing fees may be significant and a closing base may lack the funding needed to pay these fees;
- Many closing bases lack the resources needed to quantify available emission reductions;
- The Department of Defense (DoD) currently does not have a policy regarding the establishment and use of ERCs. The military considers ERCs to be property and cannot dispose of such property until a disposal policy is developed by the DoD;
- Reuse entities planning for reuse activities at closing bases have no way of knowing the quantity and type of ERCs that may be made available. Therefore, since the availability of ERCs is a prerequisite to many reuse activities, many reuse proposals may not be possible; and
- Recommendations from the Governor's Military Base Reuse Task Force have been incorporated into proposed legislation.

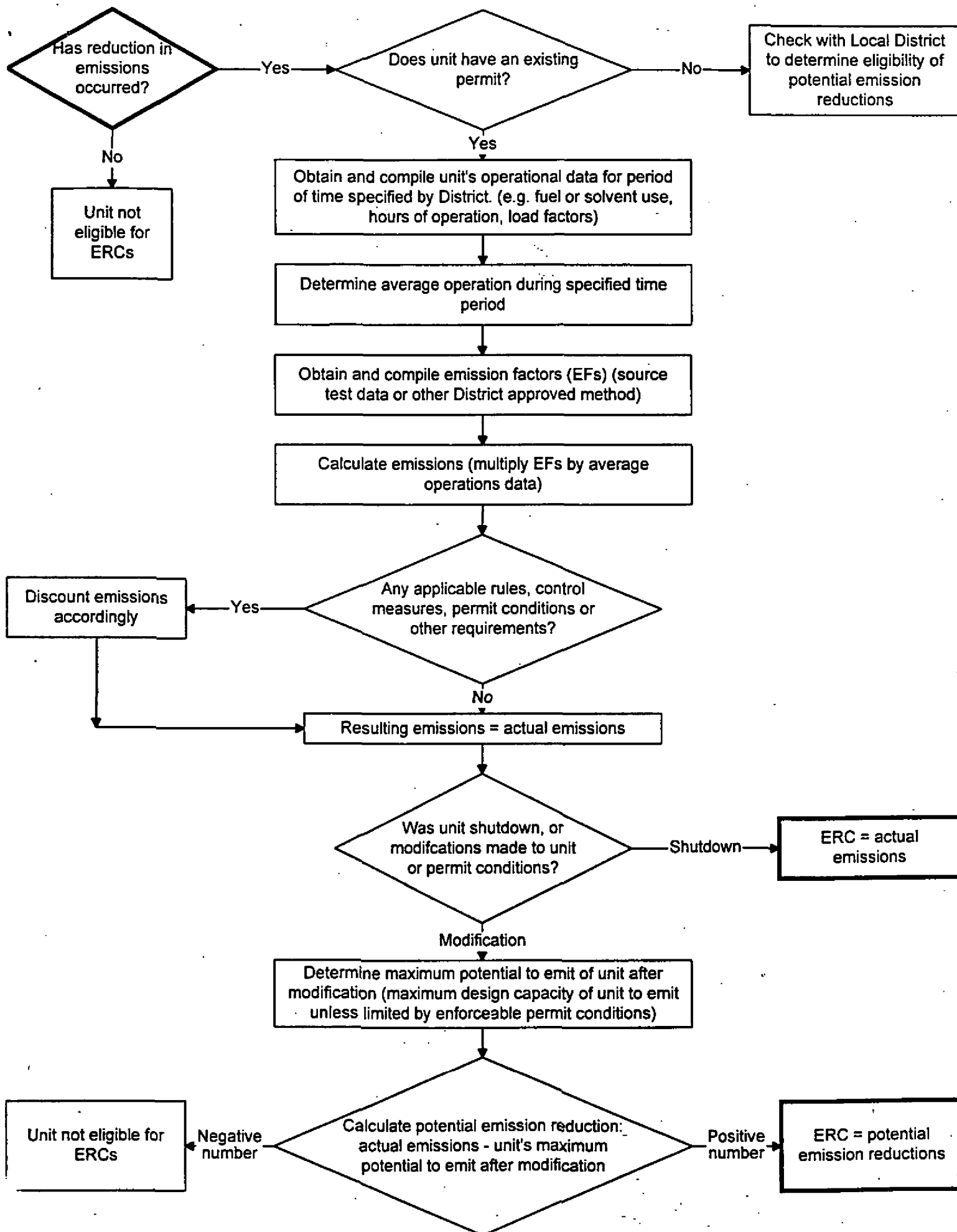
SUMMARY OF AB 3204 CANNELLA:

- Proposed legislation is intended to ensure ERCs generated at closing bases are quantified and preserved;
- Proposed legislation is the result of combining AB 3178 McPherson and AB 3204 Cannella;
- Proposed legislation provides the following:
 1. *Federal Government may apply for emission reduction credits within 180 days of the reduction in emissions or June 1, 1995, whichever is later.*
 - *This applies only if federal government is eligible to apply under existing district regulations on December 31, 1994.*
 2. *Within six months days after closure decision becomes final or July 1, 1995, whichever is later, the District shall request and attempt to attain all records, provided:*
 - *District waives all costs for obtaining records, or*
 - *District enters into agreement with federal government or base reuse authority for payment of costs.*
 3. *District shall quantify emission reduction credits within 180 days of request and payment of fees by base reuse authority.*
 4. *Base reuse authority is eligible to apply and receive credits provided one of the following is satisfied:*
 - *Federal government agrees in writing;*
 - *Time limits for federal government to apply have expired;*
 - *Other legal means are used to acquire credits.*
 5. *Five percent of emission reduction credits generated to go towards attainment;*
 6. *The baseline for quantifying shall be the date base closure or realignment decision becomes final (2 out of five years);*
 7. *Emission reduction credits obtained by base reuse authority to be used for base reuse within jurisdiction of district; and*
 8. *Base reuse plans must be considered in development of districts' attainment plans.*

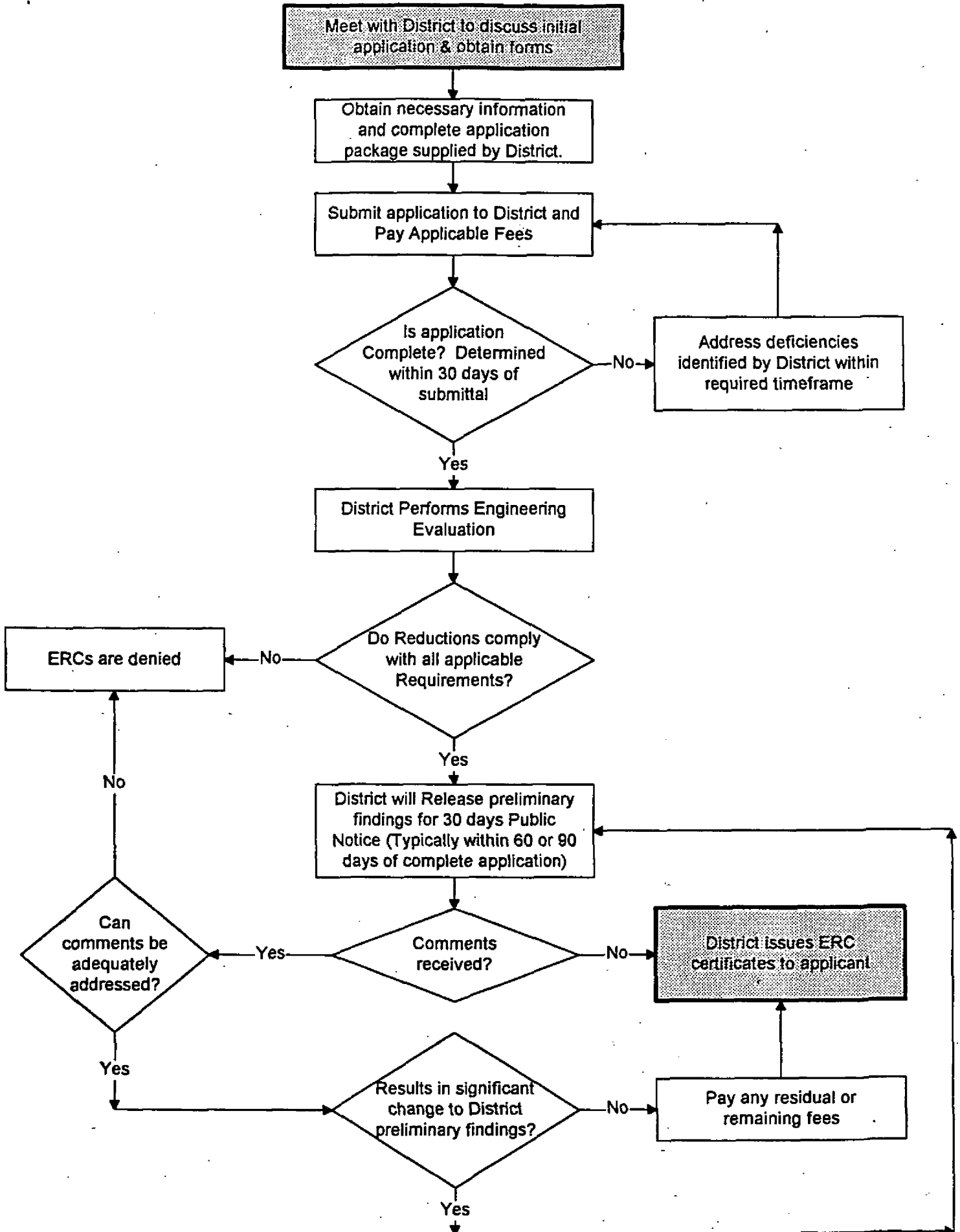
SUMMARY OF PROPOSED FEDERAL LEGISLATION:

- In addition to the State proposal (AB 3204 Cannella), the Administration has proposed federal legislation to require the military to provide relevant records to the local air districts, to apply for credits or pay an in-lieu fee for air emission credits not applied for (to be reimbursed when the credits are used), to establish air credits as "related personal property" available for base reuse, and to require the base to meet and confer with local officials prior to transferring air emission credits to other bases.
- It is not likely that action on this proposal will occur this year.

Procedure to Quantify Emission Reduction Credits (ERCs)



Procedure to Obtain Emission Reduction Credits



Background on Air Issues Affecting BRAC

All nonattainment areas are faced with the challenge of reducing air pollution emissions to meet safe air standards established through the Clean Air Act. In California, most of the local air agencies in nonattainment areas have already adopted controls on major stationary sources, thus completing the first and relatively easier steps of air pollution control. Air districts must now meet new requirements set by the 1990 amendments to the Clean Air Act, as well as the requirements of the California Clean Air Act. Following are explanations of some concepts and terms in air pollution control that are important to base closures and a brief discussion of issues that arise from air pollution control requirements.

Emissions Trading, Offsets, and Air Emission Reduction Credits (ERCs)

In order to create greater flexibility in meeting environmental requirements, EPA developed a policy to allow air pollution sources to trade emissions (Emissions Trading Policy Statement, 51 FR 43814). Emissions trading involves the creation of surplus emission reductions through application of advanced control technology, shutdown or curtailment of activities and the use of these emission reductions to meet pollution control requirements at other sources.

In nonattainment areas, major new stationary sources and major modifications are subject to a preconstruction permit requirement that they secure sufficient surplus emission reductions to more than "offset" their emissions. This requirement is designed to allow industrial growth in nonattainment areas without interfering with attainment and maintenance of the air quality standards. In attainment areas, new sources or modifications that might significantly change air quality or contribute to a violation of the national ambient air quality standards may need emission offsets.

Local districts can establish banking programs as part of their State Implementation Plans to store qualified emission reduction credits (ERCs) for later use in offset trades. These reductions must be real, permanent, quantifiable, surplus, and enforceable in order to be banked. Air districts can credit only those reductions that go beyond reductions already required in a rule or regulation. Banking programs usually require that the source apply for the emission reduction credit within a certain time from the date of curtailment or shutdown.

Each air district has a schedule of fees. Fees are generally based on the staff time spent processing the application and producing a report. Fees for ERC applications can be hundreds or thousands of dollars for each air permit held by a facility. Many military bases hold more than one hundred permits. The total cost for a closing base to apply for all of its possible ERCs may be quite substantial. Because each district has established their own fee schedules and fees can vary greatly from district to district, it is important to consult with the local district for specific information.

California Base Closure Environmental Committee

The cost of obtaining offsets on the open market depends upon each air basin's economic dynamics and attainment status. The following table illustrates the prices paid in dollars per ton for offsets in major air districts in California during 1993.

	NOx	SOx	PM	VOC
Average	\$17,479	\$5,108	\$19,123	\$14,329
High	\$25,000	\$5,500	\$25,000	\$37,150
Low	\$ 6,500	\$4,109	\$10,000	\$ 6,500

Interpollutant Trading

Interpollutant trading or the use of emission reductions of one pollutant to offset emissions increases of different criteria pollutants may be allowed in some districts. Pollutants to be traded must be linked through precursor relationships. In other words, a precursor relationship exists if an air contaminant when directly emitted into the atmosphere forms or causes to be formed or contributes to the formation of another pollutant. In addition, it must be demonstrated (technically justified) through dispersion modeling or other technical analysis, that allowing the interpollutant trade will not compromise air quality. The amount of reductions necessary (i.e. "trading ratio") to protect air quality is individually considered on a case-by-case basis. Interpollutant trading may not be feasible in some air basins for specific pollutant combinations. Trading may be prohibited entirely because of air basin attainment status, meteorologic and geographic conditions, or other considerations. Interpollutant trading is at the discretion of the district's air pollution control officer and may be subject to ARB and EPA approval.

Mobile Source Emission Reduction Credits

Mobile source emission reduction credits are emission reductions from motor vehicles which go beyond district, state, and federal requirements. Mobile source credits can provide industry and districts with flexibility in meeting air quality regulations and goals. To be eligible for credit, the mobile source emission reductions must:

- * not be required by law or regulation, or otherwise assumed to occur as part of a regional air quality plan
- * be real, and quantified to an acceptable degree of certainty
- have enforceable and legally binding provisions for generation, transference and/or sale
- have an established lifetime, commensurate with the proposed use of the credit.

Mobile source credits may be used as stationary source offsets or to delay compliance of emission reduction requirements.

Mobile source emission reduction credits are not necessarily valid in perpetuity because the life of the unit generating the reduction is finite. The life span of mobile source emission reduction credits varies depending upon the type of emission reductions used to generate the credit. For example, credits generated from the purchase of low-emission buses can last up to 12 years, credits generated from the purchase of Zero Emission Vehicles can last up to 10 years, and the life of the credits from the accelerated retirement older vehicles can last 3 years. Credits based on vehicle retrofits will have different lifetimes depending on the specifics of the particular case. South Coast AQMD, Sacramento AQMD and San Joaquin Unified APCD have adopted mobile source emission reduction credit rules. Bay Area AQMD and San Diego County APCD are developing mobile credit rules. Consult with local districts concerning availability of programs and rule requirements.

Conformity

Section 176(c) of the Clean Air Act prohibits a federal agency from supporting an action in any area unless the responsible federal agency determines that the action conforms to the applicable air quality implementation plan for the area. Examples of actions supported by the federal government might include review and approval of dredging permits, federal construction projects, airport expansion activities, and private actions taking place on public lands. The purpose of conformity is to ensure that federal actions: will not cause or contribute to new violations of any federal ambient air quality standards; will not increase the frequency or severity of any existing violations of federal ambient air quality standards; and will not delay the timely attainment of federal ambient air quality standards. Under EPA's general conformity regulation promulgated on 11/30/93, a conformity determination is required when the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action exceed specified de minimis thresholds (based on the CAA's major stationary source levels) for the criteria pollutants.

The general conformity rule exempts certain federal actions from these conformity requirements. For example, transfers of real property which are conditioned in leases or contracts on the property being cleaned up under Superfund and where the federal agency does not retain control over emissions associated with the property under lease are exempt. However, realignment of bases is not a separate exemption, and actions associated with increasing a base's activities may require conformity determinations. In addition, federal agencies that provide approvals or funding for reuse-related activities (such as FAA approval or funding of a civil airport) may also have to make conformity determinations.

A conformity determination is made by meeting one of the following criteria: the total of indirect and direct emissions of the action are specifically identified in the emissions forecast in the applicable SIP's attainment or maintenance demonstration; complete emission offsets

California Base Closure Environmental Committee

have been obtained for all direct and indirect emissions associated with the proposed federal action; the action meets the areawide or local modeling criteria set forth in the rule; the State agrees to revise the SIP to accommodate the action's emissions; or a determination that the action will not cause a net increase in total emissions compared to an appropriate baseline year. For more information on general conformity, please also refer to EPA's "General Conformity Guidance: Questions and Answers," dated July 13, 1994.

Federal Implementation Plans (FIPs)

EPA has a nondiscretionary duty to promulgate a FIP for a state if the state fails to submit a plan or fails to revise a SIP that EPA deems insufficient. As a result of citizen suits, EPA is under a court order to propose and promulgate an ozone FIP for South Coast (greater Los Angeles area), Ventura, and Sacramento air basins.

In the three FIP areas, EPA has proposed a military installation bubble encompassing all mobile emission sources under the control of the Department of Defense, with the exception of military aircraft, vessels, and certain mobile sources that serve a purely military and strategic purpose, such as tanks. Mobile sources covered by the bubble include auxiliary power units, ground service equipment, vehicle fleets, privately owned vehicles, and any other mobile sources operated within an installation's boundaries. Mobile source emissions will be subject to a linear declining cap, meaning that VOCs must be reduced 4-9% per year and Nox by 6-9% per year beginning in 2001. Each military department will be responsible for attaining the target for installations under its control, although trading will be allowed between departments and installations in the same FIP area.

EPA has also proposed that civil aviation operations be subject to a declining emissions rate target, including mobile emissions sources under the direct control of the airline (aircraft, aircraft fleets, and any other airline-operated mobile source). This level of allowable emissions would translate into an industry-wide environmental performance factor expressed as an allowable pounds of pollutant per passenger equivalent unit. Airlines which exceed their allowable performance factor would pay a fee based on the amount of excess emissions.

For general aviation in the FIP areas, EPA is proposing two fee systems: one would simply charge a fee for each takeoff; the second would incorporate an exemption into the fee program for engines that are certified to "clean" emissions levels.

Since many of the closing bases with airfields are being considered for general or civil aviation operations, the FIPs will impact this reuse. Additionally, reuse efforts will be affected by the declining cap on stationary source emissions, which is triggered by any operation emitting 4 or more tons per year of VOCs (and Nox in Ventura).

Air Issues Impacting Closing Bases

Competing demands for credits or planning offsets: At each closing base, there are several possible parties interested in obtaining air credits or planning offsets. Air Quality Management Districts or Air Pollution Control Districts are the local or regional agencies responsible for regulating air pollution. Air districts may need air credits or planning offsets for their community banks to use in "funding" small businesses or public agencies. Air districts in nonattainment areas may also plan on using the credits or offsets to show progress toward meeting their requirement to attain the air quality standards.

Reuse groups are interested in obtaining air credits or planning offsets as a means of attracting business and revitalizing economic activity at closing bases. Planning offsets may also be needed for conformity determinations when the reuse activities require some form of federal approval or oversight, such as FAA approval of new airports.

Closing bases may need ERCs to cover the clean-up work at Installation Restoration Program (IRP) sites. An operating unit that is transferring from a closing base to another base may need ERCs to realign to the new location.

Military installations that are remaining open or expanding in the same air basin may need credits or planning offsets for conformity determinations or for new source permits. In the FIP areas (South Coast, Ventura, and Sacramento), military installations may need the credits or planning offsets to meet the declining cap on air emissions.

Once a base is slated for closure, all of the above parties must begin analyzing and communicating their need for ERCs and planning offsets within a fairly narrow window of time. For example, the reuse group must develop a good planning estimate as early as possible so the military can factor this need with those of the IRP sites, realigning bases in the air basin, and in FIP areas, bases with a declining cap on emissions.

Monetary Constraints: If air credits or planning offsets are not available for installations remaining open, the military may need to purchase ERCs in the open market. These credits may not be readily available and may be extremely expensive. Application fees are also part of the transaction cost. The money to apply for and purchase credits will probably come from BRAC funds, which are also the source for clean-up. In many air districts, closing bases may be asked by the reuse groups to maintain operating permits for operations that existed on the base, such as permits for generators, boilers, or paint booths, in order to transfer these permits to new owners and operators. The money to pay for maintaining these permits would probably come from the operations and maintenance budgets for the bases, which may be declining. The process of applying for air credits can be costly in terms of the resources needed to quantify emissions and the application fees. In the face of cleanup costs, commanders of closing bases may not believe money should be spent for maintaining

permits or applying for ERCs. Likewise, air districts and reuse groups may be interested in obtaining credits, but may not have funds to pay for quantification and application.

Quantifying Emissions: Closing bases are faced with a number of difficulties in quantifying emissions in order to apply for ERCs. The base may not have maintained good operational records that could be used to quantify emissions. Operations may have already slowed down or ceased so that it is difficult to accurately measure true emissions levels. The exact methodology required for quantifying emissions may vary by air district. Air districts may also have short timelines for applying for credits. For example, sources have only 90 days to apply for ERCs after shutdown of emissions in the South Coast air basin. Quantification of air emissions takes a certain amount of time and expertise which a closing base with declining staff may not have readily available. Again, the money and time required for quantifying emissions and applying for air credits may seem prohibitive to the commander of the closing base.

Legislation and Regulations: At the national, state, and local government levels, a number of different bills and regulations are being introduced concerning air emission credits. Depending upon whether any of these are successfully adopted, closing bases may be required to give credits to reuse groups or air districts, or at the very least, to meet with these groups to discuss allocation.

Air Emissions Checklist for Closing Bases

- 1) **Initial general discussion with the local Air District about emissions inventories on the base. Discuss the following:**
 - Consistent source identification
 - Requirements or methods for compiling inventory
 - Rules for use of credits
 - How to fill out application form for ERCs
 - Mechanisms for permit transfers to new owners and operators

- 2) **Brief the Air District on the overall picture at the base; discuss base needs and status**

- 3) **Meet with the reuse group to discuss their needs and military needs for air credits and planning offsets. Develop draft list. Discuss planned quantification of emissions on base, current DoD policy on air credits, and current legislation.**

The reuse group should begin quantification of their needs for credits and planning offsets, using the same methods as the base. The reuse group should also identify sources that need direct permit transfer.

- 4) **Quantify all emissions, both stationary and mobile, at the base through a source survey. This survey should include preparation of a detailed list of existing air permits showing location, emission factors, and availability for transfer. In quantifying emissions, consideration should be given to whether the base can apply for ERCs for these emissions or whether they will be needed as planning offsets for conformity determinations.**

- 5) **Meetings with the Air District, reuse group, and other military bases in the air basin following quantification of emissions. Discuss:**

- Quantification results
- Needs for permits, credits, and/or planning offsets
- Air District mechanisms for transfer of permits, application for credits

- 6) **Develop draft allocation scheme in consultation with reuse group, air district, and other military bases in the air basin.**

- 7) **Receive and review comments from the reuse group, air district, and other military bases.**

- 8) **Finalize allocation scheme and implement:**

- Apply for ERCs
- Arrange permit transfers
- Document planning offsets for conformity determinations

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To	Anthony Mendes	From	Mike Tollstrup
Co.	SJVUAPCD	Co.	ARB
Dept.	N. Zone	Phone #	(916) 323-8473
Fax #	(209) 545-8652	Fax #	(916) 445-5023

Dear District Representatives:

Thank you for agreeing to participate in the upcoming workshop covering air issues affecting military base closures. Your participation will go a long way in making this workshop a success.

The workshop will be divided into two parts: the morning session will consist of a number of speakers covering specific topics related to air issues involving base reuse; and the afternoon session which will consist of small break-out groups by district to cover local programs and issues. It is this afternoon session in which we have requested your participation.

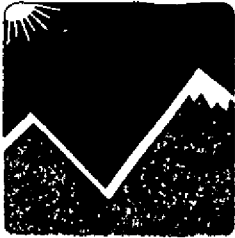
We would like each district representative to lead the discussion for their respective group. A short ten to fifteen minute introduction by each district representative, followed by open group discussion is the format we would like you to follow. Topics which you may want to briefly cover include:

- Local permitting requirements (timing of applications, fees, new and up coming regulations, etc.)
- Issues reuse groups should be aware of
- Districts involvement in conformity
- Local flavor of what reuse groups can expect

The break-out sessions have been allotted one hour and fifteen minutes to complete discussions. Once completed, the larger group will reconvene to share findings from the break-out sessions. We ask that you or an appointee from your break-out group briefly summarize any major issues and concerns, and findings and recommendations for discussion with the larger group.

Again, we would like to thank you for your participation in this workshop. If you have any questions please contact Steve Arenson, U.S. Air Force Center for Environmental Excellence, at (415) 705-1673, or Mike Tollstrup, Air Resources Board, at (916) 323-8473.

RECEIVED
 OCT 17 1994
 SAN JOAQUIN VALLEY
 UNIFIED A.P.C.D.
 NO. REGION



San Joaquin Valley
Unified Air Pollution Control District

December 8, 1998

Castle Joint Powers Authority
Attn: Nicholas Pavlovich
340 C Street
Atwater, CA 95301

RECEIVED
DEC 09 1998
SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

RE: Revised Emission Reduction Credit Certificates

Dear Mr. Pavlovich:

You recently received ERC certificates N-130-1 through N-130-5 for reductions generated by shutting down Castle Air Force Base near Atwater, CA. Although the emission reduction quantities on the certificates are correct, the certificate numbers are incorrect. Enclosed are revised ERC certificates N-109-1 through N-109-5. Please return ERC certificates N-130-1 through N-130-5 to the District's Northern Regional office at the address below. ERC certificates N-130-1 through N-130-5 are no longer valid. The District apologizes for any inconvenience this may have caused you.

Also enclosed is an invoice for the engineering evaluation fees required by District Rule 3010. This invoice represents a total of 155.5 hours expended by District engineering staff from June, 1995 through January, 1997 in order to process the ERC application. Due to the large number of both permitted and unpermitted emission units involved, a substantial amount of time was necessary to quantify all of the actual emission reductions which occurred as a result of the base closure. District engineers made several site visits to assist the base personnel in identifying records which could be used to quantify actual emission reductions and to ensure that all possible sources of bankable emission reductions had been identified. As one would expect, most of the records kept by Castle AFB personnel were designed to serve some military purpose as opposed to an emissions monitoring function. Extensive research was required to develop emission quantification methods which would ensure that the Castle JPA banked all available emission reductions, even when subjected to the scrutiny of any oversight agency or public entity. As it turns out, the District did have to defend this banking action against an attempt by the federal Environmental Protection Agency to disallow most of the proposed ERCs.

David L. Crow

Executive Director/ Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 543-7000 • FAX (209) 233-8652

Central Region

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • FAX (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 862-5200 • FAX (805) 862-5201

Mr. Nicholas Pavlovich

December 8, 1998

Page 2

Please remit the amount owed, along with a copy of the attached invoice, within 30 days. Should you have any questions, please contact Mr. Anthony Mendes, Permit Services Manager in the District's Northern regional office at (209) 545-7000.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin", with a horizontal line extending from the end of the signature.

Seyed Sadredin
Director of Permit Services

SS/AJM/MJS:cl
Enclosures

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT
FEES

FACILITY ID # 1195
Castle Joint Powers Authority
Attn: Nicholas Pavlovich
340 C Street
Atwater, CA 95301

LOCATION: Castle Air Force Base
BILLING FOR: Emission Reduction Credit Application Processing Fee
BILLING DATE: November 25, 1998

TOTAL FEES: \$ 8,630.25
CREDIT: \$ 650.00
BALANCE DUE: \$ 7,980.25

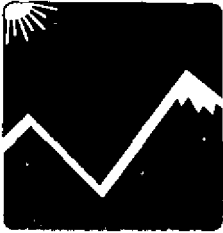
THE ABOVE TOTALS ARE BASED ON THE FOLLOWING ITEMIZED LISTING:

<u>APPLICATIONS</u>	<u>FEE</u>	<u>DESCRIPTION</u>
N-109-1, N-109-2 N-109-3, N-109-4 N-109-5	\$ 8,630.25	155.5 hours @ \$55.50/hr

Please Return A Copy of This Bill With The Amount Due Within 30 Days To:

SAN JOAQUIN VALLEY UNIFIED APCD
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356

mjs



San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-109-1

Issued To: Castle Joint Powers Authority
Issue Date: December 8, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For VOC Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
33,690 lbs	34,064 lbs	34,438 lbs	34,438 lbs

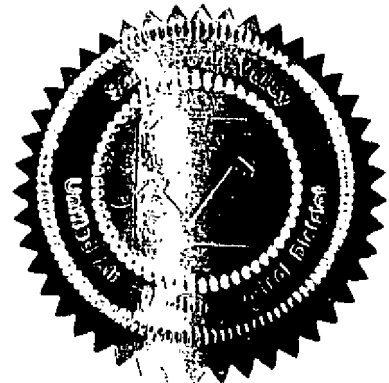
Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-109-2

Issued To: Castle Joint Powers Authority
Issue Date: December 8, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For NOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
38,954 lbs	39,386 lbs	39,819 lbs	39,819 lbs

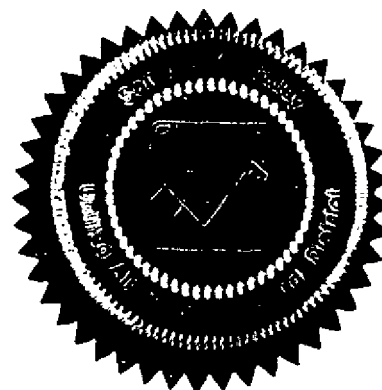
Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-109-3

Issued To: Castle Joint Powers Authority
Issue Date: December 8, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For CO Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
34,170 lbs	34,549 lbs	34,929 lbs	34,929 lbs

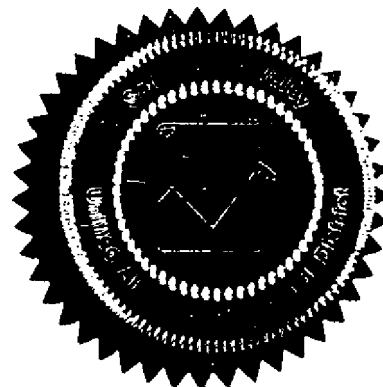
Conditions Attached

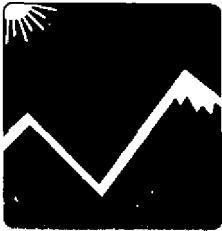
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-109-4

Issued To: Castle Joint Powers Authority
Issue Date: December 8, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For PM10 Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
6,262 lbs	6,332 lbs	6,402 lbs	6,402 lbs

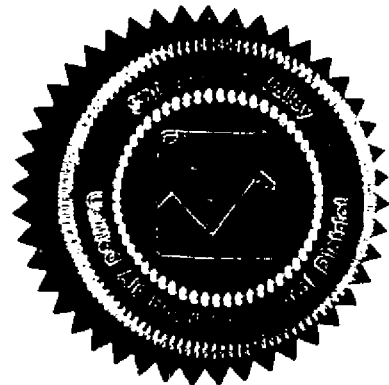
Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-109-5

Issued To: Castle Joint Powers Authority
Issue Date: December 8, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For SOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
3,179 lbs	3,214 lbs	3,249 lbs	3,249 lbs

Conditions Attached

Method Of Reduction

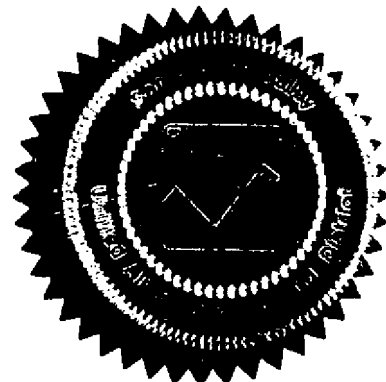
Shutdown of Entire Stationary Source

Shutdown of Emissions Unit

Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





December 10, 1998

RECEIVED
DEC 14 1998

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

Mr. Seyed Sadredin
Director of Permit Services
Northern Regional Office
4230 Kiernan Avenue Suite 130
Modesto, CA 95356

Re: Emission reduction Credit Certificates

Dear Mr. Sadredin

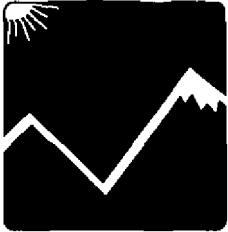
As requested, I enclose Emission Reduction Credit Certificate Numbers N-130-1, N-130-2, N-130-3, N-130-4, N-130-5 all dated November 13, 1998 which you sent to the JPA by cover letter and now advise are no longer valid. Replacement certificates dated December 8, 1998, (N-109-1 through N-109-5) have been received by this office.

If you have any questions please call.

Sincerely,

Nick Pavlovich
Nick Pavlovich
Executive Director (Interim)

Enclosure



San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-1

Issued To: **Castle Joint Powers Authority**
Issue Date: **November 13, 1998**

Location of Reduction: **Castle Air Force Base**
Castle Air Force Base, CA

For VOC Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
33,690 lbs	34,064 lbs	34,438 lbs	34,438 lbs

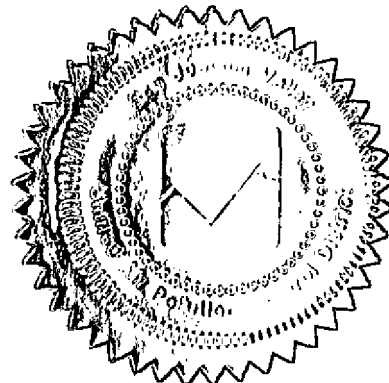
Conditions Attached

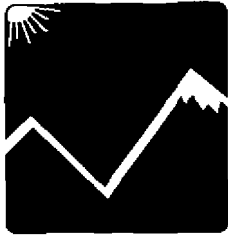
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO


Seyed Saadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-2

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For NOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
38,954 lbs	39,386 lbs	39,819 lbs	39,819 lbs

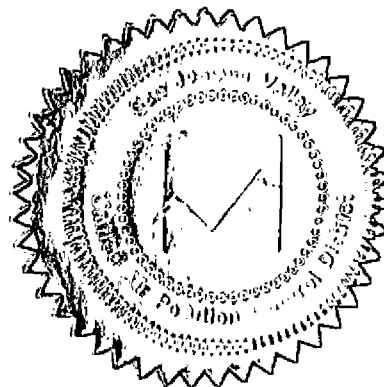
Conditions Attached

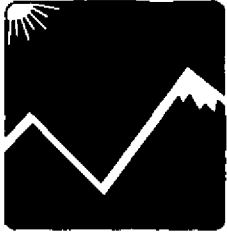
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-3

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For CO Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
34,170 lbs	34,549 lbs	34,929 lbs	34,929 lbs

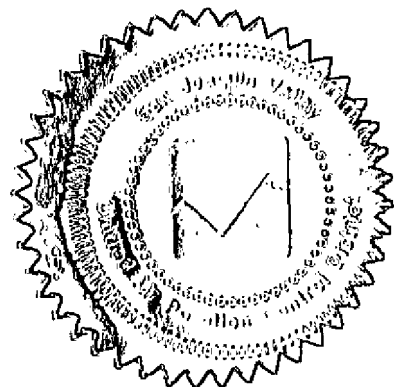
Conditions Attached

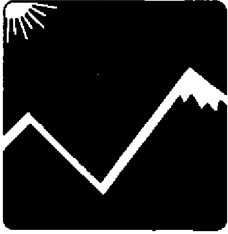
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-4

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For PM10 Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
6,262 lbs	6,332 lbs	6,402 lbs	6,402 lbs

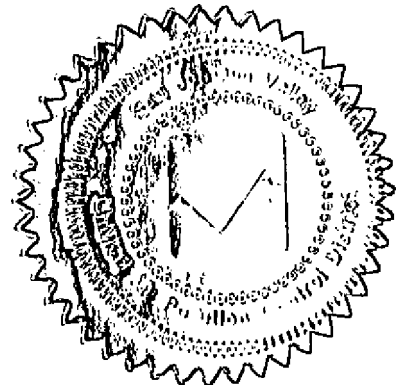
Conditions Attached

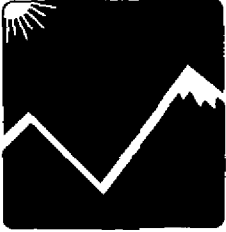
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-5

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For SOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
3,179 lbs	3,214 lbs	3,249 lbs	3,249 lbs

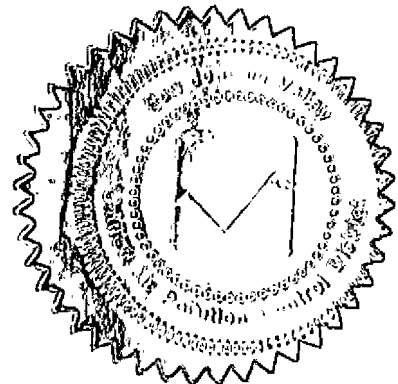
Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Sergio Sauredin
Director of Permit Services



LASTN	DDATE	PROJ	HOURS	CODE	PType	PCODE
SCHONHOFF	06/05/95	950288	3	11	1	11
SCHONHOFF	10/13/95	950288	1	11	8	11
SCHONHOFF	11/14/95	950288	3.5	11	8	11
SCHONHOFF	11/15/95	950288	7	11	8	11
SCHONHOFF	11/16/95	950288	3	11	8	11
SCHONHOFF	11/17/95	950288	4	11	8	11
SCHONHOFF	11/20/95	950288	5	11	8	11
SCHONHOFF	11/22/95	950288	3.5	11	8	11
SCHONHOFF	11/27/95	950288	7	11	8	11
SCHONHOFF	11/28/95	950288	6	11	8	11
SCHONHOFF	11/29/95	950288	6	11	8	11
SCHONHOFF	11/30/95	950288	3	11	8	11
SCHONHOFF	12/04/95	950288	1	11	8	11
SCHONHOFF	07/17/96	950288	2	6	1	6
SCHONHOFF	07/18/96	950288	4	6	1	6
SCHONHOFF	07/22/96	950288	1	6	1	6
SCHONHOFF	07/26/96	950288	5	6	1	6
SCHONHOFF	07/29/96	950288	3	6	1	6
SCHONHOFF	07/30/96	950288	5	6	1	6
SCHONHOFF	07/31/96	950288	2	6	1	6
SCHONHOFF	08/01/96	950288	5	6	1	6
SCHONHOFF	08/02/96	950288	7	6	1	6
SCHONHOFF	08/05/96	950288	4	6	1	6
SCHONHOFF	08/06/96	950288	3	6	1	6
SCHONHOFF	08/09/96	950288	2.5	6	1	6
SCHONHOFF	08/12/96	950288	7	6	1	6
SCHONHOFF	01/06/97	950288	1.5	3	3	3
SCHONHOFF	01/08/97	950288	3	3	3	3
SCHONHOFF	01/13/97	950288	6	6	3	6
SCHONHOFF	01/14/97	950288	4	6	3	6
SCHONHOFF	01/15/97	950288	6	6	3	6
SCHONHOFF	01/16/97	950288	6	6	3	6
SCHONHOFF	01/17/97	950288	6	6	3	6

LASTN	DDATE	PROJ	HOURS	CODE	PTYPE	PCODE
SCHONHOFF	01/21/97	950288	3	6	3	6
SCHONHOFF	01/22/97	950288	4	6	3	6
SCHONHOFF	01/23/97	950288	5	6	3	6
SCHONHOFF	01/28/97	950288	4	6	3	6
SCHONHOFF	01/29/97	950288	3.5	6	8	6
SCHONHOFF	02/20/97	950288	6	6	3	6
SCHONHOFF	02/21/97	950288	3	6	3	6
SCHONHOFF	02/24/97	950288	2	6	3	6
SCHONHOFF	03/11/97	950288	2	3	1	3
SCHONHOFF	03/17/97	950288	8	6	1	6
SCHONHOFF	03/18/97	950288	4	6	1	6
SCHONHOFF	03/19/97	950288	4	5	1	5
SCHONHOFF	03/20/97	950288	3.5	6	1	6
SCHONHOFF	03/24/97	950288	5	6	1	6
SCHONHOFF	03/25/97	950288	2	6	1	6
SCHONHOFF	03/26/97	950288	5	6	1	6
SCHONHOFF	10/01/97	950288	0.5	6	1	6

✓ Corrections for RGA

✓ Corrections
 ✓ Ref SS
 ✓ EPA
 ✓ not included
 ✓ on bill
 34.0 hr

200.5

200.5 hr - 34.0 hr

= 166.5 hr

- 11

155.5 hr

166.5

9,240.75

- 11

155.5

200.5 hr

950288

TELEPHONE RECORD FORM

Date / Time	Names of All Persons Involved and Conversation Record
5/5/97	Spoke w/ Ed Pilke. He said he will
MKS	have comment concerning the EF's for
	the fire fighting equip. & the status
	of the ground equipment. I told
	him the notice is up on 5/10/97 & if
	he won't be able to comment before
	that he should call and I would
	check w/ my superiors on what we
	can do. He asked me to call him
	Monday 5/12 if we have not heard
	anything from him. I told him if
	he got into a time crunch he could FAX
	the comments. I will probably issue
	5/12 if I don't hear from him.

Ed Pilke
(415) 744-1211

5/5/97

MKS

TO Alex Krichersky of CARB (916) 327-5626

to see if he would have any comments

he said he would call back.

PROJECT ROUTING FORM

PROJECT NUMBER: 950288 FACILITY ID: 3485
4195 PERMIT NOS: _____

APPLICANT NAME: CASTLE JOINT POWERS AUTHORITY

PREMISE ADDRESS: CASTLE AIR FORCE BASE, MERCED

PRELIMINARY REVIEW	ENGR	DATE	SUPR	DATE
A. Application Deemed Incomplete				
B. Application Deemed Complete <input type="checkbox"/> Awaiting CB Offsets				
C. Application Pending Denial				
D. Application Denied				

ENGINEERING EVALUATION	INIT	DATE
E. Engineering Evaluation Complete		
F. Supervising Engineer Approval		
G. Compliance Division Approval <input type="checkbox"/> Not Required		
H. Permit Services Manager Approval		

Director Review: Not Required Required

CLERICAL STAFF: Perform tasks as indicated below. Initial and date when completed.

- PRELIMINARY REVIEW
- _____ Mail Incompleteness Letter to the Applicant.
 - _____ Mail Completeness Letter to the Applicant.
 - _____ Mail Intent to Deny Letter to the Applicant (Certified Mail).
 - _____ Mail Denial Letter to the Applicant (Certified Mail).

PROJECTS NOT REQUIRING PUBLIC NOTIFICATION

- PRELIMINARY DISPOSITION: _____ Mail Imminent Denial Letter to the Applicant (Certified Mail).

- FINAL DISPOSITION:
- _____ Mail ATC(s) to Distribution.
 - _____ Mail Denial Letter to the Applicant (Certified Mail).

PROJECTS REQUIRING PUBLIC NOTIFICATION

- PRELIMINARY DECISION:
- _____ Deliver Ad to the Newspaper NOT LATER THAN _____
 - _____ Mail copies of Cover Letter and Engineering Evaluation to Distribution.

- FINAL DECISION:
- _____ Deliver Ad to the Newspaper NOT LATER THAN _____
 - _____ Mail copies of Cover Letter and ATC(s) to Distribution.
 - _____ Mail copies of Cover Letter to Distribution.

DISTRIBUTION

- _____ APPLICANT
- _____ ENGINEER
- _____ COMPLIANCE
- _____ PREMISE FILE
- _____ BLDG DEPT
- _____ EPA - 75 Hawthorne St., San Francisco, CA 94105 Attn: A-3-4
- _____ ARB - Stationary Source Div. Chief, PO Box 2815, Sacramento, CA 95812
- _____ SJVUAPCD - 1999 Tuolumne St., Fresno, CA 93721 Attn: Seyed Sadredin
- _____ OTHER _____

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

NORTHERN REGION - MODESTO
4230 KIERNAN AVENUE STE. 130
MODESTO, CA 95368
(209) 545-7000

FAX (209) 545-8652

FAXED
3/24/97

9:00 AM

FAX -- COVER SHEET

DATE: 3/24/97 TIME: 9:00 AM

TO: Andy Hilderbrand (Crown Chem.)
(619) 421-1127


FROM: Mark Schonhoff

MESSAGE/COMMENT: Andy -

Kim in customer service said you could
tell me if this PD-680 solvent is photochemically
reactive per section K of the attachment.
Thank-you.

NUMBER OF PAGES (INCLUDING COVER): 4

If you do not receive all pages of fax, or if you have any questions, please refer to Northern Region phone number at top of page.

- (b) The organic solvents content comprises not more than 20% by volume of the total volatile content; and,
 - (c) The volatile content is not photochemically reactive; and,
 - (d) The organic solvent does not come into contact with flame.
6. The used of any material in any article, machine, equipment, or other contrivance described in sections A, B, C, or D, if:
- (a) Until January 1, 1977, the organic solvent content of a material does not exceed 30% by volume of said material; after January 1, 1977, the organic solvent content of such material shall not exceed 20% by volume; and,
 - (b) The volatile content is not photochemically reactive; and,
 - (c) The organic solvent content does not come into contact with flame.
- J. For the purpose of this rule, organic solvents include diluents and thinners and are defined as organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers or cleaning agents, except that such materials exhibiting a boiling point higher than 220°F at 0.5 millimeter mercury absolute pressure or having an equivalent vapor pressure shall not be considered to be solvents unless exposed to temperatures exceeding 220°F.
-  K. For the purpose of this rule, a photochemically reactive solvent is any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent:
- 1. A combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones having an olefinic or cycloolefinic type of unsaturation: 5 percent.
 - 2. A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.
 - 3. A combination of ethylbenzene, ketones having branched hydrocarbon structures trichloroethylene or toluene: 20 percent.

Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as member of the most reactive chemical group; that is, that group having the least allowable percentage of the total volume of solvents.

1. For the purpose of this rule, organic materials are defined as chemical compounds of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonate and ammonium carbonate.

DDO Hazardous Materials Information System
DDO SPEC-BULK
As of January 1995
Proprietary Version - For U.S. Government Use Only

FED: 6800
NINN: 002647008
Manufacturer's CAGE: 56904
Part No. Indicator: A
Part Number/Trade Name: P D 680 TYPE 1

=====

General Information

=====

Item Name: DRY CLEANING SOLVENT
Manufacturer's Name: PETROSULVE CORP LTD, DBA CROWN CHEMICAL CORP
Manufacturer's Street: 1888 NIRVANA AVE
Manufacturer's P. O. Box:
Manufacturer's City: CHARL V, STA
Manufacturer's State: CA
Manufacturer's Country: US
Manufacturer's Zip Code: 92011-6178
Manufacturer's Emerg Ph #: 619-421-6601
Manufacturer's Info Ph #: 619-421-6681
Distributor/Vendor # 1:
Distributor/Vendor # 1 CAGE:
Distributor/Vendor # 2:
Distributor/Vendor # 2 CAGE:
Distributor/Vendor # 3:
Distributor/Vendor # 3 CAGE:
Distributor/Vendor # 4:
Distributor/Vendor # 4 CAGE:
Safety Data Action Code:
Safety focal Point: 0
Record No. For Safety Entry: 012
Tot Safety Entries This Stock: 027
Status: SE
Date MSDS Prepared: 05JAN90
Safety Data Review Date: 17MAY90
Supply Item Manager: UX
MSDS Preparer's Name:
Preparer's Company:
Preparer's St Or P. O. Box:
Preparer's City:
Preparer's State:
Preparer's Zip Code:
Other MSDS Number:
MSDS Serial Number: 3900L
Specification Number: FED SPEC F-D-680
Spec Type, Grade, Class: TYPE 1
Hazard Characteristic Code: H4
Unit Of Issue: UN
Unit Of Issue Container Qty: 0 GAL CAN
Type Of Container: 0 GA: CAN
Net Unit Weight: 32.7 LBS
AKU/State License Number: 471
Net Explosive Weight:
Net Propellant Weight-ANFO: 17R
Coast Guard Ammunition Code:



San Joaquin Valley
Unified Air Pollution Control District

June 21, 1995

Castle Joint Powers Authority
Attn: Carol Vollmer
P.O. Box 547
Atwater, CA 95301

COPY

Re: ERC Application Nos: N-109-1, N-109-2, N-109-3, N-109-4 & N-109-5

Project Description: Emission Reduction Credit Certificates for the Shutdown Of Emission Units located at Castle Air Force Base

Dear Ms. Vollmer:

Your application for Emission Reduction Credits (ERC's) has been received by the Air Pollution Control District, and has been reviewed for completeness.

Based on this preliminary review, the application has been determined to be incomplete. The following information is required prior to further processing:

Baseline Period for ERC's:

Pursuant to the California Health and Safety Code, Sec. 40709.7(g) (AB 3204, Cannella), the baseline date for quantifying emission reductions shall be the date that the base closure decision becomes final, and the baseline period shall be the two year period immediately preceding that date. If that two year period is not representative of normal operations, then an alternate, consecutive two year period within the five years prior to the baseline date may be used. District records indicate that the base closure decision date for Castle AFB was April 12, 1991. Therefore, the first consideration for the baseline period is the eight consecutive calendar quarters immediately preceding April 12, 1991. However, an alternate baseline period may be used, as referenced above. Most of the baseline information provided with the application pertained only to the calendar year 1990. In accordance with California Health and Safety Code §40709.7(g), the District is requesting to obtain two consecutive years of data for each of the emission units identified as potential sources of ERC's.

David L. Crow

Executive Director/Air Pollution Control Officer

1998 Lighthouse Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4239 Kerman Avenue, Suite 130 • Madera, CA 95304
(209) 545-7000 • Fax (209) 545-2652

Central Region

1999 Tuletime Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region

2730 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3687 • Fax (805) 861-2060

Aerospace Ground Equipment:

*only info
is size of
tanks
vehicles:*

Provide the fuel usage in each of the eight consecutive calendar quarters to be used for the baseline period. *originally submitted 1990 fuel usages*

✓ The relocation of motor vehicles does not qualify for emission reduction credits.

**Classified Document Incinerator, Bldg. 527, (N-1195-12-0):
Hospital Waste Incinerator, Bldg. 1825, (N-1195-13-0):**

*not
addressed*

Provide the quantity of material incinerated by each unit in each of the eight consecutive calendar quarters to be used for the baseline period. *submitted 1990 or 1991 "records"*

Paint Booth, Bldg 1253, (N-1195-14-0):

*not
addressed*

Provide the Volatile Organic Compound (VOC) containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period. *1987 usages*

- Wheel & Tire Shop Solvent Degreaser, Bldg. 1350, (N-1195-16-0): *1990 usage orig. reported*
- Hydraulic Shop Solvent Degreaser, Bldg. 1350, (N-1195-17-0):
- Hydraulic Shop Solvent Degreaser, Bldg. 1350, (N-1195-96-0):
- Wheel & Tire Shop Solvent Degreaser, Bldg. 1350, (N-1195-97-0):
- Transportation Shop Solvent Degreaser, Bldg. 325, (N-1195-98-0):
- Transportation Shop Solvent Degreaser, Bldg. 325, (N-1195-99-0):
- Solvent Degreaser, Bldg. 1550:
- Engine Shop Solvent Degreaser, Bldg. 1260:
- NDI Shop Degreaser, Bldg. 1532:
- Structural Maintenance Shop Degreaser, Bldg. 1253:
- 7 Safety-Kleen Solvent Degreasers:
 - Transportation - Bldg. 59:
 - Liquid Fuels - Bldg. 1200:
 - ACRP Bearing Shop:
 - Standard Maintenance - Bldg. 1260:
 - Weapons Release - Bldg. 1335:
 - Aerospace Ground Equipment - Bldg. 1344:
 - Fire Maintenance - Bldg. 1344:

*not
addressed*

For each of the above degreasers, provide the solvent usage in each of the eight consecutive calendar quarters to be used for the baseline period.

received

Provide Material Safety Data Sheets for the PD680 solvent, the Safety-Kleen 105 solvent and the Safety-Kleen 6782 solvent.

The NDI shop degreaser reductions are ineligible for ERC's because the 1,1,1 trichloroethane utilized is not defined by the District as a VOC.

Structural Maintenance Shop Paint Strip Tank, Bldg 1253:

not addressed
Provide the VOC containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Liquid Oxygen Cleaning Cart Station, Bldg. 1350, (N-1195-127-0):

The reductions are ineligible for ERC's because the 1,1,1 trichloroethane utilized is not defined by the District as a VOC.

Fiberglass Repair Shop, Bldg. 1253, (N-1195-128-8):

not addressed
Provide a list of the type and quantity of VOC containing materials utilized in each of the eight consecutive calendar quarters to be used for the baseline period. Include items such as fiberglass resins, gelcoats, coatings and solvents. Provide a Material Safety Data Sheet for each material reported.

not addressed
2 Aircraft Wash Racks, Dock 2:

For each rack, provide the solvent usage during each of the eight consecutive calendar quarters to be used for the baseline period.

- not addressed*
- Diesel Fired Boiler (0.228 MMBTU/hr), Bldg. 1404, (N-1195-32-0):
 - Diesel Fired Boiler (0.140 MMBTU/hr), Bldg. 1405, (N-1195-33-0):
 - Diesel Fired Boiler (0.67 MMBTU/hr), Bldg. 1709, (N-1195-36-0):
 - Diesel Fired Boiler (0.506 MMBTU/hr), Bldg. 1762, (N-1195-37-0):
 - Nat. Gas/Diesel Fired Boiler (1.9 MMBTU/hr), Bldg. 1360, (N-1195-54-0):
 - Nat. Gas/Diesel Fired Boiler (1.1 MMBTU/hr), Bldg. 1360, (N-1195-55-0):
 - Diesel Fired Boiler (0.98 MMBTU/hr), Bldg. 1509, (N-1195-66-0):

For each boiler, provide the fuel usage during each of the eight consecutive calendar quarters to be used for the baseline period.

- not addressed*
- Diesel Fired Emergency Generator (900 hp), Bldg. 1750, (N-1195-68-0): 1989 hr of op.
 - Diesel Fired Emergency Generator (100 hp), Bldg. 917, (N-1195-69-0):
 - Diesel Fired Emergency Generator (120 hp), Bldg. 561, (N-1195-71-0):
 - Diesel Fired Emergency Generator (300 hp), Bldg. 1582, (N-1195-73-0): 1989 hr of op.
 - Diesel Fired Emergency Generator (300 hp), Portable, (N-1195-74-0):
 - Diesel Fired Emergency Generator (300 hp), Bldg. 1231, (N-1195-75-0): 1989 hr. of op.
 - Diesel Fired Emergency Generator (300 hp), Portable, (N-1195-76-0):
 - Diesel Fired Emergency Generator (310 hp), Bldg. 360, (N-1195-77-0):
 - Diesel Fired Emergency Generator (400 hp), Bldg. T-71, (N-1195-79-0):
 - Diesel Fired Emergency Generator (400 hp), Portable, (N-1195-80-0): 1989 hr of op
 - Diesel Fired Emergency Generator (400 hp), Portable, (N-1195-81-0): 1989 hr of op
 - Diesel Fired Emergency Generator (58 hp), Bldg. 41/42, (N-1195-88-0):
 - Diesel Fired Emergency Generator (58 hp), Bldg. 1311, (N-1195-89-0):
 - Diesel Fired Emergency Generator (58 hp), Bldg. 917, (N-1195-90-0):
 - Diesel Fired Emergency Generator (58 hp), Bldg. 1905, (N-1195-91-0):
 - Diesel Fired Emergency Generator (58 hp), Bldg. 1708, (N-1195-93-0):
 - Diesel Fired Emergency Generator (900 hp), Bldg. 1336, (N-1195-109-0):
 - Gasoline Fired Emergency Generator (6 hp), Portable:
 - Gasoline Fired Emergency Generator (10 hp), Bldg. 561, (N-1195-71-0):
 - Diesel Fired Emergency Generator (10 hp), Portable:

- not added*
- Diesel Fired Emergency Generator (12 hp), Portable:
 - Diesel Fired Emergency Generator (24 hp), Portable:
 - Diesel Fired Emergency Generator (30 hp), Portable:
 - Diesel Fired Emergency Generator (6 hp), Portable:
 - Diesel Fired Emergency Generator (15 hp), Portable:
 - Diesel Fired Emergency Generator (75 hp), Portable:
 - Diesel Fired Emergency Generator (0.75 hp), Portable:
 - Diesel Fired Emergency Generator (8 hp), Portable:
 - Diesel Fired Emergency Generator (60 hp), Portable:
 - Diesel Fired Emergency Generator (11 hp), Portable:
 - Diesel Fired Emergency Generator (3 hp), Portable:
 - Diesel Fired Emergency Generator (250 hp), Portable:
 - Diesel Fired Emergency Generator (15 hp), Portable:
 - Diesel Fired Emergency Generator (75 hp), Portable:
 - Diesel Fired Emergency Generator (3.5 hp), Portable:

For each generator, provide the fuel usage during each of the eight consecutive calendar quarters to be used for the baseline period.

If the fuel usages are not available, provide the actual operating hours of each generator during each of the eight consecutive calendar quarters to be used for the baseline period.

Fire Fighting Training Area, Near Bldg. 1312:

Provide the quantity of fuel consumed during each of the eight consecutive calendar quarters to be used for the baseline period.

- not added*
- Unleaded Gasoline Storage Tank (Underground), Bldg. 65, (N-1195-1-0):
 - Unleaded Gasoline Storage Tank (Underground), Bldg. 502, (N-1195-2-1):
 - Unleaded Gasoline Storage Tank (Underground), Bldg. 1325, (N-1195-3-0):
 - JP-4 Storage Tank (Underground), Bldg. 1325, (N-1195-4-0)
 - Unleaded Gasoline Storage Tank (Underground), Bldg. 502, (N-1195-119-0):
 - Diesel Storage Tank (Underground), Bldg. 65, (N-1195-118-0):
 - 2 Diesel Storage Tanks (Underground), Bldg. 502:
 - Diesel Storage Tank (Underground), Bldg. 1325, (N-1195-123-0):
 - 3 Unleaded Gasoline Storage Tanks (Underground), Bldg. 785, (N-1196-119-0):

Provide the fuel throughput of each tank during the eight consecutive calendar quarters to be used for the baseline period.

- JP-4 Above Ground Storage Tank, Bldg. 502, N-1195-7-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 502, N-1195-8-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 1304, N-1195-9-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 1304, N-1195-10-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-125-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-124-0: *storage capacity*
- JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-126-0: *storage capacity*

Provide the fuel throughput of each tank during the eight consecutive calendar quarters to be used for the baseline period.

Provide the diameter and height of each tank.

From information submitted by Captain Brian George, the District has identified base operations which may be potential sources of ERC's. The District is requesting the following information in order to determine whether or not these operations are potential sources of ERC's.

Solvent Degreasers

no records

The information submitted by Captain George indicates that there may have been more solvent degreasers than reflected by the application. If more degreasers exist or existed and have or will be removed, provide the following information:

Date of shut down of the additional degreasers.

For each of the degreasers, provide the type of solvent and the usage during each of the eight consecutive calendar quarters to be used for the baseline period.

Provide Material Safety Data Sheets for the solvents used.

Oil/Water Separators:

3 reported removed, 2 in 1995

Date of shut down of each oil/water separator.

Provide the quantity of oil/water separators.

For each oil/water separator, provide the following:

Quantity of waste water (gallons) processed during each of the eight consecutive calendar quarters to be used for the baseline period.

Provide the typical VOC content (ppmv) of the waste water treated.

The quantity, and the function of the sumps or ponds utilized in the oil/water separating operation.

The area (square feet) of each sump or pond.

The VOC content of the water in the sumps or ponds.

The type of material being separated from the water.

State whether the separators were covered or uncovered during the above stated time period.

Base Photo Lab:

Shut down 4/7/95

The quantity of VOC containing material lost to the atmosphere, if any, during the eight consecutive calendar quarters to be used for the baseline period. Provide a Material Safety Data Sheet for each material.

Date of shut down of the lab.

Miscellaneous Coating Operations:

Date of shut down of each of the miscellaneous operations.

If any coating took place outside of the paint booth identified in this ERC application, submit the following information:

For each operation, submit the Volatile Organic Compound (VOC) containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period.

*Shut down
4/18/95*

Ethylene Oxide Usage:

Date of shut down of each ethylene oxide operation.

Provide the ethylene oxide usage during each of the eight consecutive calendar quarters to be used for the baseline period. If any control devices were utilized during this time period, please state the type of device and the manufacturer's guaranteed control efficiency.

*Not
addressed*

JP-7, JP-8, Waste Oil And Hydraulic Fluid Storage Tanks:

The date of shut down of each storage tank.

For each tank, provide the capacity, the type of material stored, the type of vapor control, whether it is above ground or under ground, the height and diameter of any above ground tanks and the throughput in each of the eight consecutive calendar quarters to be used for the baseline period.

*Not
addressed*

Unpaved Roads That Were Paved:

The date the roads were paved.

The quantity (miles) of roads paved on each date.

The average number of vehicle miles traveled on the roads, while they were unpaved, during the eight consecutive calendar quarters prior to the date that the roads were paved.

Silt content of the unpaved road material.

Mean vehicle speed of the vehicles that traveled on the unpaved roads.

*No unpaved
roads were
paved*

Explosives Disposal Operation:

The quantity, type and method of disposal of each explosive during each of the eight consecutive calendar quarters to be used for the baseline period.

*Not
addressed*

Date of shut down of each operation.

If available, emission factors for each type of explosive.

Firing Range:

Date of shut down of the firing range.

The quantity and type of powder utilized at the firing range during each of the eight consecutive calendar quarters to be used for the baseline period.

If available, emission factors for each type of powder.


*Shut down
4/12/95*

In response, please refer to the above ERC numbers, and send to the attention of Mr. Anthony Mendes.

Thank you for your cooperation in this matter. If the District can assist the Castle Joint Powers Authority in obtaining this information, or if you have any questions, please telephone Mr. Anthony Mendes of Permit Services at (209) 545-7000.

Sincerely,

Seyed Sadredin
District Manager of Permit Services


Anthony Mendes
Permit Services Manager

SS/AM/MJS✓

c: Dick Martin, Castle Joint Powers Authority



San Joaquin Valley Unified Air Pollution Control District

June 21, 1995

Castle Joint Powers Authority
Attn: Carol Vollmer
P.O. Box 547
Atwater, CA 95301

COPY

Re: ERC Application Nos: N-109-1, N-109-2, N-109-3, N-109-4 & N-109-5

Project Description: Emission Reduction Credit Certificates for the Shutdown Of Emission Units located at Castle Air Force Base

Dear Ms. Vollmer:

Your application for Emission Reduction Credits (ERC's) has been received by the Air Pollution Control District, and has been reviewed for completeness.

Based on this preliminary review, the application has been determined to be incomplete. The following information is required prior to further processing:

Baseline Period for ERC's:

Pursuant to the California Health and Safety Code, Sec. 40709.7(g) (AB 3204, Cannella), the baseline date for quantifying emission reductions shall be the date that the base closure decision becomes final, and the baseline period shall be the two year period immediately preceding that date. If that two year period is not representative of normal operations, then an alternate, consecutive two year period within the five years prior to the baseline date may be used. District records indicate that the base closure decision date for Castle AFB was April 12, 1991. Therefore, the first consideration for the baseline period is the eight consecutive calendar quarters immediately preceding April 12, 1991. However, an alternate baseline period may be used, as referenced above. Most of the baseline information provided with the application pertained only to the calendar year 1990. In accordance with California Health and Safety Code §40709.7(g), the District is requesting to obtain two consecutive years of data for each of the emission units identified as potential sources of ERC's.

David L. Crow

Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545 6652

Central Region

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

Aerospace Ground Equipment:

Provide the fuel usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Vehicles:

The relocation of motor vehicles does not qualify for emission reduction credits.

Classified Document Incinerator, Bldg. 527, (N-1195-12-0):
Hospital Waste Incinerator, Bldg. 1825, (N-1195-13-0):

Provide the quantity of material incinerated by each unit in each of the eight consecutive calendar quarters to be used for the baseline period.

Paint Booth, Bldg 1253, (N-1195-14-0):

Provide the Volatile Organic Compound (VOC) containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Wheel & Tire Shop Solvent Degreaser, Bldg. 1350, (N-1195-16-0):
Hydraulic Shop Solvent Degreaser, Bldg. 1350, (N-1195-17-0):
Hydraulic Shop Solvent Degreaser, Bldg. 1350, (N-1195-96-0):
Wheel & Tire Shop Solvent Degreaser, Bldg. 1350, (N-1195-97-0):
Transportation Shop Solvent Degreaser, Bldg. 325, (N-1195-98-0):
Transportation Shop Solvent Degreaser, Bldg. 325, (N-1195-99-0):
Solvent Degreaser, Bldg. 1550:
Engine Shop Solvent Degreaser, Bldg. 1260:
NDI Shop Degreaser, Bldg. 1532:
Structural Maintenance Shop Degreaser, Bldg. 1253:
7 Safety-Kleen Solvent Degreasers:
 Transportation - Bldg. 59:
 Liquid Fuels - Bldg. 1200:
 ACRP Bearing Shop:
 Standard Maintenance - Bldg. 1260:
 Weapons Release - Bldg. 1335:
 Aerospace Ground Equipment - Bldg. 1344:
 Fire Maintenance - Bldg. 1344:

For each of the above degreasers, provide the solvent usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Provide Material Safety Data Sheets for the PD680 solvent, the Safety-Kleen 105 solvent and the Safety-Kleen 6782 solvent.

The NDI shop degreaser reductions are ineligible for ERC's because the 1,1,1 trichloroethane utilized is not defined by the District as a VOC.

Structural Maintenance Shop Paint Strip Tank, Bldg 1253:

Provide the VOC containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Liquid Oxygen Cleaning Cart Station, Bldg. 1350, (N-1195-127-0):

The reductions are ineligible for ERC's because the 1,1,1 trichloroethane utilized is not defined by the District as a VOC.

Fiberglass Repair Shop, Bldg. 1253, (N-1195-128-8):

Provide a list of the type and quantity of VOC containing materials utilized in each of the eight consecutive calendar quarters to be used for the baseline period. Include items such as fiberglass resins, gelcoats, coatings and solvents. Provide a Material Safety Data Sheet for each material reported.

2 Aircraft Wash Racks, Dock 2:

For each rack, provide the solvent usage during each of the eight consecutive calendar quarters to be used for the baseline period.

Diesel Fired Boiler (0.228 MMBTU/hr), Bldg. 1404, (N-1195-32-0):
Diesel Fired Boiler (0.140 MMBTU/hr), Bldg. 1405, (N-1195-33-0):
Diesel Fired Boiler (0.67 MMBTU/hr), Bldg. 1709, (N-1195-36-0):
Diesel Fired Boiler (0.506 MMBTU/hr), Bldg. 1762, (N-1195-37-0):
Nat. Gas/Diesel Fired Boiler (1.9 MMBTU/hr), Bldg. 1360, (N-1195-54-0):
Nat. Gas/Diesel Fired Boiler (1.1 MMBTU/hr), Bldg. 1360, (N-1195-55-0):
Diesel Fired Boiler (0.98 MMBTU/hr), Bldg. 1509, (N-1195-66-0):

For each boiler, provide the fuel usage during each of the eight consecutive calendar quarters to be used for the baseline period.

Diesel Fired Emergency Generator (900 hp), Bldg. 1750, (N-1195-68-0):
Diesel Fired Emergency Generator (100 hp), Bldg. 917, (N-1195-69-0):
Diesel Fired Emergency Generator (120 hp), Bldg. 561, (N-1195-71-0):
Diesel Fired Emergency Generator (300 hp), Bldg. 1582, (N-1195-73-0):
Diesel Fired Emergency Generator (300 hp), Portable, (N-1195-74-0):
Diesel Fired Emergency Generator (300 hp), Bldg. 1231, (N-1195-75-0):
Diesel Fired Emergency Generator (300 hp), Portable, (N-1195-76-0):
Diesel Fired Emergency Generator (310 hp), Bldg. 360, (N-1195-77-0):
Diesel Fired Emergency Generator (400 hp), Bldg. T-71, (N-1195-79-0):
Diesel Fired Emergency Generator (400 hp), Portable, (N-1195-80-0):
Diesel Fired Emergency Generator (400 hp), Portable, (N-1195-81-0):
Diesel Fired Emergency Generator (58 hp), Bldg. 41/42, (N-1195-88-0):
Diesel Fired Emergency Generator (58 hp), Bldg. 1311, (N-1195-89-0):
Diesel Fired Emergency Generator (58 hp), Bldg. 917, (N-1195-90-0):
Diesel Fired Emergency Generator (58 hp), Bldg. 1905, (N-1195-91-0):
Diesel Fired Emergency Generator (58 hp), Bldg. 1708, (N-1195-93-0):
Diesel Fired Emergency Generator (900 hp), Bldg. 1336, (N-1195-109-0):
Gasoline Fired Emergency Generator (6 hp), Portable:
Gasoline Fired Emergency Generator (10 hp), Bldg. 561, (N-1195-71-0):
Diesel Fired Emergency Generator (10 hp), Portable:

Diesel Fired Emergency Generator (12 hp), Portable:
Diesel Fired Emergency Generator (24 hp), Portable:
Diesel Fired Emergency Generator (30 hp), Portable:
Diesel Fired Emergency Generator (6 hp), Portable:
Diesel Fired Emergency Generator (15 hp), Portable:
Diesel Fired Emergency Generator (75 hp), Portable:
Diesel Fired Emergency Generator (0.75 hp), Portable:
Diesel Fired Emergency Generator (8 hp), Portable:
Diesel Fired Emergency Generator (60 hp), Portable:
Diesel Fired Emergency Generator (11 hp), Portable:
Diesel Fired Emergency Generator (3 hp), Portable:
Diesel Fired Emergency Generator (250 hp), Portable:
Diesel Fired Emergency Generator (15 hp), Portable:
Diesel Fired Emergency Generator (75 hp), Portable:
Diesel Fired Emergency Generator (3.5 hp), Portable:

For each generator, provide the fuel usage during each of the eight consecutive calendar quarters to be used for the baseline period.

If the fuel usages are not available, provide the actual operating hours of each generator during each of the eight consecutive calendar quarters to be used for the baseline period.

Fire Fighting Training Area, Near Bldg. 1312:

Provide the quantity of fuel consumed during each of the eight consecutive calendar quarters to be used for the baseline period.

Unleaded Gasoline Storage Tank (Underground), Bldg. 65, (N-1195-1-0):
Unleaded Gasoline Storage Tank (Underground), Bldg. 502, (N-1195-2-1):
Unleaded Gasoline Storage Tank (Underground), Bldg. 1325, (N-1195-3-0):
JP-4 Storage Tank (Underground), Bldg. 1325, (N-1195-4-0)
Unleaded Gasoline Storage Tank (Underground), Bldg. 502, (N-1195-119-0):
Diesel Storage Tank (Underground), Bldg. 65, (N-1195-118-0):
2 Diesel Storage Tanks (Underground), Bldg. 502:
Diesel Storage Tank (Underground), Bldg. 1325, (N-1195-123-0):
3 Unleaded Gasoline Storage Tanks (Underground), Bldg. 785, (N-1196-119-0):

Provide the fuel throughput of each tank during the eight consecutive calendar quarters to be used for the baseline period.

JP-4 Above Ground Storage Tank, Bldg. 502, N-1195-7-0:
JP-4 Above Ground Storage Tank, Bldg. 502, N-1195-8-0:
JP-4 Above Ground Storage Tank, Bldg. 1304, N-1195-9-0:
JP-4 Above Ground Storage Tank, Bldg. 1304, N-1195-10-0:
JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-125-0:
JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-124-0:
JP-4 Above Ground Storage Tank, Bldg. 1336, N-1195-126-0:

Provide the fuel throughput of each tank during the eight consecutive calendar quarters to be used for the baseline period.

Provide the diameter and height of each tank.

From information submitted by Captain Brian George, the District has identified base operations which may be potential sources of ERC's. The District is requesting the following information in order to determine whether or not these operations are potential sources of ERC's.

Solvent Degreasers

The information submitted by Captain George indicates that there may have been more solvent degreasers than reflected by the application. If more degreasers exist or existed and have or will be removed, provide the following information:

Date of shut down of the additional degreasers.

For each of the degreasers, provide the type of solvent and the usage during each of the eight consecutive calendar quarters to be used for the baseline period.

Provide Material Safety Data Sheets for the solvents used.

Oil/Water Separators:

Date of shut down of each oil/water separator.

Provide the quantity of oil/water separators.

For each oil/water separator, provide the following:

Quantity of waste water (gallons) processed during each of the eight consecutive calendar quarters to be used for the baseline period.

Provide the typical VOC content (ppmv) of the waste water treated.

The quantity, and the function of the sumps or ponds utilized in the oil/water separating operation.

The area (square feet) of each sump or pond.

The VOC content of the water in the sumps or ponds.

The type of material being separated from the water.

State whether the separators were covered or uncovered during the above stated time period.

Base Photo Lab:

The quantity of VOC containing material lost to the atmosphere, if any, during the eight consecutive calendar quarters to be used for the baseline period. Provide a Material Safety Data Sheet for each material.

Date of shut down of the lab.

Miscellaneous Coating Operations:

Date of shut down of each of the miscellaneous operations.

If any coating took place outside of the paint booth identified in this ERC application, submit the following information:

For each operation, submit the Volatile Organic Compound (VOC) containing material usage in each of the eight consecutive calendar quarters to be used for the baseline period.

Ethylene Oxide Usage:

Date of shut down of each ethylene oxide operation.

Provide the ethylene oxide usage during each of the eight consecutive calendar quarters to be used for the baseline period. If any control devices were utilized during this time period, please state the type of device and the manufacturer's guaranteed control efficiency.

JP-7, JP-8, Waste Oil And Hydraulic Fluid Storage Tanks:

The date of shut down of each storage tank.

For each tank, provide the capacity, the type of material stored, the type of vapor control, whether it is above ground or under ground, the height and diameter of any above ground tanks and the throughput in each of the eight consecutive calendar quarters to be used for the baseline period.

Unpaved Roads That Were Paved:

The date the roads were paved.

The quantity (miles) of roads paved on each date.

The average number of vehicle miles traveled on the roads, while they were unpaved, during the eight consecutive calendar quarters prior to the date that the roads were paved.

Silt content of the unpaved road material.

Mean vehicle speed of the vehicles that traveled on the unpaved roads.

Explosives Disposal Operation:

The quantity, type and method of disposal of each explosive during each of the eight consecutive calendar quarters to be used for the baseline period.

Castle Joint Powers Authority
June 21, 1995
Page 7

Date of shut down of each operation.

If available, emission factors for each type of explosive.

Firing Range:

Date of shut down of the firing range.

The quantity and type of powder utilized at the firing range during each of the eight consecutive calendar quarters to be used for the baseline period.


If available, emission factors for each type of powder.

In response, please refer to the above ERC numbers, and send to the attention of Mr. Anthony Mendes.

Thank you for your cooperation in this matter. If the District can assist the Castle Joint Powers Authority in obtaining this information, or if you have any questions, please telephone Mr. Anthony Mendes of Permit Services at (209) 545-7000.

Sincerely,

Seyed Sadredin
District Manager of Permit Services



Anthony Mendes
Permit Services Manager

SS/AM/MJS✓

c: Dick Martin, Castle Joint Powers Authority

Memorandum

FAXED
7/26/96

1:50 PM

MJB

To: Rick McVaigh
 From: Mark Schonhoff -- Northern Region
 Date: July 26, 1996
 RE: Actual Emissions From Fuel Tanks For The Evaluation Of ERC
 Application N-109-1 (Castle AFB)

The VOC emissions from the evaluation of the above mentioned ERC application. Should you have any questions please contact Mark Schonhoff. Please fax and mail the results to Mark Schonhoff.

Permit # Or Location	Fuel Type	1990 Throughput (1000 gallons)	Tank Capacity (gallons)	Tank Type
N-1195-4-0	JP-4	150	10,000	Underground
N-1195-5-0	JP-4	30,817.8	1,370,000	Above Ground, Internal Floating Roof
N-1195-6-0	JP-4	11,142.9	500,000	Above Ground, External Floating Roof
N-1195-7-0	JP-4	14,287.6	650,000	Above Ground External Floating Roof
N-1195-8-0	JP-4	14,519.5	650,000	Above Ground External Floating Roof
N-1195-9-0	JP-4	4	4,500	Above ground Fixed Roof
N-1195-10-0	JP-4	4	4,500	Above Ground Fixed Roof
N-1195-118-0	Diesel	184.2	4,000	Underground
N-1195-123-0	Diesel	212.8	10,000	Underground
N-1195-124-0	JP-4	1,500	4,000	Above Ground Fixed Roof
N-1195-125-0	JP-4	13,137.2	420,000	Above Ground Internal Floating Roof
N-1195-126-0	JP-4	13,137.2	420,000	Above Ground Internal Floating Roof
Bldg 502	Diesel	166.9	12,000	Underground
Bldg 502	Diesel	166.9	12,000	Underground

**SAN JOAQUIN VALLEY UNIFIED APCD
INTER-OFFICE MEMORANDUM**

DATE: August 1, 1996
TO: Mark Schonhoff - Permit Services - Northern Region
FROM: Cliff Winger
SUBJECT: Castle AFB Emissions from Fuel Tanks for Evaluation of ERC
Application N-109-1

Project Request

On July 26, 1996 you requested Technical Services to perform calculations for the actual emissions of various diesel and jet fuel tanks at Castle Air Force Base with 1990 throughput data.

Background

The EPA has published Tanks 3.0 computer program to estimate air emissions from organic liquids in storage tanks. The Air Pollution (AP) 42 series is the principal documentation of emission factors and calculations used to estimate air emissions. Section 7.1 of AP-42 contains specific information about emission estimations for storage tanks.

Tanks 3.0 allows users to enter specific information about a storage tank (dimensions, construction, paint condition...), the liquid contents (chemical components, volume, and temperature), and the location of the tank (nearest city, ambient temperature, etc.), whereupon, the basic function of Tanks 3.0 is to generate an air emissions report. Tanks 3.0 represents the current (1996) upgrade to maintain consistency with EPA emissions calculation methodology.

Analysis

Emissions calculations were performed using the EPA Tanks 3.0 computer estimation program. Available data in Attachment A was used. Best estimates were made for tank parameters. The EPA default values were used in the absence of other specific data, such as tank color, and specific tank fitting configurations.

Conclusion

Copies of the estimation of emissions in 1990 for the requested tanks are contained in Attachment B. Because of the low vapor pressure of Diesel and JP-4 fuels, the assumed default values do not significantly affect the Tanks 3.0 calculated results, therefore these results reasonably estimate the actual emissions for the Castle Air Force Base tanks in 1990.

cc: Rick McVaigh, Technical Services Manager

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AUG 02 1996
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NO. REGION

Castle Air Force Base Tank Emission Estimation for 1990

PERMIT	FUEL	STANDING LOSS LB.	WORKING LOSS LB.	RIM LOSS LB.	DECK LOSS LB.	ROOF LOSS LB.	TOTAL LOSS POUNDS VOC	TANK TYPE	DIAMETER	HEIGHT	HEIGHT_L	VOLUME	RF_TYPE	NET GAL.	TURN-OVER
N-1195-4-0	Jet naphtha (JP-4)		401				401	Horizontal Fixed Roof	10	17		10000		150000	15
N-1195-118	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	8	10.5		4000		184200	46
N-1195-123	Distillate fuel oil no. 2		5				5	Horizontal Fixed Roof	10	17		10000		213000	21.3
BLDG. 502A	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
BLDG. 502B	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
N-1195-5-0	Jet naphtha (JP-4)		70	937	764.3956		1,772	Internal Floating Roof	80.5			1370000		30825000	22.5
N-1195-6-0	Jet naphtha (JP-4)		35	2,322		2,661	5,018	External Floating Roof	57.5			500000	Pontoon	11150000	22.3
N-1195-7-0	Jet naphtha (JP-4)		39	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14300000	22
N-1195-8-0	Jet naphtha (JP-4)		40	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14495000	22.3
N-1195-9-0	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
N-1195-10-0	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
N-1195-124	Jet naphtha (JP-4)	181	997				1,178	Vertical Fixed Roof	9.5	10	7.7	4083	Cone	1502544	368
N-1195-125	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3
N-1195-126	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3

P. 02/03

FAX NO. 2092332203

SJVUAPCD

AUG-02-96 FRI 09:26

Memorandum

To: Rick McVaigh
From: Mark Schonhoff -- Northern Region
Date: July 26, 1996
RE: Actual Emissions From Fuel Tanks For The Evaluation Of ERC
Application N-109-1 (Castle AFB)

The VOC emissions from the evaluation of the above mentioned ERC application. Should you have any questions please contact Mark Schonhoff. Please fax and mail the results to Mark Schonhoff.

Permit # Or Location	Fuel Type	1990 Throughput (1000 gallons)	Tank Capacity (gallons)	Tank Type
N-1195-4-0	JP-4	150 ✓	10,000	Underground
N-1195-5-0	JP-4	30,817.8 ✓	1,370,000	Above Ground, Internal Floating Roof
N-1195-6-0	JP-4	11,142.9 ✓	500,000	Above Ground, External Floating Roof
N-1195-7-0	JP-4	14,287.6 ✓	650,000	Above Ground External Floating Roof
N-1195-8-0	JP-4	14,519.5 ✓	650,000	Above Ground External Floating Roof
N-1195-9-0	JP-4	4 ✓	4,500	Above ground Fixed Roof
N-1195-10-0	JP-4	4 ✓	4,500	Above Ground Fixed Roof
N-1195-118-0	Diesel	184.2 ✓	4,000	Underground
N-1195-123-0	Diesel	212.8 ✓	10,000	Underground
N-1195-124-0	JP-4	1,500 ✓	4,000	Above Ground Fixed Roof
N-1195-125-0	JP-4	13,137.2 ✓	420,000	Above Ground Internal Floating Roof
N-1195-126-0	JP-4	13,137.2 ✓	420,000	Above Ground Internal Floating Roof
Bldg 502	Diesel	166.9 ✓	12,000	Underground
Bldg 502	Diesel	166.9 ✓	12,000	Underground

RICK:

FYI... CLIFF COMPLETED THE TASK FOR MARK SCHONHOFF. LOOKS PRETTY GOOD. I THINK I'LL HAVE CLIFF SUMMARIZE THE RESULTS INTO A TABLE FOR THE FAX... THEN MAIL THE COMPLETE PACKAGE

John



DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

RECEIVED

SEP 28 1995

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.

26 Sept 95 NO. REGION

AFBCA/OL-I
Building 708
Castle AFB, CA 95342-5000

3489
1195

Mr. Anthony Mendes
San Joaquin Valley Unified
Air Pollution Control District
4230 Kieman Avenue, Ste. 130
Modesto, CA 95356

Re: ERC Application

Dear Mr. Mendes

Following is a response to the letter dated June 21, 1995, in which you requested additional information to process ERC applications for Castle AFB. Unfortunately most of the information you have requested is unavailable because records have been shipped off with the equipment, or personnel who are familiar with the equipment are no longer stationed at the base. The information that is available is listed below.

- Diesel Fired Emergency Generator (900 hp), Bldg. 1750, (N-1195-68-0) ✓
In 1989, actual hours of operation 24 hr./yr.
- Diesel Fired Emergency Generator (300 hp), Bldg. 1582, (N-1195-73-0) ✓
In 1989, actual hours of operation 12 hr./yr.
- Diesel Fired Emergency Generator (300 hp), Bldg. 1231, (N-1195-75-0) ✓
In 1989, actual hours of operation 12 hr./yr.
- Diesel Fired Emergency Generator (400 hp), portable, (N-1195-80-0) ✓
In 1989, actual hours of operation 12
- Diesel Fired Emergency Generator (400 hp), portable, (N-1195-81-0) ✓
In 1989, actual hours of operation 12

The only information about fuel usage is the capacity, no records are available for diameter and height.

- JP-4 Above Ground Storage Tank, Bldg. 502, (N-1195-7-0) ✓
Capacity 650,000 gallons
- JP-4 Above Ground Storage Tank, Bldg. 502, (N-1195-8-0) ✓
Capacity 650,000 gallons

- JP-4 Above Ground Storage Tank, Bldg. 1304, (N-1195-9-0) ✓
Capacity 4,500 gallons
- JP-4 Above Ground Storage Tank, Bldg. 1304, (N-1195-10-0) ✓
Capacity 4,500 gallons
- JP-4 Above Ground Storage Tank, Bldg. 1336, (N-1195-125-0) ✓
Capacity 420,000 gallons
- JP-4 Above Ground Storage Tank, Bldg. 1336, (N-1195-7-0) ✓
Capacity 420,000 gallons
- JP-4 Above Ground Storage Tank, Bldg. 1336, (N-1195-7-0) ✓
Capacity 420,000 gallons

Solvent Degreasers

If there are any additional degreasers that have been shut down, the records would have ✓
been shipped out.

Oil/Water Separators (approximately 20)

- Bldg. 1523 - oil/water separator removed. ✓
- Bldg. 956 closed prior to Sept. 95
- Bldg. 1260 closed prior to Sept. 95

Base Photo Lab was shut down April 7, 1995. ✓

Miscellaneous Coating Operations were shut down April 18, 1995. ✓

Unpaved Roads that were paved

No unpaved roads were paved. ✓

Firing Range was shut down 12 April 95. ✓

If you need additional information please contact Carol Vollmer at (209) 726-4303.


ROBERT R. MATTHEWS, PE
BRAC Environmental Coordinator

Attachment:

- MSDS PD680
- MSDS Safety-Kleen 105
- MSDS Safety-Kleen 6782



San Joaquin Valley Unified Air Pollution Control District

17 Apr 95

Brian K. George, Capt, USAF
93d Civil Engineering Squadron
Bldg 1200
Castle AFB CA 95342-5000

COPY

Re: Generator Permit Condition Clarification.

Dear Mr. George:

This letter serves to clarify the intent of the recordkeeping condition on the emergency standby generator permits, as requested in your correspondence dated 6 Mar 95.


The recordkeeping condition requires the permittee to maintain a daily log of the date, the number of hours operated, and the fuel usage. The San Joaquin Valley Unified Air Pollution Control District (District) requires the permittee to maintain records which enable the District to quantify actual emissions and to verify compliance with permit conditions.

Currently, Castle AFB performs a weekly inspection of each generator. The date, time and duration of each planned operation is recorded during the occurrence. The duration of any automatic operation is recorded during the weekly inspection, based upon the totalizing hour meter equipped on each generator. The District has determined that maintaining records in that manner, along with records of total fuel consumed by each engine over some time interval, satisfies the intent of the recordkeeping requirement and is deemed to be in compliance with the permit condition.

If you have any questions, please contact me at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services



Anthony Mendes
Permit Services Manager - Northern Region

c: Roland Brooks, Compliance Manager

David L. Crow
Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

Central Region

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(209) 497-1000 • Fax (209) 233 2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 93D BOMB WING (ACC)
CASTLE AIR FORCE BASE, CALIFORNIA

MAR 08 1995

6-Mar-95

FROM: 93 CES/CEE

SUBJ: GENERATOR PERMIT CONDITION CLARIFICATION

TO: SJVUAPCD/Anthony Mendes

1. A condition on all Castle AFB Emergency Generator Permits to Operate is to maintain a daily log of the date, number of hours operated and fuel usage of each emergency generator. Given the operating parameters of our emergency generators and the total number of generators throughout the base, we would like the District to determine if our current operating procedures adequately meet these conditions.

2. At this time, Castle has 22 permitted emergency generators. These units, and their associated records, are maintained by our Exterior Electric Shop within Civil Engineering, who perform weekly inspections on each generator (current manning levels do not allow for daily inspections of all generators). Each generator is equipped with an hour meter to indicate total unit run time, which is checked during each inspection, and any operating time is annotated in the generator's log book. The exact date and time of planned operations and actual power outages that result in unit operation are annotated accordingly, but some units have an automatic start-up feature that operates the unit if the voltage drops below 10% of expected levels. These automatic operations can occur at any time, and since our units do not have an automatic date and time recorder, we would not discover these 6-minute runs until the following weekly inspection. Thus, for such incidents, we are able to provide a unit's run log to within 7 days of actual operation. Our primary concern is does this meet the District's recordkeeping requirements of these permits?

3. Your assistance in clarifying this matter will assist us greatly in future operations, as well as in preparing potential reusers to meet all permit requirements of these units. If you have any questions, please contact me at 726-4751.

A handwritten signature in black ink, appearing to read "Brian K. George".

BRIAN K. GEORGE, Capt, USAF
Chief, Engineering Flight



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 93D BOMB WING (ACC)
CASTLE AIR FORCE BASE, CALIFORNIA

MAR 09 1995

FROM: 93 CES/CEE

7-Mar-95

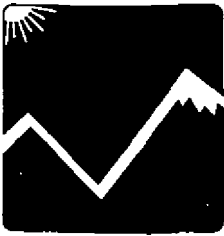
SUBJ: PERMIT HOLDER CLASSIFICATION

TO: SJVUAPCD/Anthony Mendes

1. When Castle AFB closes at the end of September 1995, a number of Air Permits to Operate will be transferred to the Castle Joint Powers Authority (JPA) for later reuse by the local community. The JPA will not actually operate any of the permitted equipment, but rather will be a holding agency until reusers are found and assume permit responsibility. Since the total potential emissions from all of these permits would exceed the Major NOx Source designation level, we would like to know if the District will consider the JPA a Major Source.
2. Of primary concern to the JPA are the requirements associated with being considered a Major Source. For example, there are new boiler rules that require retrofitting large boilers if the owner/operator is also a Major NOx Source. Since the JPA will not operate the boilers, and the actual reuser may not be identified for some time, the JPA is concerned about being labeled a Major NOx Source and having to perform retrofit work on equipment that may otherwise not require the modifications. If considered a Major Source, will the JPA be able to seek relief from some of these types of Major Source requirements?
3. Your clarification on this issue will greatly help both the Air Force and the JPA in the transfer process of these permits. If you have any questions, please feel free to contact me at 726-4751.

A handwritten signature in cursive script, appearing to read "Brian K. George".

BRIAN K. GEORGE, Capt, USAF
Chief, Engineering Flight



San Joaquin Valley Unified Air Pollution Control District

February 7, 1995

Brian K. George, Capt, USAF
93d Civil Engineering Squadron
Bldg 1200
Castle AFB CA 95342-5000

COPY

Re: Base Closure - Emission Reduction Credit Process.

Dear Mr. George:

This letter serves to confirm our meeting and facility tour which is scheduled for 9:00 a.m. on February 23, 1995 at Castle Air Force Base regarding the ERC banking process for the base closure.

California Health and Safety Code 540709.7(d) (AB 3204, Canella) requires the local air district to request and attempt to obtain all records necessary to quantify emission reductions which have been maintained by the military base undergoing closure or realignment. The local air district must request and attempt to obtain these records by July 1, 1995, or six months from the date that the base closure or realignment decision becomes final, whichever is later.

In order to complete this task, the District would like to tour Castle Air Force Base and prepare an inventory of all operations which have the potential for bankable emission reductions. Additionally, the District is requesting access to all documentation which can be used for quantification of the historic actual emissions from each of the operations identified.

The three of my staff engineers will be accompanying me on the facility tour. The District looks forward to working with Castle Air Force Base and with the Castle Joint Powers Authority in facilitating the transition from military to commercial operation. If you have any questions, or if I can provide assistance, please telephone me at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services



Anthony Mendes
Permit Services Manager - Northern Region

c: Dick Martin, Castle Joint Powers Authority

David L. Crow
Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

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DEPARTMENT OF THE AIR FORCE

**HEADQUARTERS 93D BOMB WING (ACC)
CASTLE AIR FORCE BASE, CALIFORNIA**

28 Oct 94

93d Civil Engineer Squadron
Bldg 1200
Castle AFB, CA 95342-5000

Mr. Anthony Mendes
San Joaquin Valley
Unified Air Pollution Control District
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356

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NOV 01 1994

**SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION**

Re: Emission Reduction Credit (ERC) Application Process

Dear Mr. Mendes

As Castle AFB nears closure, many of the missions associated with the base are slowly going away. With these missions also go a number of emissions sources, which the base reuse agency and local community are highly interested in obtaining credits for in order to assist base reutilization. However, the base reuse community is interested in obtaining these credits in the most efficient and cost effective manner possible.

Specifically, there are three groups of ERC applications-- aerospace ground equipment (AGE), emergency generators, and boilers. With the large number of these types of sources around the base, the shutdown and removal of these pieces of equipment are not happening all at one time. Rather, the AGE is being gradually removed and shipped off as the flying mission draws down and the generators and boilers are going away as their buildings are being closed and/or demolished. With the \$600 fee per ERC application, the process of obtaining emission credits would be extremely expensive and time consuming for the base reuse agency if one application is required for each piece of equipment. With the phased drawdown, Castle could be operating against a number of different 180-day application clocks at the same time, depending upon when each piece of equipment was shipped off or when each building was closed and/or demolished.

Our request is two-fold. First, we would like permission from the district to turn in one application for each "group" of equipment once the final equipment leaves Castle or the building is closed and/or demolished. This allows Castle to manage a smaller number of ERC applications, and we would not be forced to track multiple 180-day application deadlines, only the 180 days associated with each "group." Secondly, request a \$600 fee per "group" application rather than \$600 per piece of equipment, generator, or boiler. This is of primary concern to the reuse organization, as they are required to fund the applications, since they will be the ultimate recipients of the credits.

Your assistance in granting this request is greatly appreciated as Castle transitions from a military base to an industrial center. If you have any questions, please contact Capt Brian George at 726-4751.

Sincerely

MARK A. POHLMEIER, Capt, USAF
Base Civil Engineer

Global Power for America

AFBCA/OL-I (STONE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES
 OLD PERMIT

-----FACILITY ID: 1195-----

8,000 GALLONS MOGAS STORAGE TANK #2.

N-1195-1-0 8,000 GALLONS \$ 75.00 1 \$ 75.00
 8030230101 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

12,000 GALLONS, MOGAS STORAGE TANK #15

N-1195-2-0 12,000 GALLONS \$ 75.00 1 \$ 75.00
 8030230201 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

5,000 GALLON MOGAS STORAGE TANK,

N-1195-3-0 5,000 GALLONS \$ 75.00 1 \$ 75.00
 8030230402 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

10,000 GALLON, JP4, STORAGE TANK. ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR *****
 CONVERTED FROM JP4 TO JP8 *****

N-1195-4-0 10,000 GALLONS \$ 75.00 1 \$ 75.00
 8060020101 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

1.37MMGALLON JP4 STORAGE TANK #1H ***** THIS PERMIT DELETED PER MFR FROM TONY SCOTT OF COMPLIANCE DATED 10/28/-
 93 ***** CHANGED FROM JP4 TO JP8 *****

N-1195-5-0 > 1 MM GALLONS \$ 310.00 1 \$ 310.00
 8060020201 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

0.5 MMGALLON JP4 STORAGE TANK #2H ***** THIS PERMIT DELETED PER MFR FROM TONY SCOTT OF COMPLIANCE DATED 10-
 -28-93 ***** CHANGED FROM JP4 TO JP8 *****

N-1195-6-0 500,000 GALLONS \$ 245.00 1 \$ 245.00
 8060020202 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

0.65 MMGALLON JP4 STORAGE TANK #4H. ***** THIS PERMIT DELETED PER TONY SCOTT'S MFR DATED 10/28/93 **-
 ***** CHANGED FROM JP4 TO JP8 *****

N-1195-7-0 650,000 GALLONS \$ 245.00 1 \$ 245.00
 8060020203 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

0.65 MMGALLON JP4 STORAGE TANK #3H. ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR DATED 10/28/93 **-
 ***** CONVERTED FROM JP4 TO JP8 *****

N-1195-8-0 650,000 GALLONS \$ 245.00 1 \$ 245.00
 8060020204 PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES

-----FACILITY ID: 1195-----
 4,500 GALLON JP4 STORAGE TANK ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/93 ***** -
 ***** CONVERTED FROM JP4 TO JP8 *****
 N-1195-9-0 4,500 GALLONS \$ 60.00 1 \$ 60.00
 8060020804 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 4,500 GALLON JP4 STORAGE TANK ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/93 *****-
 ***** CONVERTED FROM JP4 TO JP8 *****
 N-1195-10-0 4,500 GALLONS \$ 60.00 1 \$ 60.00
 8060020805 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 CLASSIFIED DOCUMENT INCINERATOR ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/93 ***** *-
 ***** INCINERATOR DECOMMISSIONED. NO LONGER IN PLACE *****
 N-1195-12-0 1,600 KBTU \$ 335.00 1 \$ 335.00
 4010040101 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 HOSPITAL WASTE INCINERATOR ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR DATED 10/28/93 *****-
 ***** THIS INCINERATOR IS NO LONGER BIENG USED. *****
 N-1195-13-0 7.8 SQ FT \$ 70.00 1 \$ 70.00
 4070040102 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 FME PAINT SPRAY BOOTH, BINKS- NO PUMP DYNA UNIT (2) **** DELETED JUNE 1993 PER TS ***** -
 N-1195-14-0 25 HP \$ 70.00 1 \$ 70.00
 8020060101 PERMIT(S) STATUS: D

Metal parts & products.

-----FACILITY ID: 1195-----
 WHEEL AND TIRE SHOP DEGREASER
 N-1195-16-0 110 GALLONS \$ 60.00 1 \$ 60.00
 8100010201 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 HYDRAULIC SHOP DEGREASER
 N-1195-17-0 110 GALLONS \$ 60.00 1 \$ 60.00
 8100010202 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER, KEWANEE #3R12 SERIES IX, 1.2 MMBTU/HR
 N-1195-19-0 1,200 KBTU \$ 255.00 1 \$ 255.00
 3030170301 PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES

OLD PERMIT

-----FACILITY ID: 1195-----

✓ BOILER, KEWANEE, 2.4 MMBTU/HR -

N-1195-20-0 2,400 KBTU \$ 335.00 1 \$ 335.00
3030170601

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, KEWANEE, 2.4 MMBTU/HR -

N-1195-21-0 2,400 KBTU \$ 335.00 1 \$ 335.00
3030170602

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, AJAX MODEL WGOFD900, 0.9 MMBTU/HR, S/N 732791 -

N-1195-22-0 900 KBTU \$ 255.00 1 \$ 255.00
3030171001

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, 2 MMBTU/HR ***** DELETED PER TONY SCOTT'S CHANGE ORDER DATED 1-13-94 ***** -

N-1195-25-0 2,000 KBTU \$ 335.00 1 \$ 335.00
3030171501

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, RITE MODEL 120, 1.2 MMBTU/HR -

N-1195-26-0 1,200 KBTU \$ 255.00 1 \$ 255.00
3030171901

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, FITZGIBBONS MODEL 400 SERIES, 567,000 BTU/HR -

N-1195-27-0 567 KBTU \$ 160.00 1 \$ 160.00
3030172201

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, KEWANEE, 960,000 BTU/HR -

N-1195-28-0 960 KBTU \$ 255.00 1 \$ 255.00
3030172401

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

✓ BOILER, BURNHAM JUBILEE, 227,800 BTU/HR ***** DELETED PER TONY SCOTT'S CHANGE ORDER DATED 01-13-94. ***** -

N-1195-32-0 228 KBTU \$ 95.00 1 \$ 95.00
3030172901

PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT	FEE DESCRIPTION	FEE AMOUNT	QTY.	TOTAL FEES	
OLD PERMIT					
-----FACILITY ID: 1195-----					
	BOILER, HYDRO-THERM MODEL OH140, 140,000 BTU/HR (FS-2 FUEL OIL ONLY)				-
N-1195-33-0 3030173001	140,000 BTU/HR.	\$ 70.00	1	\$ 70.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, WEBCO-RAY MODEL 54, 2.7 MMBTU/HR				-
N-1195-34-0 3030173201	2,700 KBTU	\$ 495.00	1	\$ 495.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, KEWANEE MODEL A712, 1 MMBTU/HR				-
N-1195-35-0 3030173202	1,000 KBTU	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, 670,000 BTU/HR (FS-2 FUEL OIL ONLY)				-
N-1195-36-0 3030173401	670 KBTU	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, NATIONAL STEEL R0142640, 506,000 BTU/HR (FS-2 FUEL OIL ONLY)				-
N-1195-37-0 3030173601	506 KBTU	\$ 160.00	1	\$ 160.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, TRANE FTBB311F-25-W030-GP, 4.2 MMBTU/HR				-
N-1195-38-0 3030173701	4,200 KBTU	\$ 495.00	1	\$ 495.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, AJAX, 2.51 MMBTU/HR				-
N-1195-39-0 3030173901	2,500 KBTU	\$ 335.00	1	\$ 335.00	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	BOILER, AJAX, 1.26 MMBTU/HR				-
N-1195-40-0 3030173902	1,260 KBTU	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT	FEE DESCRIPTION	FEE AMOUNT	QTY.	TOTAL FEES	
OLD PERMIT					
=====FACILITY ID: 1195=====					
	BOILER, MOBILITY CENTER, 1.65 MMBTU/HR				-
N-1195-41-0	1,650 KBTU	\$ 335.00	1	\$ 335.00	
3030174001					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, BX FACILITY, 900,000 BTU/HR				-
N-1195-44-0	900 KBTU	\$ 255.00	1	\$ 255.00	
3030174401					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, THEATER, 720,000 BTU/HR				-
N-1195-45-0	720 KBTU	\$ 255.00	1	\$ 255.00	
3030174501					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, BOWLING CENTER, 1.33 MMBTU/HR				-
N-1195-46-0	1,330 KBTU	\$ 255.00	1	\$ 255.00	
3030174601					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, WING HQ, 312,000 BTU/HR				-
N-1195-47-0	312 KBTU/HR.	\$ 95.00	1	\$ 95.00	
3030174801					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, WING HQ, 1.12 MMBTU/HR				-
N-1195-48-0	1,120 KBTU	\$ 255.00	1	\$ 255.00	
3030174802					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, SQUADRON OPS, 360,000 BTU/HR				-
N-1195-49-0	360 KBTU/HR	\$ 95.00	1	\$ 95.00	
3030174901					PERMIT(S) STATUS: D
=====FACILITY ID: 1195=====					
	BOILER, SQUADRON OPS, 560,000 BTU/HR				-
N-1195-50-0	560 KBTU/HR	\$ 160.00	1	\$ 160.00	
3030175001					PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT	FEE DESCRIPTION	FEE AMOUNT	QTY.	TOTAL FEES	
=====FACILITY ID: 1195=====					
	BOILER, SQUADRON OPS, 560,000 BTU/HR				
N-1195-51-0	560 KBTU	\$ 160.00	1	\$ 160.00	PERMIT(S) STATUS: D
3030175101					
=====FACILITY ID: 1195=====					
	BOILER, SQUADRON OPS, 560,000 BTU/HR				
N-1195-52-0	560 KBTU	\$ 160.00	1	\$ 160.00	PERMIT(S) STATUS: D
3030175201					
=====FACILITY ID: 1195=====					
	BOILER, BASE OPS, 837,000 BTU/HR				
N-1195-53-0	837 KBTU/HR	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D
3030175301					
=====FACILITY ID: 1195=====					
	REMOVED FROM SERVICE				
N-1195-54-0	1,900 KBTU	\$ 335.00	1	\$ 335.00	PERMIT(S) STATUS: D
3030175501					
=====FACILITY ID: 1195=====					
	REMOVED FROM SERVICE				
N-1195-55-0	1,100 KBTU	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D
3030175502					
=====FACILITY ID: 1195=====					
	BOILER, 800,000 BTU/HR				
N-1195-56-0	800 KBTU	\$ 255.00	1	\$ 255.00	PERMIT(S) STATUS: D
3030175601					
=====FACILITY ID: 1195=====					
	BOILER, 215,000 BTU/HR				
N-1195-57-0	215 KBTU/HR	\$ 95.00	1	\$ 95.00	PERMIT(S) STATUS: D
3030175701					
=====FACILITY ID: 1195=====					
	BOILER, 2.1 MMBTU/HR				
N-1195-58-0	2,100 KBTU	\$ 335.00	1	\$ 335.00	PERMIT(S) STATUS: D
3030175901					

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES

OLD PERMIT

-----FACILITY ID: 1195-----

BOILER, 350,000 BTU/HR -

N-1195-59-0 350 KBTU \$ 95.00 1 \$ 95.00

3030176001 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 4.83 MMBTU/HR (BLDG 1210) -

N-1195-62-0 4,830 KBTU \$ 495.00 1 \$ 495.00

3030176103 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 168,000 BTU/HR -

N-1195-63-0 168 KBTU/HR \$ 95.00 1 \$ 95.00

3030176201 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 250,000 BTU/HR -

N-1195-64-0 250 KBTU \$ 95.00 1 \$ 95.00

3030176301 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 840,000 BTU/HR -

N-1195-65-0 840 KBTU/HR \$ 255.00 1 \$ 255.00

3030176401 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 980,000 BTU/HR (FUEL OIL ONLY) -

N-1195-66-0 980 KBTU \$ 255.00 1 \$ 255.00

3030176601 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

BOILER, 2.1 MMBTU/HR -

N-1195-67-0 2,070 KBTU \$ 335.00 1 \$ 335.00

3030176501 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

450 KW EMERGENCY GENERATOR -

N-1195-68-0 900 HP \$ 490.00 1 \$ 490.00

3100020101 PERMIT(S) STATUS: D

APBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES
 OLD PERMIT

-----FACILITY ID: 1195-----

80 KW EMERGENCY GENERATOR -

N-1195-69-0 100 HP \$ 95.00 1 \$ 95.00
 3100020102 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

60 KW EMERGENCY GENERATOR -

N-1195-71-0 120 HP \$ 95.00 1 \$ 95.00
 3100020104 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

150 KW EMERGENCY GENERATOR -

N-1195-73-0 300 HP \$ 195.00 1 \$ 195.00
 3100020106 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

150 KW EMERGENCY GENERATOR -

N-1195-74-0 300 HP \$ 195.00 1 \$ 195.00
 3100020107 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

150 KW EMERGENCY GENERATOR -

N-1195-75-0 300 HP \$ 195.00 1 \$ 195.00
 3100020108 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

150 KW EMERGENCY GENERATOR ***** PERMIT DELETED PER TONY SCOTT'S MFR DATED 12-27-93 *****

N-1195-76-0 300 HP \$ 195.00 1 \$ 195.00
 3100020109 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

155 KW EMERGENCY GENERATOR -

N-1195-77-0 310 HP \$ 195.00 1 \$ 195.00
 3100020110 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

200 KW EMERGENCY GENERATOR -

N-1195-79-0 400 HP \$ 390.00 1 \$ 390.00
 3100020112 PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301 TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT	FEE DESCRIPTION	FEE AMOUNT	QTY.	TOTAL FEES	PERMIT(S) STATUS: D
-----FACILITY ID: 1195-----					
	200 KW EMERGENCY GENERATOR				-
N-1195-80-0	400 HP	\$ 390.00	1	\$ 390.00	
3100020113					

-----FACILITY ID: 1195-----

200 KW EMERGENCY GENERATOR ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/93 ***** THIS-GENERATOR WAS TAKEN OUT OF SERVICE *****

N-1195-81-0	400 HP	\$ 390.00	1	\$ 390.00	PERMIT(S) STATUS: D
3100020114					

-----FACILITY ID: 1195-----

BRYAN FLEXTUBE BOILER, 0.2 MM BTU/HOUR, NATURAL GAS WITH DIESEL STANDBY

N-1195-85-0	200 K BTU PER HOUR	\$ 95.00	1	\$ 95.00	PERMIT(S) STATUS: D
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-----FACILITY ID: 1195-----

30 KW EMERGENCY DIESEL GENERATOR, MAKE-ONAN, MODEL # 300DD1-15R, INSTALLED FEB. 1984. (58 HP)

N-1195-88-0	58 HP	\$ 65.00	1	\$ 65.00	PERMIT(S) STATUS: D
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-----FACILITY ID: 1195-----

30 KW EMERGENCY DIESEL GENERATOR, MAKE-JOHN DEERE, MODEL # C820615395, INSTALLED JAN. 1982. (58 HP)

N-1195-89-0	58 HP	\$ 65.00	1	\$ 65.00	PERMIT(S) STATUS: D
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-----FACILITY ID: 1195-----

30 KW EMERGENCY DIESEL GENERATOR, MAKE-JOHN DEERE, MODEL # 4219DF01, INSTALLED DEC.1983. (58 HP)

N-1195-90-0	58 HP	\$ 65.00	1	\$ 65.00	PERMIT(S) STATUS: D
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-----FACILITY ID: 1195-----

EMERGENCY POWER GENERATOR (30KW): JOHN DEERE 58 HP DIESEL ENGINE, MODEL #C820615395. INSTALLED JAN 85. (58 HP)

N-1195-91-0	58 HP	\$ 65.00	1	\$ 65.00	PERMIT(S) STATUS: D
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-----FACILITY ID: 1195-----

EMERGENCY POWER GENERATOR (30 KW): ONAN 58 HP DIESEL ENGINE, MODEL #3000DDA-15R. INSTALLED APRIL 1982. (58 HP)

N-1195-93-0	58 HP	\$ 65.00	1	\$ 65.00	PERMIT(S) STATUS: D
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AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES
 OLD PERMIT

-----FACILITY ID: 1195-----
 EMERGENCY POWER GENERATOR (150 KW): ALLIS CHALMERS 276 HP DIESEL ENGINE, MODEL #6138LT. INSTALLED DECEMBER 1982 *****-
 DELETED PER TS'S MFR DATED 12-27-93 *****
 N-1195-95-0 276 HP \$ 195.00 1 \$ 195.00
 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 ORGANIC SOLVENT DEGREASING OPERATION USED FOR CLEANING AEROSPACE COMPONENTS (LOCATED IN BUILDING #1350, HYDRAULICS SHOP) SERV-
 ED BY A PENETONE, MODEL # MS17600H DEGREASER USING PD680 TYPE II SOLVENT.
 N-1195-96-0 8 HP \$ 70.00 1 \$ 70.00
 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 ONE (1) CUMMINS 900 HP DIESEL ENGINE, MODEL #VT-A28-G2, SERVING A 600 KW EMERGENCY GERNERATOR AND ENGINE SET. -
 -1195-109-0 900 HP. \$ 490.00 1 \$ 490.00
 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER, 2.4 MMBTU/HR, MODEL # KRWANEE #84482, NATURAL GAS FIRED, STANDBY FUEL- DIESEL #2 -
 N-1195-110-0 2,400 KBTU/HR BOILER \$ 335.00 1 \$ 335.00
 3030170603 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER, .528 MMBTU/HR, MODEL - KEWANEE #3R6, NATURAL GAS FIRED, STANDBY FUEL - DIESEL #2. -
 N-1195-111-0 528 KBTU/HR BOILER \$ 160.00 1 \$ 160.00
 3030172402 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER 4.68 MMBTU/HR, MODEL NEBRASKA #2235, NATURAL GAS FIRED, STANDBY FUEL - DIESEL #2. -
 N-1195-112-0 4,680KBTU/HR BOILER \$ 495.00 1 \$ 495.00
 3030174103 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER 0.43 MMBTU/HR, MODEL- TELEDYNE LAARS #400, NATURAL GAS FIRED, STANDBY FUEL-DIESEL #2. -
 N-1195-113-0 430KBTU/HR BOILER \$ 160.00 1 \$ 160.00
 3030175902 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 BOILER 0.98MMBTU/HR. ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR DATED 10/28/93 *****
 * DUPLICATION OF PERMIT # N-1195-66-0 *****
 N-1195-114-0 BOILER 980KBTU/HR. \$ 255.00 1 \$ 255.00
 3030176601 PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES

OLD PERMIT

-----FACILITY ID: 1195-----

BOILER 0.84 MMBTU/HR, NATURAL GAS FIRED, STANDBY FUEL-DIESEL #2.

N-1195-115-0 840 KBTU/HR BOILER \$ 255.00 1 \$ 255.00

3030174201

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

ONE (1) 4,000 GALLON DIESEL STORAGE TANK. #4165, SERVED BY PHASE I VAPOR RECOVERY SYSTEM. ***** PERMIT DELETED PER -
TS'S MFR DATED 12-27-93 *****

N-1195-118-0 4,000 GALLON \$ 60.00 1 \$ 60.00

8030230102

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

ONE (1) 12,000 GALLON MOGAS STORAGE TANK #16

N-1195-119-0 12,000 GALLON \$ 75.00 1 \$ 75.00

8030230202

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK. ((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

N-1195-120-0 10,000 GALLON STORAGE TANK \$ 75.00 1 \$ 75.00

8040510101

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK. ((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

N-1195-121-0 10,000 GALLON TANK \$ 75.00 1 \$ 75.00

8040510102

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK. ((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

N-1195-122-0 10,000 GALLON TANK \$ 75.00 1 \$ 75.00

8040510103

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

10,000 GALLON DIESEL TANK

N-1195-123-0 10,000 GALLON DIESEL TANK \$ 75.00 1 \$ 75.00

8060020102

PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----

4,000 GALLON JP4 FUEL TANK. ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/93 ***** *-
***** CONVERTED FROM JP4 TO JP8. *****

N-1195-124-0 4,000 GALLON TANK \$ 60.00 1 \$ 60.00

8060020901

PERMIT(S) STATUS: D

AFBCA/OL-I (STOWE), 3350 F STREET, ATWATER, CA 95301

TEL: (209) 726-4304

BILLING MONTH: 10 FACILITY STATUS: A AREA NO: 7 MAJOR? MI PO EXP: 10/01/98

EQUIPMENT DESCRIPTION

PERMIT FEE DESCRIPTION FEE AMOUNT QTY. TOTAL FEES
 OLD PERMIT

-----FACILITY ID: 1195-----
 ✓ 10,000 BBL (420,000 GALLON) JP4 TANK #1 ***** DELETED PER TONY SCOTT'S MFR DATED 10/28/93 *****
 ***** CONVERTED FROM JP4 TO JP8 *****
 N-1195-125-0 420,000 GALLON JP4 TANK \$ 200.00 1 \$ 200.00
 8060021001 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 ✓ 10,000 BBL (420,000 GALLON) JP4 FUEL TANK ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED 10/28/9-
 3 ***** CONVERTED FROM JP4 TO JP8 *****
 N-1195-126-0 10,000 BBL(420,000 GALLON)TANK \$ 200.00 1 \$ 200.00
 8060021002 PERMIT(S) STATUS: D

-----FACILITY ID: 1195-----
 ✓ LOX CLEANING CART STATION ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR DATED 10/28/93 *****
 ***** THIS OPERATION NOW USES ONLY HOT AIR ** NO COMBUSTION *****
 N-1195-127-0 LOX CLEANING CART STATION \$ 85.00 1 \$ 85.00
 8100010203 PERMIT(S) STATUS: D

1995 Castle Air Force Base ERC Application

Permit #	Status	Bldg	Equipment	Notes
None	Removed from Castle AFB	N/A	Aerospace Ground Equipment	Total quantity of each type of fuel burned during 1990, an equipment list, and the type of fuel burned by each piece of equipment
None	Removed from Castle AFB	N/A	Govt. Owned Vehicles	1990 miles traveled by all vehicles combined (estimated from 1990 fuel usage). Informed them that the relocation of vehicles does not qualify for ERCs
N-1195-12-0	Permit deleted- not trans.	527	Classified Document Incinerator	Incinerator operator estimate of 1990 throughput
N-1195-13-0	Permit deleted- not trans.	1185	Hospital Waste Incinerator	Incinerator operator estimate of 1990 throughput
N-1195-14-0	Permit deleted- not trans.	1253	Paint Booth	Estimates of one year of material usage, time period not reported.
N-1195-16-0	Permit deleted- not trans.	1350	Degreaser (Wheel & Tire Shop)	1990 solvent delivery records and an estimated 15% evaporation rate
N-1195-17-0	Permit deleted- not trans.	1350	Degreaser (Hydraulic Shop)	1990 solvent delivery records and an estimated 15% evaporation rate
N-1195-96-0	Permit deleted- not trans.	1350	Degreaser (Hydraulic Shop)	1990 solvent delivery records and Safety-kleen recovery rates, estimated evaporation rate of 25%
N-1195-97-0	Permit deleted- not trans.	1350	Degreaser (Wheel & Tire Shop)	1990 solvent delivery records and an estimated evaporation rate of 15%
N-1195-98-0	Permit deleted- not trans.	325	Degreaser (Transportation Shop)	1990 solvent delivery records and Safety-Kleen recovery rates, estimated evaporation rate of 25%
N-1195-99-0	Permit deleted- not trans.	325	Paint Gun Cleaner (Transportation Shop)	1990 solvent delivery records and Safety-Kleen recovery rates
None	Permit deleted- not trans.	1550	Degreaser	1990 solvent delivery records and an estimated 15% evaporation rate
None	Permit deleted- not trans.	1260	Degreaser (Engine Shop)	1990 solvent delivery records and an estimated 15% evaporation rate
None	Permit deleted- not trans.	1532	Degreaser (NDI Shop)	1990 1,1,1 trichloroethane delivery records and an evaporation rate. Informed them that 1,1,1 trichloroethane is not defined by the District as a VOC.
None	Permit deleted- not trans.	1253	Degreaser (Struct. Maintenance Shop)	1990 solvent delivery records and an evaporation rate

1995 Castle Air Force Base ERC Application

Permit #	Status	Bldg	Equipment	Notes
None	Permit deleted- not trans.	Various	Solvent Degreasers	1990 solvent delivery records and an estimated 25% evaporation rate (from supplier)
None	Permit deleted- not trans.	1253	Paint Strip Tank (Struct. Maintenance)	1990 solvent delivery records and an evaporation rate
N-1195-127-0	Permit deleted- not trans.	1350	LOx Cleaning Station	1990 1,1,1 trichloroethane delivery records and an evaporation rate. Informed them that 1,1,1 trichloroethane is not defined by the District as a VOC.
N-1195-128-0	Trans. To JPA	1253	Fiberglass Repair Shop	1990 material delivery records
None	Not Trans.	Dock 2	2 - Aircraft Washracks	1990 solvent usage
None	Not Trans.	1312	Fire Fighting Training Area	Records of the type and quantity of fuel burned in 1989 & 1990 combined (not separated by year)
N-1195-32-0	Permit deleted- not trans.	1404	227,800 BTU/hr diesel fired boiler	1991 fuel oil usage
N-1195-33-0	Permit deleted- not trans.	1405	140,000 BTU/hr diesel fired boiler	1991 fuel oil usage
N-1195-36-0	Permit deleted- not trans.	1709	670,000 BTU/hr diesel fired boiler	1991 fuel oil usage
N-1195-37-0	Permit deleted- not trans.	1762	506,000 BTU/hr diesel fired boiler	1994 fuel oil usage
N-1195-54-0	Permit deleted, Unit removed	1360	1.903 MMBTU/hr diesel/gas fired boiler	Reported that it operated 20 hours per day in 1990
N-1195-55-0	Permit deleted, Unit removed	1360	1.09 MMBTU/hr diesel/gas fired boiler	Reported that it operated 20 hours per day in 1990
N-1195-66-0	Permit deleted- not trans.	1509	980,000 BTU/hr diesel fired boiler	1991 fuel usage
N-1195-68-0	Permit deleted- not trans.	1750	450 kw/900 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-69-0	Permit deleted- not trans.	917	50 kw/100 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-71-0	Permit deleted- not trans.	561	60 kw/120 hp diesel fired em. gen..	1990 operating times (from logs) and the hp of each
N-1195-73-0	Permit deleted- not trans.	1582	150 kw/300 hp diesel fired em. gen..	1990 operating times (from logs) and the hp of each

N-1195-74-0	Permit deleted- not trans.		150 hp/300 kW diesel fired em. gen..	1990 operating times (from logs) and the hp of each
N-1195-75-0	Permit deleted- not trans.	1231	150 kw/300 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-76-0	Permit deleted- not trans.		150 kw/300 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-77-0	Permit deleted- not trans.	360	155 kw/310 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-79-0	Permit deleted- not trans.	T-71	200 kw/400 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-80-0	Permit deleted- not trans.		200 kw/400 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-81-0	Permit deleted- not trans.		200 kw/400 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-88-0	Permit deleted- not trans.	41/42	30 kw/58 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-89-0	Permit deleted- not trans.	1311	30 kw/58 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-90-0	Permit deleted- not trans.	917	30 kw/58 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-91-0	Permit deleted- not trans.	1905	30 kw/58 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-93-0	Permit deleted- not trans.	1708	30 kw/58 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-109-0	Permit deleted- not trans.	1336	600 kw/900 hp diesel fired em. gen.	1993 or 1994 operating time (from log) and the hp
None	Unknown		3 kw/6 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		3 kw/6 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kW/ 10 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kW/ 10 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kW/ 10 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kW/ 10 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kW/ 10 hp gas fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kw/10 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		5 kw/10 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each

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None	Unknown		2 kW/ 3.5 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		2 kW/ 3.5 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
None	Unknown		2 kW/ 3.5 hp diesel fired em. gen.	1990 operating times (from logs) and the hp of each
N-1195-1-0	Permit deleted- not trans.	65	8,000 gal. gasoline UST	1990 throughput (from logs), tank type
N-1195-2-1	Permit deleted- not trans.	502	12,000 gal. gasoline UST	1990 throughput (from logs), tank type
N-1195-3-0	Permit deleted- not trans.	1325	5,000 gal. gasoline UST	1990 throughput (from logs), tank type
N-1195-4-0	Permit deleted, changed from JP-4 to JP-8 storage	1325	10,000 gal. JP-4 UST	1990 throughput (from logs), tank type
N-1195-5-0	Permit deleted, changed from JP-4 to JP-8 storage	502	1.37 MM gal. JP-4 UST	1990 throughput (from logs), tank type
N-1195-6-0	Permit deleted, changed from JP-4 to JP-8 storage	502	0.5 MM gal. JP-4 AST	1990 throughput (from logs), tank type
N-1195-7-0	Permit deleted, changed from JP-4 to JP-8 storage	502	0.650 MM gal. JP-4 AST	1990 throughput (from logs), tank type
N-1195-8-0	Permit deleted, changed from JP-4 to JP-8 storage	502	0.650 MM gal. JP-4 AST	1990 throughput (from logs), tank type
N-1195-9-0	Permit deleted, changed from JP-4 to JP-8 storage	1304	4,500 gal JP-4 AST	1990 throughput (from logs), tank type
N-1195-10-0	Permit deleted, changed from JP-4 to JP-8 storage	1304	4,500 gal JP-4 AST	1990 throughput (from logs), tank type
N-1195-119-0	Permit deleted- not trans.	502	12,000 gal. gasoline UST	1990 throughput (from logs), tank type
N-1195-118-0	Permit deleted- not trans.	65	4,000 gal. diesel UST	1990 throughput (from logs), tank type
None	"Shut down 4/95"	502	12,000 gal. diesel UST	1990 throughput (from logs), tank type

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None	"Shut down 4/95"	502	12,000 gal. diesel UST	1990 throughput (from logs), tank type
N-1195-125-0	Permit deleted, changed from JP-4 to JP-8 storage	1336	0.420 MM gal. JP-4 AST	1990 throughput (from logs), tank type
N-1195-123-0	Not Trans.	1325	10,000 gal diesel UST	1990 throughput (from logs), tank type
N-1195-124-0	Permit deleted, changed from JP-4 to JP-8 storage	1336	4,000 gal. JP-4 AST	1990 throughput (from logs), tank type
N-1195-126-0	Permit deleted, changed from JP-4 to JP-8 storage	1336	0.420 MM gal. JP-4 AST	1990 throughput (from logs), tank type
N-1196-1-0	Active	785	10,000 gal gasoline UST	Service Station, ineligible for ERCs
N-1196-1-0	Active	785	10,000 gal gasoline UST	Service Station, ineligible for ERCs
N-1196-1-0	Active	785	10,000 gal gasoline UST	Service Station, ineligible for ERCs

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Permit #	Bldg	Operation Type	Location	Notes	Status
4010040101	527	Class. Doc. Incinerator	Not Stated	1 - Classified Document Incinerator Applied For In 1995, provided 1990 throughput	Removed
4070040101	1185	Med. Waste Incinerator	Not Stated	1 - Medical Waste Incinerator Applied For In 1995, Provided 1990 Throughput	Removed
		Fire Fighting Practice Pits	Not stated	Fire fighting practice pits applied for in 1995, provided separate fuel usages for 1989 and 1990	Unknown
	1405	Surface Coating	Battery Shop	Seem to have reported actual VOC emissions during 1990	
	1509	Surface Coating	fuel system repair	Seem to have reported actual VOC emissions during 1990	
	1350	Surface Coating	Pneudraulics	Seem to have reported actual VOC emissions during 1990	
	1350	Surface Coating	Repair - Reclamation	No usage during 1990	
	1250	Surface Coating	JEIM - FMS	Seem to have reported actual VOC emissions during 1990	
	949	Surface Coating	FMS Test Cell	Seem to have reported actual VOC emissions during 1990	
	1248	Surface Coating	93FMS Fabric Survey Equip.	Seem to have reported actual VOC emissions during 1990	
	1260	Surface Coating	Stand Maintenance	Seem to have reported actual VOC emissions during 1990	
	1324	Surface Coating	AGE	Seem to have reported actual VOC emissions during 1990	
	1532	Surface Coating	NDI	Seem to have reported actual VOC emissions during 1990	
	1762	Surface Coating	93 MMS Conv. Weapons	Seem to have reported actual VOC emissions during 1990	
	1550	Surface Coating	93 MMS Weapons Loading	No usage	
	908	Surface Coating	93 CES Water Waste	No usage	
	908	Surface Coating	Entomology	No usage	
	1882	Surface Coating	93 SPS Combat Arms	No usage	
	1560	Surface Coating	93 MMS Loading Stand	No usage	
	1350	Surface Coating	93 FMS Strat electro env.	Seem to have reported actual VOC emissions during 1990	
	1253	Surface Coating	93 FMS Metal Tech	One of these two operations applied for in 1995 application, no usage in FMS Metals Technology	
	1253	Surface Coating	93 FMS ACDT Struct Maintenance		
	T-51	Surface Coating	93 BMW Castle Air Museum	Seem to have reported actual VOC emissions during 1990	
	1521	Surface Coating	93 FMS Wash Rack	No usage	
	1353	Surface Coating	93 FMS Appearance & Enha	Seem to have reported actual VOC emissions during 1990	
	1709	Surface Coating	93 MMS Special Weapons M	Seem to have reported actual VOC emissions during 1990	
	1200	Surface Coating	93 CES Vertical Shop	Seem to have reported actual VOC emissions during 1990	
	1550	Surface Coating	93 MMS Equipment Mainten	Seem to have reported actual VOC emissions during 1990	
	1335	Surface Coating	93 AMS Bomb Navigation	Seem to have reported actual VOC emissions during 1990	
	1335	Surface Coating	93 AMS Def. Fire Control	Seem to have reported actual VOC emissions during 1990	
Permit #	Bldg	Operation Type	Location	Notes	
	1335	Surface Coating	93 AMS Elec. Warfare Sys.	Seem to have reported actual VOC emissions during 1990	

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	1532	Surface Coating	93 FMS TMDE	Seem to have reported actual VOC emissions during 1990	
	508	Surface Coating	93 Sups Fuels Lab	No usage	
	65	Surface Coating	93 Sups Fuels Storage	No usage	
	325	Surface Coating	93 Trans Vehicle Paint	No usage	
	325	Surface Coating	93 Trans Battery Shop	Seem to have reported actual VOC emissions during 1990	
	88	Surface Coating	93 Trans Body Shop	Seem to have reported actual VOC emissions during 1990	
	T-59	Surface Coating	93 Trans Refuel Maintenance	Seem to have reported actual VOC emissions during 1990	
	535	Surface Coating	93 Trans Packing & Crating	Seem to have reported actual VOC emissions during 1990	
	1344	Surface Coating	93 CES Fire Extinguisher Mai	Seem to have reported actual VOC emissions during 1990	
	851	Surface Coating	93 CES Exterior Elect.	Seem to have reported actual VOC emissions during 1990	
	547	Surface Coating	93 CES Liq. Fuels Mgmt.	No usage	
	851	Surface Coating	Power Production	Seem to have reported actual VOC emissions during 1990	
	1344	Surface Coating	93 CES Fire Dept.	Seem to have reported actual VOC emissions during 1990	
	551,4,6	Surface Coating	93 CSG Arts & Crafts	No usage	
	443	Surface Coating	93 CES Asbestos Removal	No usage	
	508	Surface Coating	93 Sups Fuel Distribution	Seem to have reported actual VOC emissions during 1990	
	1200	Surface Coating	93 CES Zone 1	Seem to have reported actual VOC emissions during 1990	
	1200	Surface Coating	93 CES Zone 3	No usage	
	1550	Surface Coating	93 MMS Weapons Release	Seem to have reported actual VOC emissions during 1990	
	122	Surface Coating	93 MMS Armament systems	Seem to have reported actual VOC emissions during 1990	
	1335	Surface Coating	93 AMS Guide & Control	Seem to have reported actual VOC emissions during 1990	
	1319	Surface Coating	93 OMS Bomber Crew	No usage	
	1319	Surface Coating	93 OMS Bomb Nav.	No usage	
	1319	Surface Coating	OMS Def. Fire Control	No usage	
	1350	Surface Coating	93 FMS Inspection Branch	No usage	
	1350	Surface Coating	Egress Shop	Seem to have reported actual VOC emissions during 1990	
	1200	Surface Coating	93 CES Zone 2	No usage	
	1319	Surface Coating	93 OMS Tanker Specialist	No usage	
	1319	Surface Coating	93 OMS ECM	No usage	
	1319	Surface Coating	93 OMS Conventional Sect.	No usage	
	1319	Surface Coating	93 OMS Spec. Jet Engine	No usage	
	1335	Surface Coating	93 AMS Comm Nav.	Seem to have reported actual VOC emissions during 1990	
	1200	Surface Coating	93 CES Pavements	No usage	
Permit #	Bldg	Operation Type	Location	Notes	
	1344	Surface Coating	93 Trans. Fire Truck Mainten	Seem to have reported actual VOC emissions during 1990	
	1350	Surface Coating	93 FMS Wheel & Tire	No usage	
	1350	Surface Coating	93 SUPS Storage & Issue	Unknown use	

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Permit #	Bldg	Operation Type	Quantity/Rating	Notes
	1350	Surface Coating	93 SUPS War Readiness	Unknown use
	Not Repor	Generators	2 - 6 hp gasoline fired	2 - 6 hp gas fired generators applied for in 5/95
	Not Repor	Generators	2 - 6 hp diesel fired	2 - 6 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	5 - 10 hp gasoline fired	5 - 10 hp gas fired generators applied for in 5/95
	Not Repor	Generators	3 - 10 hp diesel fired	3 - 10 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	9 - 12 hp diesel fired	9 - 12 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	5 - 24 hp diesel fired	5 - 24 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	1 - 30 hp diesels fired	1 - 30 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	1 - 40 hp diesel fired	1 - 40 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	10 - 60 hp diesel fired	3 - 60 hp diesel fired generators applied for in 5/95
3100020102	Not Repor	Generators	1 - 100 hp diesel fired	1 - 100 hp diesel fired generator applied for in 5/95
3100020103				1 - 120 hp diesel fired generator applied for in 5/95
3100020104	Not Repor	Generators	2 - 120 hp diesel fired	
3100020105, 6,7,8,9	Not Repor	Generators	5 - 300 hp diesel fired	4 - 300 hp diesel fired generators applied for in 5/95
3100020110	Not Repor	Generators	1 - 310 hp diesel fired	1 - 310 hp diesel fired generator applied for in 5/95
3100020111	Not Repor	Generators	1 - 350 hp diesel fired	
	Not Repor	Generators	2 - 11 hp diesel fired	2 - 11 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	1 - 3 hp diesel fired	1 - 3 hp diesel fired generator applied for in 5/95
	Not Repor	Generators	2 - 6 hp diesel fired	
	Not Repor	Generators	1 - 15 hp diesel fired	1 - 15 hp diesel fired generator applied for in 5/95
	Not Repor	Generators	1 - 75 hp diesel fired	1 - 75 hp diesel fired generator applied for in 5/95
3100020112, 3,4	Not Repor	Generators	3 - 400 hp diesel fired	3 - 400 hp diesel fired generators applied for in 5/95
3100020115, 6	Not Repor	Generators	2 - 450 hp diesel fired	
3100020101	Not Repor	Generators	1- 900 hp diesel fired	2 - 900 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	1/- 0.75 hp diesel fired	1 - 0.75 hp diesel fired generator applied for in 5/95
	Not Repor	Generators	2 - 8 hp diesel fired	2 - 8 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	4 - 250 hp diesel fired	4 - 250 hp diesel fired generators applied for in 5/95
Permit #	Bldg	Operation Type	Quantity/Rating	Notes
	Not Repor	Generators	1 - 15 hp diesel fired	1 - 15 hp diesel fired generators applied for in 5/95
	Not Repor	Generators	3 - 3.5 hp diesel fired	3 - 3.5 hp diesel fired generators applied for in 5/95
	Not Repor	Lawn Equip.	9 - 0.3 hp gasoline fired units	Hours of operation in 1990
	Not Repor	Lawn Equip.	8 - 0.23 hp gasoline fired unit	Hours of operation in 1990
	Not Repor	Lawn Equip.	10 - 0.64 hp gasoline fired un	Hours of operation in 1990

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	Not Repor	Lawn Equip.	9 - 3.0 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	3 - 9 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	4 - 150 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	9 - 0.3 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	8 - 0.23 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	10 - 0.64 hp gasoline fired un	Hours of operation in 1990	
	Not Repor	Lawn Equip.	3 - 12 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	2- 11 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 8 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	3 - 0.158 hp gasoline fired un	Hours of operation in 1990	
	Not Repor	Lawn Equip.	4 - 3 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 65 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	2 - 18 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	16 - 5 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	2 - 4 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 0.034 hp gasoline fired un	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 0.028 hp gasoline fired u	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 0.017 hp gasoline fired u	Hours of operation in 1990	
	Not Repor	Lawn Equip.	4 - 7 hp gasoline fired units	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 36 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 3.5 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 0.5 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Lawn Equip.	1 - 3.5 hp gasoline fired unit	Hours of operation in 1990	
	Not Repor	Construct. Equip.	3 - 0.025 hp units, unknown f	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 0.501 hp unit, unknown fu	Hours of operation in 1990	
	Not Repor	Construct. Equip.	2 - 0.75 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	12 - 3.0 hp units, unknown fu	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 6.5 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 3.0 hp unit, unknown fuel	Hours of operation in 1990	
Permit #	Bldg	Operation Type	Quantity/Rating	Notes	
	Not Repor	Construct. Equip.	1 - 3.5 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 10 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 3.0 hp units, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 16 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	4 - 7.0 hp units, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 20.0 hp unit, unknown fue	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 15.0 hp units, unknown fu	Hours of operation in 1990	

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	Not Repor	Construct. Equip.	1 - 8.0 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 10 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 5.5 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	2 - 1.5 hp units, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 35 hp unit, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 15 hp units, unknown fuel	Hours of operation in 1990	
	Not Repor	Construct. Equip.	1 - 11 hp unit, unknown fuel	Hours of operation in 1990	
	54	Boiler (Gas/Oil)	1 - 2.5 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173901	175	Boiler (Gas/Oil)	1 - 2.25 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173902	175	Boiler (Gas/Oil)	1 - 1.35 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030170301	325	Boiler (Gas/Oil)	1 - 1.2 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174101	360	Boiler (Gas/Oil)	1 - 7.29 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174102	360	Boiler (Gas/Oil)	1 - 7.29 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174103	360	Boiler (Gas/Oil)	1 - 4.68 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030170601	443	Boiler (Gas/Oil)	1 - 2.4 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030170602	443	Boiler (Gas/Oil)	1 - 2.4 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030170603	443	Boiler (Gas/Oil)	1 - 2.4 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
Permit #	Bldg	Operation Type	Quantity/Size	Notes	
3030174401	759	Boiler (Gas/Oil)	1 - 0.9 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174501	786	Boiler (Gas/Oil)	1 - 0.72 MMBTU/hr,	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174601	789	Boiler (Gas/Oil)	1 - 1.33 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175901	871	Boiler (Gas/Oil)	1 - 2.09 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	

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3030175902	871	Boiler (Gas/Oil)	1 - 0.43 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174401	1015	Boiler (Gas/Oil)	1 - 0.9 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030176001	1038	Boiler (Gas/Oil)	1 - 0.35 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030171102	1182	Boiler (Gas/Oil)	1 - 8.37 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030171101	1182	Boiler (Gas/Oil)	1 - 8.37 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030176103	1210	Boiler (Gas/Oil)	1 - 4.83 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174802	1230	Boiler (Gas/Oil)	1 - 1.12 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174801	1230	Boiler (Gas/Oil)	1 - 0.29 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
	1248	Boiler (Gas/Oil)	1 - 0.7 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173701	1253	Boiler (Gas/Oil)	1 - 4.2 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030171501	1260	Boiler (Gas/Oil)	1 - 2.04 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030174901	1309	Boiler (Gas/Oil)	1 - 0.36 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175001	1310	Boiler (Gas/Oil)	1 - 0.56 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
Permit #	Bldg	Operation Type	Quantity/Rating	Notes	
3030175101	1315	Boiler (Gas/Oil)	1 - 0.56 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030171901	1319	Boiler (Gas/Oil)	1 - 1.2 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172201	1320	Boiler (Gas/Oil)	1 - 0.567 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175201 (N-1195-52-0)	1322	Boiler (Gas/Oil)	1 - 0.56 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	

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3030172202 (N-1195-27-0)	1325	Boiler (Gas/Oil)	1 - 0.567 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
	1332	Boiler (Gas/Oil)	1 - 0.395 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030176401 (N-1195-65-0)	1333	Boiler (Gas/Oil)	1 - 0.84 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172401 (N-1195-28-0)	1335	Boiler (Gas/Oil)	1 - 0.96 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172402	1335	Boiler (Gas/Oil)	1 - 0.528 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175301 (N-1195-53-0)	1340	Boiler (Gas/Oil)	1 - 0.837 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172701 (N-3489-6-0)	1350	Boiler (Gas/Oil)	1 - 7.52 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172702 (N-3489-7-0)	1350	Boiler (Gas/Oil)	1 - 7.52 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172703 (N-3489-8-0)	1350	Boiler (Gas/Oil)	1 - 7.52 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030176501 (N-1195-67-0)	1350	Boiler (Gas/Oil)	1 -2.07 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
Permit #	Bldg	Operation Type	Quantity/Rating	Notes	
3030175502	1360	Boiler (Gas/Oil)	1 - 1.09 MMBTU/hr	1 - 1.09 MMBTU/hr boiler applied for in 5/95 - hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
	1360	Boiler (Gas/Oil)	1 - 1.09 MMBTU/hr	1 - 1.9 MMBTU/hr boiler applied for in 5/95 - hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175601 (N-1195-56-0)	1532	Boiler (Gas/Oil)	1 - 0.8 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	

1992 Castle Air Force Base ERC Application

3030173201 (N-1195-34-0)	1550	Boiler (Gas/Oil)	1 - 2.7 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173202 (N-1195-35-0)	1550	Boiler (Gas/Oil)	1 - 1.0 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030175701	1582	Boiler (Gas/Oil)	1 - 0.54 MMBTU/hr	hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030172901	1404	Boiler (Gas/Oil)	1 - 0.2279 MMBTU/hr	1 - 0.2279 MMBTU/hr boiler applied for in 5/94 - reported hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173001 (N-1195-33-0)	1405	Boiler (Gas/Oil)	1 - 0.14 MMBTU/hr	1 - 0.14 MMBTU/hr boiler applied for in 5/94 - reported hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030176601 (N-1195-66-0)	1509	Boiler (Gas/Oil)	1 - 0.98 MMBTU/hr	1 - 0.98 MMBTU/hr boiler applied for in 5/94 - reported hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
3030173401 (N-1195-36-0)	1709	Boiler (Gas/Oil)	1 - 0.67 MMBTU/hr	1 - 1 - 0.67 MMBTU/hr boiler applied for in 5/94 - reported hours of operation in 1990 - reported full fire operating - operating hours appear to be estimates	
3030173601 (N-1195-37-0)	1762	Boiler (Gas/Oil)	1 - 0.506 MMBTU/hr	1 - 0.506 MMBTU/hr boiler applied for in 5/94 - reported hours of operation in 1990 - reported full fire operation - operating hours appear to be estimates	
	Not Report	JP-4 Operation	Unspecified type of operation	1981 and 1990 throughputs	
	Not Report	Gasoline Storage	4 - 10,000 gallon USTs	3 - 10,000 gallon USTs applied for in 5/95	
	Not Report	Gasoline storage	2 - 12,000 gallon USTs	2 - 12,000 gallon USTs applied for in 5/95	
	Not Report	Diesel Storage	2 - 12,000 gallon USTs	2 - 12,000 gallon USTs applied for in 5/95	
	Not Report	Gasoline Storage	1 - 5,000 gallon UST	1 - 5,000 gallon UST applied for in 5/95	
8060020901	1335	Diesel Storage	1 - 4,000 gallon UST	1 - 4,000 gallon UST applied for in 5/95	
	Not Report	Gasoline Storage	1 - 8,000 gallon UST	1 - 8,000 gallon UST applied for in 5/95	
	Not Report	Motor Pool	Fuel Transfer	Provided a calculation showing the VOC emissions during a year of operation. The year was not reported.	
	Not Report	BX Gas Station	Fuel Station	1987 emission report date, which report is not stated	
	Not Report	Aircraft Ground Op.	Not Specified	Aerospace ground equipment applied for in 5/94	
	N/A	Aircraft Flying Op.	Various aircraft types	number and type of flying operations and EF's, did not reapply in 5/95	
	Not Report	Vehicles	472 govt. vehicles & 15,800	472 Govt. Vehicles applied for in 5/95	

1992 Castle Air Force Base ERC Application

Permit #	Bldg	Operation Type	Equipment	Notes
	Not Repor	Degreasing	LOx Cleaning Station	LOx cleaning station applied for in 5/95
	Not Repor	Degreasing	Aircraft Wash Rack	Aircraft wash rack applied for in 5/95
	Not Repor	Degreasing	Wheel & Tire Shop	3 wheel and tire shop degreasers applied for in 5/95
	Not Repor	Degreasing	Hydraulic Shop	1 hydraulic shop degreaser applied for in 5/95
	1253	Coating	FMS Paint Booth	1 - bldg 1253 coating operation applied for in 5/95
	325	Coating	Bldg 325	Seem to have reported actual VOC emissions (period not
	1253	Fiberglassing	Fiberglass repair shop	1 - bldg 1253 fiberglass operation applied for in 5/95
				Filing Fee Not Paid
				Application Not deemed Complete



DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION

RECEIVED

APR 25 1996

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

23 Apr 96

MEMORANDUM FOR SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT (ANTHONY MENDES)

FROM: AFBCA/OL-I

SUBJECT: ERC Background Information

1. References: (a) Castle AFB Application For Emission Reduction Credits, 5 May 1995
(b) SJVUAPCD Letter, 21 Jun 1995
(c) Castle AFB Request To Cancel Air Permits, 6 Sep 1995
(d) AFBCA/OL-I Letter, 26 Sep 1995
2. The following information is being forwarded to you to support the request for emissions reduction credits (references (a) and (c)) for the Castle Joint Powers Authority submitted on 5 May 95. While we do not have all of the information for the baseline period as defined in SJVUAPCD Rule 2201 and requested by reference (b), we believe the following data, in addition to that supplied in references (a) and (d), adequately supports our ERC application.
3. Many operations at an Air Force base are driven by the number of hours unit aircraft fly. The scheduled maintenance on aircraft and their systems is accomplished after specific numbers of flying hours, and these maintenance activities produced virtually all of certain categories of emissions. These categories include painting, fiberglass repair, classified document burning, and degreasing operations. The use of "aerospace ground equipment" (AGE) is almost 100% driven by the flying hours accomplished, since it is used to supply power while aircraft are being prepared for flight, load weapons, and heat or cool aircraft equipment. The throughput of JP-4 aviation fuel through storage tanks is based solely on flying hours, and diesel throughput supports the flying, therefore storage tank emissions for these fuels is also directly tied to flying hours. A given percentage change in flying hours would result in an equivalent change in emissions from all of the above sources.
4. The source for the emissions information in the application (reference (a)) is the 1991 CAFB Emissions Inventory. The information in the inventory is based primarily on 1990 data. A deficiency in the application is the lack of 1989 data. Using the ratio of flying hours between the two years can provide a reasonable approximation of emissions from the above sources during 1989. The actual flying hours from FY89 and FY90 are as follows (provided by HQ USAF/XOFF):

	FY89				FY90			
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
B-52G	2981	3137	3461	3381	3165	3474	3715	3608
KC-135A	3686	3821	4009	4081	3401	3481	3407	3670
KC-135R	1863	2207	2303	2260	2169	2678	2790	2900
TOTALS	8530	9165	9773	9722	8735	9633	9912	10178
YEAR	37190				38458			

The ratio of 1989 to 1990 flying hours is .967. Therefore, it would be reasonable to assume the 1989 emissions are about 3.3% less than in 1990 for those processes driven by flying hours. The chart in attachment 1 quantifies this result for turned-in permits governed by flying hours. It includes several previously permitted operations that had been shut down, and no longer had active permit numbers at the time of the initial ERC application. The chart in attachment 2 summarizes the yearly data, and further breaks it down into quarters based on flying hours. The correlation between flying hours and emissions may be less exact due to maintenance activities occurring days or weeks before or after a particular flight.

5. Gas fired boiler usage is determined primarily by weather, rather than flying hours. The boilers at CAFB were not individually metered. However, we do have records of the total gas usage on a monthly basis (less building 1182, which is separately metered). Since all buildings were affected by the same weather, it is reasonable to assume that the gas usage would fluctuate in a similar manner between buildings, and that boilers were properly sized to heat their respective buildings. The BTU capacity of the boilers affected by the permit turn-in has a specific ratio to the total BTU capacity of all commonly metered boilers on base. Thus, that percentage can be used with the total gas usage to determine the gas used by the boilers whose permits were turned in. The table in attachment 3 shows the quarterly natural gas usage at Castle. A former chief of the civil engineering heating shop indicated that about 20% of the gas was used for water heaters. The third column of the table shows the boiler gas usage after subtracting hot water heating gas, assuming a constant quarter to quarter hot water usage. The accompanying chart graphically demonstrates the seasonal fluctuations in gas usage, proving it was being used for space-heating boilers. The total capacity of Castle's boilers was 120,997 KBTU/hr. (see attachment 4). Of this, 64,100 KBTU/hr. was transferred to the Castle Joint Powers Authority as active permits, and the remaining 56,897 KBTU/hr., or 47.02% of the total, represents permits turned in for ERCs. The last column of the table in attachment 3 tabulates 47.02% of the base's boiler gas usage to be used to determine ERCs. Please disregard the emissions worksheet for PTOs N-1195-54 and N-1195-55-0 in reference (a). The operating time assumptions used are unreasonable, and these permits are included in the attachment 5 calculations.

6. The tables in attachment 5 show the calculations of the emissions for various pollutants from the turned-in permits to operate related to base boilers. The calculations use the numbers from the final column in the table in attachment 3, and are done on a quarterly basis.

7. Fuel oil fired boilers would similarly vary in fuel usage depending on weather. Since the boiler natural gas usage varied by less than 1% between 1989 and 1990, it is reasonable that boiler fuel oil usage would similarly vary by less than 1%.

8. Emissions as a result of operating emergency generators was not driven by either flying hours or weather. They were used during power outages and during regular maintenance checks. Since the actual power outage usage was minimal, the emissions in the ERC application are based on regular, mandatory maintenance tests recorded in the generator operating logs. Note that in the ERC application supplemental information for emergency generators (reference (a)), the data in the GAL/HP-HR and Conversion Factor columns was inadvertently switched.

9. Attachment 6 is a table summarizing the emissions that have been eliminated from Castle AFB due to its closure, and for which we are requesting ERCs. The values used are averages for the years 1989 and 1990.

10. If you have any further questions concerning Castle's application for emission reduction credits, please contact Russ Stowe, 209-726-4304.


ROBERT R. MATTHEWS, P.E.
BRAC Environmental Coordinator

Attachments:

1. Emissions Based On Flying Hours - Yearly Basis
2. Summary Of Emissions Based On Flying Hours - Quarterly Basis
3. CAFB Natural Gas Usage In Space Heating Boilers
4. CAFB Boiler Capacity
5. Emissions Related to Turned-In Boiler Permits to Operate
6. Summary of Emission Reductions at Castle AFB

cc:
CJPA

EMISSIONS BASED ON FLYING HOURS - Yearly Basis

Lbs/Yr.

PTO NUMBER	EQUIPMENT DESCRIPTION	PM-10		SOx		CO		VOC		NOx	
		89	90	89	90	89	90	89	90	89	90
N-1195-4, 9, 10, 124-0	Storage Tanks - JP-4 Fixed Roof							199.72	206.54		
N-1195-5, 6, 7, 8, 125, 126-0	Storage Tanks - JP-4 Floating Roof							11260.85	11645.14		
N-1195-12-0	Classified Document Incinerator	4.23	4.38	1.51	1.56	6.04	6.25	1.81	1.88	1.81	1.88
N-1195-14-0	FMS Paint Spray Booth 25 hp							237.01	245.10		
N-1195-16-0	110 Gal Wheel and Tire Degreaser							18.96	19.61		
N-1195-17-0	110 Gal Hydraulic Shop Degreaser							18.96	19.61		
N-1195-96-0	Solvent Degreaser - Hydraulic Shop							128.93	133.33		
N-1195-97-0	Solvent Degreaser - Wheel & Tire Shop							18.96	19.61		
N-1195-98-0	Safety Clean Degreaser							128.93	133.33		
N-1195-99-0	Safety Clean Degreaser							37.23	38.50		
N-1195-118, 123-0	Storage Tanks, Diesel							21.20	21.92		
N/A	Aerospace Ground Equipment, JP-4 Fueled	3316.81	3430.00	614.05	635.00	10100.32	10445.00	3178.53	3287.00	46441.14	48026.00
N/A	Aerospace Ground Equipment, Unleaded Fuel Fueled	80.07	82.80	65.76	68.00	49386.62	51072.00	1828.60	1891.00	1262.52	1305.60
N/A	Aerospace Ground Equipment, Diesel Fueled	7000.50	7239.40	6519.80	6742.30	21314.61	22042.00	6708.08	6937.00	98006.42	101351.00
N/A	Degreaser, Bldg 1550							18.96	19.61		
N/A	Degreaser, Bldg 1260							18.96	19.61		
N/A	Degreaser, Bldg 1532							32.49	33.60		
N/A	Degreaser, Bldg 1253							404.93	418.75		
N/A	Degreasers, Bldgs 59, 1200, 1260, 1335							902.53	933.33		
N/A	Fire Training Area, near Bldg 1312	3285.70	3397.83	10.27	10.62	14374.92	14865.48	8214.24	8494.56	106.53	110.17
N/A	Paint Strip Tank, Bldg 1253							34.81	36.00		
N/A	Aircraft Washracks							11743.25	12144.00		
	TOTALS	13687.31	14154.41	7211.4	7457.5	95182.52	98430.73	45157.96	46699.03	145818.4	150794.6

SUMMARY OF EMISSIONS BASED ON FLYING HOURS

Quarterly Basis

Lbs/Yr

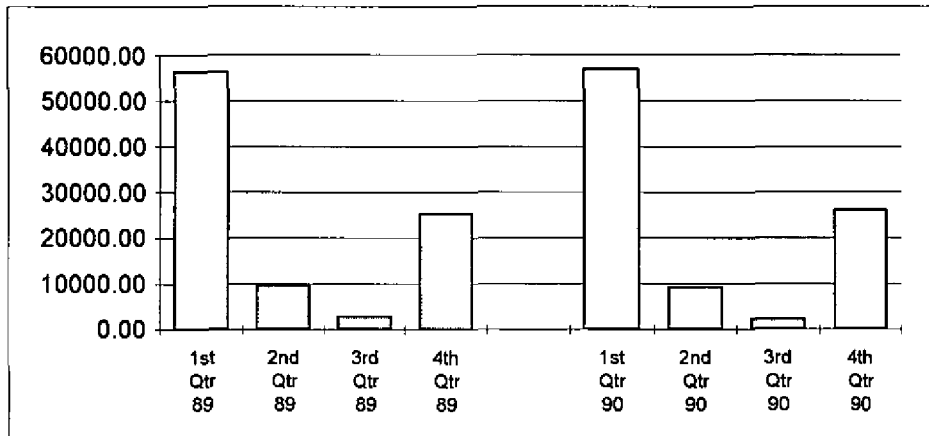
	PM-10	SOx	CO	VOC	NOx
1st Qtr 89	3139.36	1654.03	21831.35	10357.57	33445.35
2nd Qtr 89	3373.06	1777.16	23456.49	11128.59	35935.05
3rd Qtr 89	3596.83	1895.05	25012.63	11866.88	38319.03
4th Qtr 89	3578.05	1885.16	24882.04	11804.92	38118.97
1989 Total	13687.31	7211.40	95182.52	45157.96	145818.40
1st Qtr 90	3214.91	1693.83	22356.67	10606.80	34250.13
2nd Qtr 90	3545.41	1867.96	24655.03	11697.22	37771.18
3rd Qtr 90	3648.10	1922.07	25369.14	12036.02	38865.20
4th Qtr 90	3745.99	1973.64	26049.89	12358.99	39908.09
1990 Total	14154.41	7457.50	98430.73	46699.03	150794.60

NATURAL GAS USED FOR BOILERS AT CASTLE AFB *

Millions of BTUs

Time Period	Total Base Gas Usage	Less 20% Used For Hot Water	Turned-In Permits
1st Qtr 89	62355.60	56442.95	26539.47
2nd Qtr 89	15340.10	9427.45	4432.78
3rd Qtr 89	8797.50	2884.85	1356.45
4th Qtr 89	31300.30	25387.65	11937.27
1st Qtr 90	63039.60	57126.95	26861.09
2nd Qtr 90	15331.10	9418.45	4428.55
3rd Qtr 90	8242.80	2330.15	1095.63
4th Qtr 90	32099.20	26186.55	12312.91
TOTAL	236506.20	189204.96	88964.17

• Excludes Bldg 1182



Boiler Capacity

PTO	EQUIPMENT	BLDG	TO	PTO	KBTU
NUMBER	DESCRIPTION	NUM	JPA	CNX	
N-1195-23-0	8400 KBTU Boiler, Clever-Brooks	1182	X		8400
N-1195-24-0	8400 KBTU Boiler, Clever-Brooks	1182	X		8400
N-1195-29-0	7500 KBTU Boiler, Kewanee NB17716	1350	X		7500
N-1195-30-0	7500 KBTU Boiler, Kewanee NB17716	1350	X		7500
N-1195-31-0	7500 KBTU Boiler, Kewanee NB17716	1350	X		7500
N-1195-42-0	7300 KBTU Boiler	360	X		7300
N-1195-43-0	7300 KBTU Boiler	360	X		7300
N-1195-60-0	13,500 KBTU Boiler	1210	X		13500
N-1195-61-0	13,500 KBTU Boiler	1210	X		13500
N-1195-110-0	2400 KBTU Boiler, Kewanee #84482	443		X	2400
N-1195-111-0	528 KBTU Boiler, Kewanee #3R6	1335		X	528
N-1195-112-0	4680 KBTU Boiler, Nebraska #2235	1360		X	4680
N-1195-113-0	430 KBTU Boiler, Teledyne Laars #400	871		X	430
N-1195-115-0	840 KBTU Boiler	395		X	840
N-1195-19-0	1200 KBTU Boiler, Kewanee #3R12	325		X	1200
N-1195-20-0	2400 KBTU Boiler, Kewanee	443		X	2400
N-1195-21-0	2400 KBTU Boiler, Kewanee	443		X	2400
N-1195-22-0	900 KBTU Boiler, Ajax WG0FD900	1015		X	900
N-1195-25-0	2000 KBTU Boiler	1260		X	2000
N-1195-26-0	1200 KBTU Boiler, Rite 120	1317		X	1200
N-1195-27-0	567 KBTU Boiler, Fitzgibbons 400	1320		X	567
N-1195-28-0	960 KBTU Boiler, Kewanee	1335		X	960
N-1195-34-0	2700 KBTU Boiler, Webco-Ray 54	1550		X	2700
N-1195-35-0	1000 KBTU Boiler, Kewanee A712	1550		X	1000
N-1195-38-0	4200 KBTU Boiler, FTBB311F-25-W030-GP	1253		X	4200
N-1195-39-0	2500 KBTU Boiler, Ajax	175		X	2500
N-1195-40-0	1260 KBTU Boiler, Ajax	175		X	1260
N-1195-41-0	1650 KBTU Boiler	54		X	1650
N-1195-44-0	900 KBTU Boiler	759		X	900
N-1195-45-0	720 KBTU Boiler	786		X	720
N-1195-46-0	1330 KBTU Boiler	789		X	1330
N-1195-47-0	312 KBTU Boiler	1230		X	312
N-1195-48-0	1120 KBTU Boiler	1230		X	1120
N-1195-49-0	360 KBTU Boiler	1309		X	360
N-1195-50-0	560 KBTU Boiler	1310		X	560
N-1195-51-0	560 KBTU Boiler	1315		X	560
N-1195-52-0	560 KBTU Boiler	1322		X	560
N-1195-53-0	1837 KBTU Boiler	1340		X	1837
N-1195-54-0	1900 KBTU Boiler			X	1900
N-1195-55-0	1100 KBTU Boiler			X	1100
N-1195-56-0	800 KBTU Boiler	1532		X	800
N-1195-57-0	215 KBTU Boiler	1582		X	215
N-1195-58-0	2100 KBTU Boiler	871		X	2100
N-1195-59-0	350 KBTU Boiler	1038		X	350
N-1195-62-0	4830 KBTU Boiler	1210		X	4830
N-1195-63-0	168 KBTU Boiler	1325		X	168
N-1195-64-0	250 KBTU Boiler	1332		X	250
N-1195-65-0	840 KBTU Boiler	1333		X	840
N-1195-67-0	2070 KBTU Boiler	1350		X	2070
N-1195-85-0	200 KBTU Boiler, Bryan Flextube	1230		X	200

KBTU Total
120997
JPA
64100
ERC
56897
ERC/Total
47.02%

CAFB Boiler Emissions for Turned-In Permits

Time Period	Millions of BTUs	Cubic Feet	Particulates Lbs/Qtr	SOx LBs/Qtr	CO LBs/Qtr	VOC LBs/Qtr	NOx LBs/Qtr
1st Qtr 89	26539.47	26539470	132.70	15.92	530.79	140.66	265.39
2nd Qtr 89	4432.78	4432780	22.16	2.66	88.66	23.49	44.33
3rd Qtr 89	1356.45	1356450	6.78	0.81	27.13	7.19	13.56
4th Qtr 89	11937.27	11937270	59.69	7.16	238.75	63.27	119.37
1st Qtr 90	26861.09	26861090	134.31	16.12	537.22	142.36	268.61
2nd Qtr 90	4428.55	4428550	22.14	2.66	88.57	23.47	44.29
3rd Qtr 90	1095.63	1095630	5.48	0.66	21.91	5.81	10.96
4th Qtr 90	12312.91	12312910	61.56	7.39	246.26	65.26	123.13
TOTALS	88964.15	88964150	444.82075	53.37849	1779.283	471.51	889.6415
YEARLY AVERAGE	44482.075	44482075	222.410375	26.68925	889.6415	235.755	444.8208

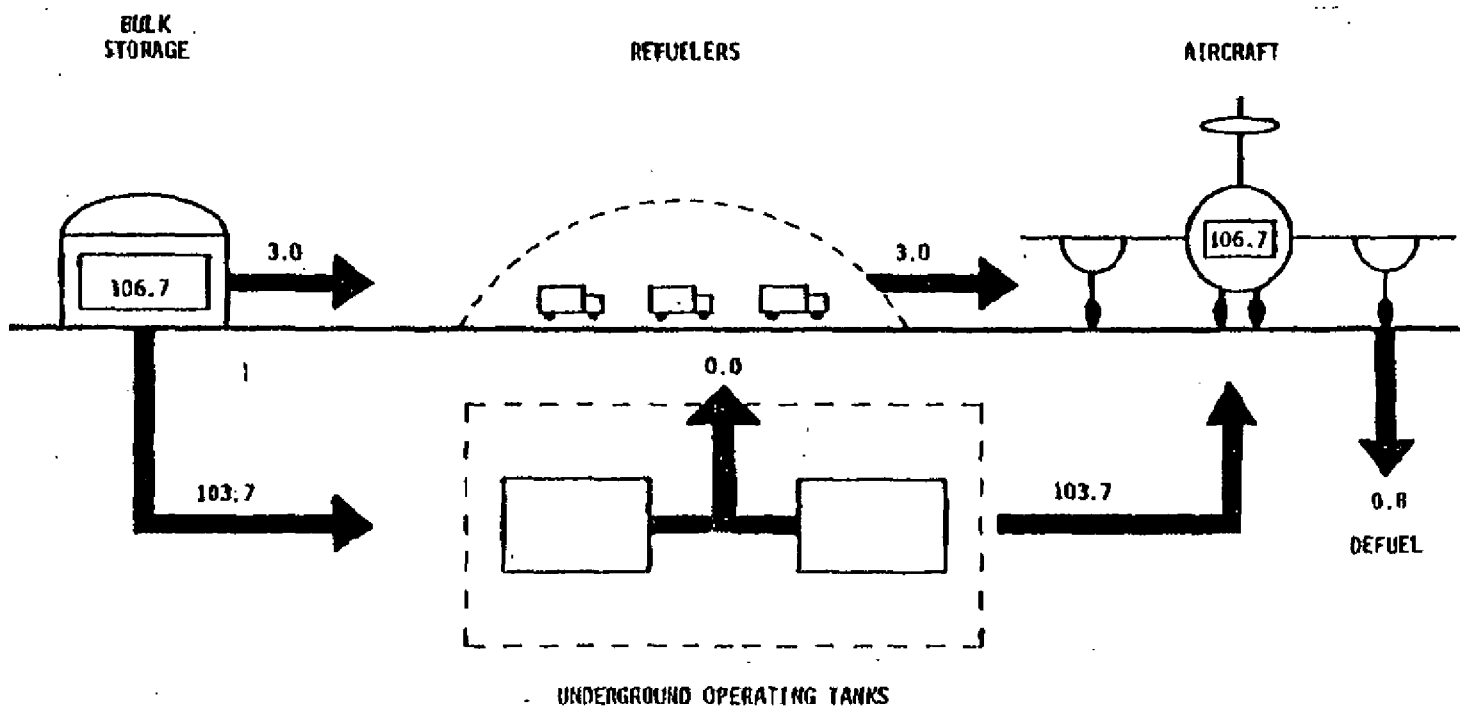
Emissions Factors

Particulates	0.000005
SOx	0.0000006
CO	0.00002
VOC	0.0000053
COx	0.00001

SUMMARY OF CAFB EMISSION REDUCTIONS

	PM10	SOx	CO	VOC	NOx
Emissions Based On Flying Hours	1392.09	7334.45	96806.63	45928.50	148306.50
Natural Gas Boiler Emissions	222.41	26.69	889.64	235.76	444.82
Boilers, Diesel	38.10	109.70	76.20	38.10	27.40
Emergency Generators, Diesel	212.69	198.01	644.45	238.21	2977.66
Emergency Generators, Diesel Portable	71.40	66.47	216.34	79.97	999.57
Emergency Generators, Gasoline Portable	0.72	0.61	458.68	38.14	5.21
Storage Tanks, Gasoline				27627.10	
TOTALS - Lbs/Yr	1937.41	7735.93	99091.94	74185.78	152761.16
TOTALS - Tons/Yr	0.97	3.87	49.55	37.09	76.38

CASTLE AFB MERCED COUNTY APCD JP-4 THROUGHPUT (million gallons per year)



FACILITIES:

- 4 BULK STORAGE TANKS
- 17 UNDERGROUND OPERATING TANKS
- 20 R-5/R-9 REFUELERS

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

NORTHERN REGION - MODESTO
4230 KIERNAN AVENUE STE. 130
MODESTO, CA 95368
(209) 545-7000

FAX (209) 545-8652

RECEIVED

MAR 24 1997

SAN JOAQUIN VALLEY UNIFIED A.P.C.D. NO. REGION

FAX -- COVER SHEET

DATE: 3/24/97 TIME: 9:00 AM

FROM: Andy Hilderbrand (Crown Chem.)

(619) 421-1127

TO: Mark Schonhoff

MESSAGE/COMMENT: Andy -

Kim in customer service said you could tell me if this PD-680 solvent is photochemically reactive per section K of the attachment. Thank-you.

NUMBER OF PAGES (INCLUDING COVER): 4

If you do not receive all pages of fax, or if you have any questions, please refer to Northern Region phone number at top of page.

MARK - OUR PD 680 IS BOTH I & II ARE NOT PHOTOCHEMICALLY REACTIVE LET ME KNOW IF YOU HAVE ANY OTHER QUESTIONS

Andy

**SAN JOAQUIN VALLEY UNIFIED APCD
INTER-OFFICE MEMORANDUM**

DATE: August 1, 1996
TO: Mark Schonhoff - Permit Services - Northern Region
FROM: Cliff Winger
SUBJECT: Castle AFB Emissions from Fuel Tanks for Evaluation of ERC
Application N-109-1

RECEIVED

AUG 05 1996

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

Project Request

On July 26, 1996 you requested Technical Services to perform calculations for the actual emissions of various diesel and jet fuel tanks at Castle Air Force Base with 1990 throughput data.

Background

The EPA has published Tanks 3.0 computer program to estimate air emissions from organic liquids in storage tanks. The Air Pollution (AP) 42 series is the principal documentation of emission factors and calculations used to estimate air emissions. Section 7.1 of AP-42 contains specific information about emission estimations for storage tanks.

Tanks 3.0 allows users to enter specific information about a storage tank (dimensions, construction, paint condition...), the liquid contents (chemical components, volume, and temperature), and the location of the tank (nearest city, ambient temperature, etc.), whereupon, the basic function of Tanks 3.0 is to generate an air emissions report. Tanks 3.0 represents the current (1996) upgrade to maintain consistency with EPA emissions calculation methodology.

Analysis

Emissions calculations were performed using the EPA Tanks 3.0 computer estimation program. Available data in Attachment A was used. Best estimates were made for tank parameters. The EPA default values were used in the absence of other specific data, such as tank color, and specific tank fitting configurations.

Conclusion

Copies of the estimation of emissions in 1990 for the requested tanks are contained in Attachment B. Because of the low vapor pressure of Diesel and JP-4 fuels, the assumed default values do not significantly affect the Tanks 3.0 calculated results, therefore these results reasonably estimate the actual emissions for the Castle Air Force Base tanks in 1990.

cc: Rick McVaigh, Technical Services Manager

Attachment A

Memorandum

To: Rick McVaigh

From: Mark Schonhoff -- Northern Region

Date: July 26, 1996

RE: Actual Emissions From Fuel Tanks For The Evaluation Of ERC
Application N-109-1 (Castle AFB)

The VOC emissions from the evaluation of the above mentioned ERC application. Should you have any questions please contact Mark Schonhoff. Please fax and mail the results to Mark Schonhoff.

Permit # Or Location	Fuel Type	1990 Throughput (1000 gallons)	Tank Capacity (gallons)	Tank Type
N-1195-4-0	JP-4	150	10,000	Underground
N-1195-5-0	JP-4	30,817.8	1,370,000	Above Ground, Internal Floating Roof
N-1195-6-0	JP-4	11,142.9	500,000	Above Ground, External Floating Roof
N-1195-7-0	JP-4	14,287.6	650,000	Above Ground External Floating Roof
N-1195-8-0	JP-4	14,519.5	650,000	Above Ground External Floating Roof
N-1195-9-0	JP-4	4	4,500	Above ground Fixed Roof
N-1195-10-0	JP-4	4	4,500	Above Ground Fixed Roof
N-1195-118-0	Diesel	184.2	4,000	Underground
N-1195-123-0	Diesel	212.8	10,000	Underground
N-1195-124-0	JP-4	1,500	4,000	Above Ground Fixed Roof
N-1195-125-0	JP-4	13,137.2	420,000	Above Ground Internal Floating Roof
N-1195-126-0	JP-4	13,137.2	420,000	Above Ground Internal Floating Roof
Bldg 502	Diesel	166.9	12,000	Underground
Bldg 502	Diesel	166.9	12,000	Underground

Attachment B

Castle Air Force Base Tank Emission Estimation for 1990

PERMIT	FUEL	STANDING LOSS LB.	WORKING LOSS LB.	RIM LOSS LB.	DECK LOSS LB.	ROOF LOSS LB.	TOTAL LOSS POUNDS VOC	TANK TYPE	DIAMETER	HEIGHT	HEIGHT_L	VOLUME	RF_TYPE	NET GAL.	TURN-OVER
→ N-1195-4-0 U	Jet naphtha (JP-4)		401				401	Horizontal Fixed Roof	10	17		10000		150000	15
N-1195-118 u	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	8	10.5		4000		184200	46
N-1195-123 1A	Distillate fuel oil no. 2		5				5	Horizontal Fixed Roof	10	17		10000		213000	21.3
BLDG. 502A u	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
BLDG. 502B u	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
✓ N-1195-5-0 A	Jet naphtha (JP-4)		70	937	764.3956		1,772	Internal Floating Roof	80.5			1370000		30825000	22.5
✓ N-1195-6-0 A	Jet naphtha (JP-4)		35	2,322		2,661	5,018	External Floating Roof	57.5			500000	Pontoon	11150000	22.3
✓ N-1195-7-0 A	Jet naphtha (JP-4)		39	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14300000	22
✓ N-1195-8-0 A	Jet naphtha (JP-4)		40	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14495000	22.3
✓ N-1195-9-0 A	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
✓ N-1195-10-0 A	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
✓ N-1195-124 A	Jet naphtha (JP-4)	181	997				1,178	Vertical Fixed Roof	9.5	10	7.7	4083	Cone	1502544	368
✓ N-1195-125 A	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3
✓ N-1195-126 A	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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PAGE 1

Identification

Identification No.: BLDG. 502A
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Horizontal Fixed Roof

Tank Dimensions

Shell Length (ft): 20.5
Diameter (ft): 10.0
Volume(gallons): 12000
Is tank underground? (Y/N): Y
Turnovers: 13.9
Net Throughput (gal/yr): 166800

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	64.81	57.90	71.72	62.52	0.0076	0.0060	0.0095	130.000			130.00	Option 3: A=12.1010, B=8907.0

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Distillate fuel oil no. 2	0.00	3.92	3.92
Total:	0.00	3.92	3.92

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EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification
Identification No.: BLDG. 502B
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Horizontal Fixed Roof

Tank Dimensions
Shell Length (ft): 20.5
Diameter (ft): 10.0
Volume(gallons): 12000
Is tank underground? (Y/N): Y
Turnovers: 13.9
Net Throughput (gal/yr): 166800

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings
Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Mass	Mass	Mass		
Distillate fuel oil no. 2	All	64.81	57.90	71.72	62.52	0.0076	0.0060	0.0095	130.000			130.00	Option 3: A=12.1010, B=8907.0

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EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
----- Distillate fuel oil no. 2	0.00	3.92	3.92
Total:	0.00	3.92	3.92

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EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-118
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Horizontal Fixed Roof

Tank Dimensions

Shell Length (ft): 10.5
Diameter (ft): 8.0
Volume(gallons): 4000
Is tank underground? (Y/N): [Y]
Turnovers: 46.0
Net Throughput (gal/yr): 184200

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.		
Distillate fuel oil no. 2	All	64.81	57.90	71.72	62.52	0.0076	0.0060	0.0095	130.000			130.00	Option 3: A=12.1010, B=8907.0

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EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
----- Distillate fuel oil no. 2	0.00	3.54	3.54
Total:	0.00	3.54	3.54

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-123
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Horizontal Fixed Roof

Tank Dimensions

Shell Length (ft): 17.0
Diameter (ft): 10.0
Volume(gallons): 10000
Is tank underground? (Y/N): {Y}
Turnovers: ~~21-3~~
Net Throughput (gal/yr): 213000

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.		
Distillate fuel oil no. 2	All	64.81	57.90	71.72	62.52	0.0076	0.0060	0.0095	130.000			130.00	Option 3: A-12.1010. B-8907.0

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EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
----- Distillate fuel oil no. 2	0.00	5.00	5.00
Total:	0.00	5.00	5.00

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EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-124
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Vertical Fixed Roof

Tank Dimensions

Shell Height (ft): 10.0
Diameter (ft): 9.5
Liquid Height (ft): 7.7
Avg. Liquid Height (ft): 4.0
Volume (gallons): 4083
Turnovers: 368.0
Net Throughput (gal/yr): 1502544

Paint Characteristics

Shell Color/Shade: White/white
Shell Condition: Good
Roof Color/Shade: White/white
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 0.00
Radius (ft) (Dome Roof): 0.00
Slope (ft/ft) (Cone Roof): 0.0625

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Basis for Vapor Pressure Weight Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Mol. Weight	Mass Fract.	Mass Fract.	
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	1.2118	1.6206	80.000			80.00 Option 3: A=11.3680, B=5784.3

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EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Jet naphtha (JP-4)	180.78	997.33	1178.12
Total:	180.78	997.33	1178.12

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 EMISSIONS REPORT - SUMMARY FORMAT
 TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-125
 City: MERCED
 State: CA
 Company: CASTLE AFB
 Type of Tank: Internal Floating Roof

Tank Dimensions

Diameter (ft): 53.0
 Volume(gallons): 420000
 Turnovers: 31.3

Paint Characteristics

Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Paint Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: N
 Deck Type: Welded

Deck Characteristics

Deck Fitting Category: Typical

Deck Fitting/Status

Quantity

Deck Fitting/Status	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Roof Leg or Hanger Well/Adjustable	15
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000			80.00	Option 3: A=11.3680, B=5784.3

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 INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):				Total Standing	Total
	Total Withdrawal	Rim-Seal	Deck-Fitting	Deck Seam		
Jet naphtha (JP-4)	45.53	617.06	621.67	0.00	1238.73	1284.27
Total:	45.53	617.06	621.67	0.00	1238.73	1284.27

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 EMISSIONS REPORT - SUMMARY FORMAT
 TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-126
 City: MERCED
 State: CA
 Company: CASTLE AFB
 Type of Tank: Internal Floating Roof

Tank Dimensions

Diameter (ft): 53.0
 Volume(gallons): 420000
 Turnovers: 31.3

Paint Characteristics

Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Paint Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: N
 Deck Type: Welded

Deck Characteristics

Deck Fitting Category: Typical

Deck Fitting/Status

Quantity

	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Roof Leg or Hanger Well/Adjustable	15
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

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 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Basis for Vapor Pressure Weight Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.	
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000			80.00 Option 3: A=11.3680, B=5784.3

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 EMISSIONS REPORT - SUMMARY FORMAT
 INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):				Total Standing	Total
	Total Withdrawal	Rim-Seal	Deck-Fitting	Deck Seam		
Jet naphtha (JP-4)	45.53	617.06	621.67	0.00	1238.73	1284.27
Total:	45.53	617.06	621.67	0.00	1238.73	1284.27

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-4-0
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Horizontal Fixed Roof

Tank Dimensions

Shell Length (ft): 17.0
Diameter (ft): 10.0
Volume(gallons): 10000
is tank underground? (Y/N): Y
Turnovers: 15.0
Net Throughput (gal/yr): 150000

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.		
Jet naphtha (JP-4)	A11	64.81	57.90	71.72	62.52	1.4041	1.2118	1.6206	80.000			80.00	Option 3: A=11.3680, B=5784.3

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INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Jet naphtha (JP-4)	0.00	401.16	401.16
Total:	0.00	401.16	401.16

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-5-0
 City: MERCED
 State: CA
 Company: CASTLE AFB
 Type of Tank: Internal Floating Roof

Tank Dimensions

Diameter (ft): 80.5
 Volume(gallons): 1370000
 Turnovers: 22.5

Paint Characteristics

Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Paint Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: N
 Deck Type: Welded

Deck Characteristics

Deck Fitting Category: Typical

Deck Fitting/Status	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Roof Leg or Hanger Well/Adjustable	24
Ladder Well (36-in Diam.)/Sliding Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)			Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.					
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000				80.00	Option 3: A=11.3680. B=5784.3	

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):				Total Standing	Total
	Total Withdrawal	Rim-Seal	Deck-Fitting	Deck Seam		
Jet naphtha (JP-4)	70.07	937.23	764.40	0.00	1701.62	1771.70
Total:	70.07	937.23	764.40	0.00	1701.62	1771.70

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-6-0
 City: MERCED
 State: CA
 Company: CASTLE AFB
 Type of Tank: External Floating Roof

Tank Dimensions

Diameter (ft): 57.5
 Volume(gallons): 500000
 Turnovers: 22.3

Paint Characteristics

Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Paint Condition: Good

Roof Characteristics

Roof Type: Pontoon
 Fitting Category: Typical

Tank Construction and Rim-Seal System

Construction: Welded
 Primary Seal: Mechanical Shoe
 Secondary Seal: None

Roof Fitting/Status

Quantity

Roof Fitting/Status	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	9
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	7
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)		Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Basis for Vapor Pressure Weight Calculations
		Avg.	Min.	Max.	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.			
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000				80.00 Option 3: A=11.3680, B=5784.3

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):			Total Standing	Total
	Total Withdrawal	Roof-Fitting	Rim-Seal		
Jet naphtha (JP-4)	35.27	2661.15	2321.51	4982.66	5017.92
Total:	35.27	2661.15	2321.51	4982.66	5017.92

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

08/01/96
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Identification
Identification No.: N-1195-7-0
City: MERCED
State: CA
Company: CASTLE AFB
Type of Tank: External Floating Roof

Tank Dimensions
Diameter (ft): 66.0
Volume(gallons): 650000
Turnovers: 22.0

Paint Characteristics
Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Paint Condition: Good

Roof Characteristics
Roof Type: Pontoon
Fitting Category: Typical

Tank Construction and Rim-Seal System
Construction: Welded
Primary Seal: Mechanical Shoe
Secondary Seal: None

Roof Fitting/Status	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000			80.00	Option 3: A=11.3680, B=5784.3

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):			Total Standing	Total
	Total Withdrawal	Roof-Fitting	Rim-Seal		
Jet naphtha (JP-4)	39.40	2694.58	2664.69	5359.27	5398.67
Total:	39.40	2694.58	2664.69	5359.27	5398.67

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-8-0
 City: MERCED
 State: CA
 Company: CASTLE AFB
 Type of Tank: External Floating Roof

Tank Dimensions

Diameter (ft): 66.0
 Volume(gallons): 650000
 Turnovers: 22.3

Paint Characteristics

Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Paint Condition: Good

Roof Characteristics

Roof Type: Pontoon
 Fitting Category: Typical

Tank Construction and Rim-Seal System

Construction: Welded
 Primary Seal: Mechanical Shoe
 Secondary Seal: None

Roof Fitting/Status

Quantity

Roof Fitting/Status	Quantity
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet naphtha (JP-4)	A11	64.81	57.90	71.72	62.52	1.4041	N/A	N/A	80.000			80.00	Option 3: A=11.3680. B=5784.3

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 INDIVIDUAL TANK EMISSION TOTALS

08/01/96
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Annual Emissions Report

Liquid Contents	Losses (lbs.):			Total Standing	Total
	Total Withdrawal	Roof-Fitting	Rim-Seal		
Jet naphtha (JP-4)	39.94	2694.58	2664.69	5359.27	5399.21
Total:	39.94	2694.58	2664.69	5359.27	5399.21

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N-1195-9-0
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Vertical Fixed Roof

Tank Dimensions

Shell Height (ft): 8.0
Diameter (ft): 10.0
Liquid Height (ft): 8.0
Avg. Liquid Height (ft): 4.0
Volume (gallons): 4701
Turnovers: 0.9
Net Throughput (gal/yr): 4231

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 0.00
Radius (ft) (Dome Roof): 0.00
Slope (ft/ft) (Cone Roof): 0.0625

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Mass	Mass	Mass		
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	1.2118	1.6206	80.000			80.00	Option 3: A=11.3680. B=5784.3

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Jet naphtha (JP-4)	150.12	11.32	161.44
Total:	150.12	11.32	161.44

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

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Identification

Identification No.: N1195-10-0
City: Merced
State: CA
Company: CASTLE AFB
Type of Tank: Vertical Fixed Roof

Tank Dimensions

Shell Height (ft): 8.0
Diameter (ft): 10.0
Liquid Height (ft): 8.0
Avg. Liquid Height (ft): 4.0
Volume (gallons): 4701
Turnovers: 0.9
Net Throughput (gal/yr): 4231

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 0.00
Radius (ft) (Dome Roof): 0.00
Slope (ft/ft) (Cone Roof): 0.0625

Breather Vent Settings

Vacuum Setting (psig): 0.00
Pressure Setting (psig): 0.00

Meteorological Data Used in Emission Calculations: Fresno, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 LIQUID CONTENTS OF STORAGE TANK

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Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk	Vapor Pressures (psia)			Vapor	Liquid	Vapor	Mol. Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.	Temp. (deg F)	Avg.	Min.	Max.	Weight	Mass Fract.	Mass Fract.	
Jet naphtha (JP-4)	All	64.81	57.90	71.72	62.52	1.4041	1.2118	1.6206	80.000			80.00 Option 3: A=11.3680, B=5784.3

TANKS PROGRAM 3.0
EMISSIONS REPORT - SUMMARY FORMAT
INDIVIDUAL TANK EMISSION TOTALS

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Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
----- Jet naphtha (JP-4)	150.12	11.32	161.44
Total:	150.12	11.32	161.44

TANKS PROGRAM 3.0
 EMISSIONS REPORT - SUMMARY FORMAT
 TOTAL EMISSION SUMMARY - ALL TANKS IN REPORT

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Tank Identification	Losses (lb)
BLDG. 502A CASTLE AFB Horizontal Fixed Roof Merced, CA	3.92
BLDG. 502B CASTLE AFB Horizontal Fixed Roof Merced, CA	3.92
N-1195-118 CASTLE AFB Horizontal Fixed Roof Merced, CA	3.54
N-1195-123 CASTLE AFB Horizontal Fixed Roof Merced, CA	5.00
N-1195-124 CASTLE AFB Vertical Fixed Roof Merced, CA	1178.12
N-1195-125 CASTLE AFB Internal Floating Roof MERCED, CA	1284.27
N-1195-126 CASTLE AFB Internal Floating Roof MERCED, CA	1284.27
N-1195-4-0 CASTLE AFB Horizontal Fixed Roof Merced, CA	401.16
N-1195-5-0 CASTLE AFB Internal Floating Roof MERCED, CA	1771.70
N-1195-6-0 CASTLE AFB External Floating Roof MERCED, CA	5017.92
N-1195-7-0 CASTLE AFB External Floating Roof MERCED, CA	5398.67
N-1195-8-0 CASTLE AFB External Floating Roof MERCED, CA	5399.21
N-1195-9-0 CASTLE AFB Vertical Fixed Roof Merced, CA	161.44
N1195-10-0 CASTLE AFB Vertical Fixed Roof Merced, CA	161.44
Total Emissions for all Tanks:	22074.55

Emission Reduction Credit Application Review
Project #: 950288
Application #'s: N-109-1, N-109-2, N-109-3, N-109-4, N-109- 5

Engineer: Mark Schonhoff
Date: April 3, 1997
Revised: October 29, 1998

Company Name: Castle Joint Powers Authority (Castle JPA)
Location Address: Castle Air Force Base, CA

Contact Name: Nicholas Pavlovich
3450 C Street
Atwater, CA 95301

Phone: (209) 726-4304

Date Application Received: 5/24/95
Date Application Deemed Complete: 5/25/96

I. Summary:

Emission reduction credits (ERCs) are being granted for reductions in NO_x, CO, VOC, SO_x and PM₁₀ emissions that occurred at Castle Air Force Base (CAFB). The reductions were generated on September 25, 1995 and came as a result of shutting down various equipment. The proposed quantities are as follows:

	NO _x (lb)	CO (lb)	VOC (lb)	SO _x (lb)	PM ₁₀ (lb)
Quarter 1	38,954	34,170	33,690	3,179	6,262
Quarter 2	39,386	34,549	34,064	3,214	6,332
Quarter 3	39,819	34,929	34,438	3,249	6,402
Quarter 4	39,819	34,929	34,438	3,249	6,402
Total Annual	157,978	138,577	136,630	12,891	25,398

II. Applicable Rules:

Rule 2301: Emission Reduction Credit Banking (Adopted September 19, 1991;
Amended March 11, 1992; Amended December 17, 1992)

Rule 2303 Mobile Source Emission Reduction Credits (May 19, 1994)

California Health And Safety Code, Section 40709.7 (1996)

III. Location Of Reductions:

Castle Air Force Base
Castle Air Force Base, CA

IV. Method Of Generating Reductions:

Shut down of emission units

V. ERC Calculations:

A. Assumptions and Emission Factors:

Emission Factors:

This section will be divided into two parts, permitted sources and unpermitted sources:

Permitted Sources:

Gasoline Dispensing (N-1196-1-0, N-1195-1-0, N-1195-2-0, N-1195-3-0, N-1195-119-0):

Gasoline dispensing operations are not eligible for ERCs per District Rule 2301, section 4.4.1.

Classified Document Incinerator (Permit # N-1195-12-0):

EF _{NOx} :	3 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{CO} :	10 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{VOC} :	1.3 lb/ton ¹	
EF _{SOx} :	2.5 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{PM10} :	7 lb/ton ²	

Medical Waste Incinerator (Permit # N-1195-13-0):

EF _{NOx} :	3.56 lb/ton	(AP-42, table 2.3-1, 1/95)
EF _{CO} :	2.95 lb/ton	(AP-42, table 2.3-1, 1/95)
EF _{VOC} :	0.13 lb/ton ³	
EF _{SOx} :	2.17 lb/ton	(AP-42, table 2.3-1, 1/95)

¹ From AP-42, table 2.1-12 (1/95), the total organic compound (TOC) emissions are expected to have been 3 lb/ton. From CARB document "[Identification Of Volatile Organic Species Profiles](#), August 1991, Profile 3 (External Combustion Boilers - Natural Gas)" the methane fraction of the TOC is expected to have been 0.56. Therefore the non-methane hydrocarbon emissions are estimated to have been 1.3 lb/ton of material incinerated.

² From AP-42, table 2.3-2 (1/95), the TSP emissions are expected to have been 7.0 lb/ton of material incinerated. The PM₁₀ manual, code 134, states that 100% of the particulate matter would have been PM₁₀.

³ From AP-42, table 2.3-2 (1/95), the total organic compound (TOC) emissions are expected to have been 0.3 lb/ton. From CARB document "[Identification Of Volatile Organic Species Profiles](#), August 1991, Profile 3 (External Combustion Boilers - Natural Gas)" the methane fraction of the TOC is expected to have been 0.56. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.13 lb/ton of material incinerated.

EF_{PM10}: 4.67 lb/ton⁴

Metal Parts and Products Coating Operation (Permit # N-1195-14-0):

The applicant stated that polyurethane and primer were utilized in this operation, but did not keep records of the specific materials used, therefore, emission factors must be estimated. In order to ensure that the reductions are surplus the VOC emission factors will be assumed to be the VOC limit of the applicable rule in effect during the baseline period (Merced County APCD Rule 409.4).

VOC:

The metal parts and products coating rule in effect during the baseline period (Merced County APCD Rule 409) limited the VOC content of coatings to 340 grams per liter (2.8 lb/gal) therefore, the emission factors for polyurethane and primer are as follows:

Polyurethane:

EF_{VOC}: 340 g VOC/l paint (2.8 lb/gal)

Primer:

EF_{VOC}: 340 g VOC/l paint (2.8 lb/gal)

PM₁₀:

Polyurethane:

Density Of Paint: 8.9 lb/gal (AP-42, table 4.2.2.1-2)

Transfer Efficiency: 75% (typical - Volume II, Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Booth Control: 90% (STAPPA-ALAPCO Air Quality Permits Handbook (1991), section 14.4.2.2)

PM10 Fraction: 0.96 (PM10 manual, code 222)

EF_{PM10} = (8.9 lb/gal - 2.8 lb/gal)(1-0.75)(1-0.9)(0.96) = 0.15 lb/gal

⁴From AP-42, table 2.3-2, 1/95, the TSP emissions are expected to have been 4.67 lb/ton of material incinerated. The PM₁₀ manual, code 134, states that 100% of the particulate matter would have been PM₁₀.

Primer:

Density Of Primer: 10.5 lb/gal (AP-42, table 4.2.2.1-2)

Transfer Efficiency: 75% (typical - Volume II, Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Booth Control: 90% (STAPPA-ALAPCO Air Quality Permits Handbook (1991), section 14.4.2.2)

PM10 Fraction: 0.96 (PM10 manual, code 222)

$$EF_{PM10} = (10.5 \text{ lb/gal} - 2.8 \text{ lb/gal})(1-0.75)(1-0.9)(0.96) = 0.18 \text{ lb/gal}$$

Thinner:

The thinner was added to the polyurethane and the primer for the purpose of dilution, therefore, the thinner emissions are accounted for in the polyurethane and primer emission factors.

Paint Gun Cleaning Operation (N-1195-99-0):

Solvent Type: Safety Kleen SK-6782

VOC Content: 6.4 lb/gal

Natural Gas and Diesel Fired Boilers (N-1195-19-0, N-1195-20-0, N-1195-21-0, N-1195-22-0, N-1195-25-0, N-1195-26-0, N-1195-27-0, N-1195-28-0, N-1195-32-0, N-1195-33-0, N-1195-34-0, N-1195-35-0, N-1195-36-0, N-1195-37-0, N-1195-38-0, N-1195-39-0, N-1195-40-0, N-1195-41-0, N-1195-44-0, N-1195-45-0, N-1195-46-0, N-1195-47-0, N-1195-48-0, N-1195-49-0, N-1195-50-0, N-1195-51-0, N-1195-52-0, N-1195-53-0, N-1195-54-0, N-1195-55-0, N-1195-56-0, N-1195-57-0, N-1195-58-0, N-1195-59-0, N-1195-62-0, N-1195-63-0, N-1195-64-0, N-1195-65-0, N-1195-66-0, N-1195-67-0, N-1195-85-0, N-1195-110-0, N-1195-111-0, N-1195-112-0, N-1195-113-0, N-1195-115-0):

Natural Gas Emission Factors (Commercial boilers rated at 0.3 mmbtu/hr - 10 mmbtu/hr):

Note: The conversion from the AP-42 emission factor, in lb/mmcf of fuel usage, to the lb/mmbtu emission factor assumes a natural gas heating value of 1000 btu/cf.

EF_{NOx} : 100 lb/mmcf (0.1 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{CO} : 21 lb/mmcf (0.021 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{VOC} : 5.28 lb/mmcf (0.005 lb/mmbtu), AP-42 table 1.4-3, 1/95

EF_{SOx} : 0.6 lb/mmcf (0.0006 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{PM10} : 12 lb/mmcf (0.012 lb/mmbtu), AP-42 table 1.4-1, 1/95

#2 Fuel Oil Emission Factors (Commercial/institutional/residential combustors):

EF_{NOx} : 20 lb/1000 gal (AP-42 table 1.3-2, 1/95)

EF_{CO} : 5 lb/1000 gal (AP-42 table 1.3-2, 1/95)

EF_{VOC} : 0.34 lb/1000 gal (AP-42 table 1.3-4, 1/95)

EF_{PM10} : 2 lb/1000 gal (AP-42 table 1.3-2, 1/95)

EF_{SOx} : 142S lb/1000 gal (AP-42 table 1.3-2, 1/95) where:

S is the weight percent of the sulfur in the fuel

Typical #2 fuel oil is expected to contain 0.4% to 0.7% sulfur by weight (Air and Waste Management Association Air Pollution Engineering Manual, Chapter 7, Fuel Oil Section, Table 1) For the purpose of determining the SOx emission factor the midpoint sulfur content of 0.55% will be utilized.

EF_{SOx}: 142(0.55) lb/1000 gallons = 78.1 lb/1000 gal

Fixed Roof Underground JP-4 Storage Tank (Permit # N-1195-4-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Floating Roof Aboveground JP-4 Storage Tanks (Permit #'s N-1195-5-0, N-1195-6-0, N-1195-7-0, N-1195-8-0, N-1195-125-0 & N-1195-126-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Fixed Roof Underground Diesel Storage Tanks (Permit #'s N-1195-118-0 & N-1195-123-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Fixed Roof Above Ground JP-4 Storage Tanks (N-1195-9-0, N-1195-10-0 & N-1195-124-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Diesel Fired IC Engines Powering Generators (Permit #'s N-1195-68-0, N-1195-69-0, N-1195-71-0, N-1195-73-0, N-1195-74-0, N-1195-75-0, N-1195-76-0, N-1195-77-0, N-1195-79-0, N-1195-80-0, N-1195-81-0, N-1195-88-0, N-1195-89-0, N-1195-90-0, N-1195-91-0, N-1195-93-0, N-1195-95-0 & N-1195-109-0):

EF _{NOx} :	0.031 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{CO} :	6.68 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{VOC} :	0.002 lb/hp-hr ⁵	
EF _{SOx} :	2.05 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{PM10} :	2.20 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)

⁵ From AP-42, table 3.3-2 (1/95) the total organic compound (TOC) emissions are expected to have been 2.48 X 10⁻³ lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 9 (Industrial IC Engines - Distillate Oil)" the methane fraction of the TOC is expected to have been 0.116. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.002 lb/hp-hr.

Solvent Degreasers (Permit #'s N-1195-16-0, N-1195-17-0, N-1195-96-0, N-1195-97-0 & N-1195-98-0):

The baseline emissions will be calculated utilizing solvent delivery records and estimated solvent evaporation rates. It will be assumed that VOC emissions, but no PM₁₀ emissions occurred. The applicant reported the type of solvent used in each operation, therefore the VOC emission factors are as follows:

N-1195-16-0, N-1195-17-0 & N-1195-97-0:

Solvent Type: Crown Chemical PD-680
VOC Content: 6.27 lb/gal

N-1195-96-0 & N-1195-98-0:

Solvent Type: Safety Kleen SK-105
VOC Content: 6.4 lb/gal

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore no VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Fiberglass Repair Shop (Permit # N-1195-128-0):

This permit was transferred to Castle JPA and is still active as N-3489-23-0. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Gasoline Powered Government Owned Vehicles:

The vehicles were relocated, not retired, therefore, no real emission reductions occurred and no ERCs will be issued.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired steam cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations at Castle AFB).

Gasoline Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	102 lb/1000 gal
EF _{CO} :	3990 lb/1000 gal
EF _{VOC} :	147.7 lb/1000 gal
EF _{SOx} :	5.31 lb/1000 gal
EF _{PM10} :	6.47 lb/1000 gal

Diesel Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	469 lb/1000 gallons
EF _{CO} :	102 lb/1000 gallons
EF _{VOC} :	32.1 lb/1000 gallons
EF _{SOx} :	31.2 lb/1000 gallons
EF _{PM10} :	33.5 lb/1000 gallons

JP-4 Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	469 lb/1000 gallons
EF _{CO} :	102 lb/1000 gallons
EF _{VOC} :	32.1 lb/1000 gallons
EF _{SOx} :	6.2 lb/1000 gallons
EF _{PM10} :	33.5 lb/1000 gallons

Natural Gas and Diesel Fired Boilers (Buildings 759, 1248, 1253, 1360, 1404, 1405, 1509 and 1762):

Natural Gas Emission Factors (Commercial boilers rated at 0.3 mmbtu/hr - 10 mmbtu/hr):

Note: The conversion from the AP-42 emission factor, in lb/mmcf of fuel usage, to the lb/mmbtu emission factor assumes a natural gas heating value of 1000 btu/cf.

EF_{NOx}: 100 lb/mmcf (0.1 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF_{CO}: 21 lb/mmcf (0.021 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF_{VOC}: 5.28 lb/mmcf (0.005 lb/mmbtu), AP-42 table 1.4-3, 1/95
EF_{SOx}: 0.6 lb/mmcf (0.0006 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF_{PM10}: 12 lb/mmcf (0.012 lb/mmbtu), AP-42 table 1.4-1, 1/95

#2 Fuel Oil Emission Factors (Commercial/institutional/residential combustors):

EF_{NOx}: 20 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF_{CO}: 5 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF_{VOC}: 0.34 lb/1000 gal (AP-42 table 1.3-4, 1/95)
EF_{PM10}: 2 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF_{SOx}: 142S lb/1000 gal (AP-42 table 1.3-2, 1/95) where:

S is the weight percent of the sulfur in the fuel

Typical #2 fuel oil is expected to contain 0.4% to 0.7% sulfur by weight (Air and Waste Management Association Air Pollution Engineering Manual, Chapter 7, Fuel Oil Section, Table 1) For the purpose of determining the SOx emission factor the midpoint sulfur content of 0.55% will be utilized.

EF_{SOx}: 142(0.55) lb/1000 gallons = 78.1 lb/1000 gal

Paint Strip Tank (Building 1253):

VOC emissions, but no PM₁₀ emissions occurred as a result of paint stripper use.

VOC Content: 5.2 lb/gal (From Applicant)

Fire Fighting Training Areas:

The following emission factors were provided by Castle AFB and are from:

Kirtland TR AFWL-TR 73 106, Quantitative Evaluation Of Smoke Abatement for Crash/Rescue Training Facilities ; and

USAFOEHL McClellan PROF 71 M-23 1971, Air Pollution Emissions From JP-4 Fires Used In Fire Fighting Training

EF_{NOx}: 4.15 lb/1000 pounds of fuel
EF_{CO}: 560 lb/1000 pounds of fuel
EF_{VOC}: 320 lb/1000 pounds of fuel
EF_{SOx}: 0.4 lb/1000 pounds of fuel
EF_{PM10}: 128 lb/1000 pounds of fuel

Surface Coating Operations (66 unpermitted coating operations):

The applicant reported that paint, varnish, lacquer, enamel, primer and thinner were utilized in these operations. The applicant further stated that the types of materials coated are unknown. For the purpose of ensuring that the reductions are surplus it will be assumed that the paint, lacquer and enamel were utilized to coat metal parts and products and that the varnish was utilized to coat wood products. The VOC emission factors will be the VOC content limit of the applicable rules in effect during the baseline period.

The baseline period data was submitted in pounds of material used, therefore emission factors in terms of pounds of VOC emissions per ton of material usage are required.

VOC:

The Metal Parts and Products Coating rule in effect during the baseline period (Merced County APCD Rule 409) limited the VOC content of coatings to 340 grams per liter (2.8 lb/gal) therefore, the emission factor for paint, lacquer and enamel are as follows:

Paint:
VOC Content: 340 g VOC/l paint (2.8 lb/gal) - Rule Limit
Density: 8.9 lb paint/gal paint (AP-42 Table 4.2.2.1-2)

EF_{VOC}: (2.8 lb VOC/gal paint)(1 gal paint/8.9 lb paint) X
(2000 lb paint/ton paint) = 629.2 lb VOC/ton paint

Lacquer:
VOC Content: 340 g VOC/l lacquer (2.8 lb/gal) - Rule Limit
Density: 7.9 lb lacquer/gal lacquer (AP-42 Table 4.2.2.1-2)

$EF_{VOC}: (2.8 \text{ lb VOC/gal lacquer})(1 \text{ gal lacquer}/7.9 \text{ lb lacquer}) \times$
 $(2000 \text{ lb lacquer/ton lacquer}) = 708.9 \text{ lb VOC/ton lacquer}$

Enamel:
VOC Content: 340 g VOC/l enamel (2.8 lb/gal) - Rule Limit
Density: 7.6 lb enamel/gal enamel (AP-42 Table 4.2.2.1-2)

$EF_{VOC}: (2.8 \text{ lb VOC/gal enamel})(1 \text{ gal enamel}/7.6 \text{ lb enamel}) \times$
 $(2000 \text{ lb enamel/ton enamel}) = 736.8 \text{ lb VOC/ton enamel}$

Polyurethane:
VOC Content: 340 g VOC/l paint (2.8 lb/gal) - Rule Limit
Density: 9.2 lb polyurethane/gal paint (AP-42 Table 4.2.2.1-2)

$EF_{VOC}: (2.8 \text{ lb VOC/gal poly.})(1 \text{ gal poly.}/9.2 \text{ lb paint}) \times$
 $(2000 \text{ lb poly./ton poly.}) = 608.7 \text{ lb VOC/ton poly.}$

Primer:
VOC Content: 340 g VOC/l primer (2.8 lb/gal) - Rule Limit
Density: 9.4 lb primer/gal primer (AP-42 Table 4.2.2.1-2)

$EF_{VOC}: (2.8 \text{ lb VOC/gal primer})(1 \text{ gal primer}/9.4 \text{ lb primer}) \times$
 $(2000 \text{ lb primer/ton primer}) = 595.7 \text{ lb VOC/ton primer}$

Varnish:
There was not a wood products coating rule in effect during the baseline period therefore, the AP-42 emission factor will be utilized.

$EF_{VOC}: 1,000 \text{ lb VOC/ton of material usage (AP-42 Table 4.2.1)}$

Thinner:

$EF_{VOC}: 2,000 \text{ lb VOC/ton of material usage (Assume 100% VOC)}$

PM₁₀:

AP-42 does not include PM₁₀ emission factors, therefore, PM₁₀ emission factors will be estimated. The applicant reported the material usage in tons, therefore the emission factor will be in terms of pounds of PM₁₀ per ton of material used.

For the purpose of conservatively estimating the PM₁₀ emissions, it will be assumed that a high transfer efficiency spray application method was used and the coating was performed in a booth. The following assumptions will be made:

1. Transfer efficiency was 75% (HVLP, Volume II , Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))
2. Control efficiency was 90% (Volume II , Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Enamel:

Density: 7.6 lb/gal (AP-42 Table 4.2.2.1-2)
 VOC Fraction: $736.8 \text{ lb}/2000 \text{ lb} = 0.37$
 Solid Content: $(7.6 \text{ lb/gal})(1-0.37) = 4.8 \text{ lb/gal}$
 Solid Fraction: $4.8 \text{ lb solid}/7.6 \text{ lb material} = 0.63$
 PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
 EF_{PM10}: $(0.63 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 30.2 \text{ lb/ton coating}$

Lacquer:

Density: 7.9 lb/gal (AP-42 Table 4.2.2.1-2)
 VOC Fraction: $708.9 \text{ lb}/2000 \text{ lb} = 0.35$
 Solid Content: $(7.9 \text{ lb/gal})(1-0.35) = 5.1 \text{ lb/gal}$
 Solid Fraction: $5.1 \text{ lb solid}/7.9 \text{ lb material} = 0.65$
 PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
 EF_{PM10}: $(0.65 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 31.2 \text{ lb/ton coating}$

Paint (Acrylic Enamel):

Density: 8.9 lb/gal (AP-42 Table 4.2.2.1-2)
 VOC Fraction: $629.2 \text{ lb}/2000 \text{ lb} = 0.31$
 Solid Content: $(8.9 \text{ lb/gal})(1-0.31) = 6.1 \text{ lb/gal}$
 Solid Fraction: $6.1 \text{ lb solid}/8.9 \text{ lb material} = 0.69$
 PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
 EF_{PM10}: $(0.69 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 33.1 \text{ lb/ton coating}$

Polyurethane:

Density: 9.2 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: 608.7 lb/2000 lb = 0.30
Solid Content: (9.2 lb/gal)(1-0.30) = 6.4 lb/gal
Solid Fraction: 6.4 lb solid/9.2 lb material = 0.70
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)

EF_{PM10}: (0.70 lb TSP/lb material usage)(0.96 lb PM₁₀/lb TSP)
X (1-0.75)(1-0.9)(2000 lb/ton) = 33.6 lb/ton coating

Primer:

Density: 9.4 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: 595.7 lb/2000 lb = 0.30 (Derived From AP-42 Table 4.2-1)
Solid Content: (9.4 lb/gal)(1-0.30) = 6.6 lb/gal
Solid Fraction: 7.4 lb solid/9.4 lb material = 0.8
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)

EF_{PM10}: (0.8 lb TSP/lb material usage)(0.96 lb PM₁₀/lb TSP)
X (1-0.75)(1-0.9)(2000 lb/ton) = 38.4 lb /ton coating

Varnish:

Density: 6.6 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: 1000 lb/2000 lb = 0.50 (Derived From AP-42 Table 4.2-1)
Solid Content: (6.6 lb/gal)(1-0.50) = 3.3 lb/gal
Solid Fraction: 3.3 lb solid/6.6 lb material = 0.50
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)

EF_{PM10}: (0.50 lb TSP/lb material usage)(0.96 lb PM₁₀/lb TSP)
X (1-0.75)(1-0.9)(2000 lb/ton) = 24.0 lb/ton coating

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

The solvent degreaser removed from building 1532 utilized 1,1,1 - trichloroethane which is not a VOC as defined in District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

The VOC emission reductions from the remaining degreasers will be calculated directly utilizing the solvent and solvent loss information provided by the applicant. The types of solvent used, and their VOC contents are as follows:

Bldg. 59, 1200, 1260, 1335, 1344 and the ACRP Bearing Shop:

Solvent Type:SK-105
VOC Content: 6.4 lb/gal

Bldg. 1550 & 1260:

Solvent Type:Crown Chemical PD-680
VOC Content: 6.27 lb/gal

Bldg. 1253:

Solvent Type:MEK
VOC Content: 6.7 lb/gal

Aircraft Wash Racks:

The baseline period emissions will be calculated directly utilizing solvent and solvent loss information provided by the applicant.

Solvent Type:Crown Chemical PD-680 -T-3
VOC Content: 6.7 lb/gal

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

EF _{NOx} :	0.011 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{CO} :	0.439 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{VOC} :	0.02 lb/hp-hr ⁶	
EF _{SOx} :	5.91 X 10 ⁻⁴ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{PM10} :	7.21 X 10 ⁻⁴ lb/hp-hr	(AP-42, table 3.3-2, 1/95)

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

EF _{NOx} :	0.031 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{CO} :	6.68 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{VOC} :	0.002 ⁷	

⁶ From AP-42, table 3.3-2 (1/95) the total organic compound (TOC) emissions are expected to have been 0.022 lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 502 (Industrial IC Engines - Gasoline)" the methane fraction of the TOC is expected to have been 0.0924. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.02 lb/hp-hr.

⁷ From AP-42, table 3.3-2 the total organic compound (TOC) emissions are expected to have been 2.48 X 10⁻³ lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 9 (Industrial IC Engines - Distillate Oil)" the methane fraction of the TOC is expected to have been 0.116. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.002 lb/hp-hr.

EF_{SOx}: 2.05 X 10⁻³ lb/hp-hr (AP-42, table 3.3-2, 1/95)
EF_{PM10}: 2.20 X 10⁻³ lb/hp-hr (AP-42, table 3.3-2, 1/95)

Fixed Roof Underground Diesel Storage Tanks (Building 502):

The baseline emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

JP-4 Loading Racks:

Uncontrolled VOC: 4 lb/1000 gallons of throughput (AP-42, table 5.2-5, 1/95, splash loading)

This operation was however subject to Merced County APCD Rule 412 (Organic Liquid Loading), which required 90% VOC emission control. Therefore, to ensure that the reductions are surplus a 90% control factor will be applied to the uncontrolled value:

Controlled VOC: (4 lb/1000 gal)(1-0.9) = 0.4 lb/1000 gallons

Diesel Loading Racks:

VOC: 0.03 lb/1000 gallons of throughput (AP-42, table 5.2-5, 1/95, splash loading)

Gasoline Powered Lawn Maintenance Equipment (26 unpermitted pieces of equipment):

Although Castle AFB has been shut down, the grounds are still maintained. It will be assumed that emissions from lawn maintenance will continue to occur and that the reductions are not real. No ERCs will be issued for the shut down of this equipment.

Gasoline Powered Construction Equipment (20 unpermitted pieces of equipment):

The applicant does not know what this equipment was used for or whether this type of activity will occur in the future. No ERCs will be issued for the shut down of this equipment because the reductions may not be real.

B. Baseline Period Determination and Data:

Baseline Period Determination:

The baseline period for quantifying emission reductions is normally the two year period ending on the date that the base closure or realignment decision became final (California Health And Safety Code, Section 40709.7). That date was April 12, 1991. If that period is not representative of normal source operation then another two consecutive year period within the five years immediately preceding the base closure or realignment decision may be used. Calendar years 1989 and 1990 will be considered the baseline period.

Baseline Data:

For most emission units, Castle AFB had access to only 1990 baseline data. Since the level of base activity is dependent on the number of flights conducted, it will be assumed that the 1989 baseline data can be estimated accurately utilizing the ratio of the number of flights in 1989 to the number of flights in 1990. Castle AFB reported that the number of flights conducted during 1989 and 1990 were 37,190 and 38,458 respectively. For the units whose baseline period is calendar years 1989 and 1990, and 1989 data was not provided the 1989 baseline data will be estimated by multiplying the 1990 data provided by Castle AFB by 0.97.

For some of the units, 1991, 1993 or 1994 fuel usage or operating time was reported. It will be assumed that year's fuel usage or operating time was the same as the 1990 fuel usage or operating time. The 1989 fuel usage or operating time will be estimated utilizing the method stated above.

Permitted Sources:

Gasoline Dispensing (N-1196-1-0, N-1195-1-0, N-1195-2-0, N-1195-3-0, N-1195-119-0):

Gasoline dispensing operations are not eligible for ERCs per District Rule 2301, section 4.4.1.

Classified Document Incinerator (Permit # N-1195-12-0):

1990 Throughput:	2.5 Tons
1989 Throughput:	$(2.5 \text{ Tons})(0.97) = 2.4 \text{ Tons}$
Average 1989/1990 Throughput:	2.45 Tons

Medical Waste Incinerator (Permit # N-1195-13-0):

1990 Throughput: 2.6 Tons
1989 Throughput: $(2.6 \text{ Tons})(0.97) = 2.5 \text{ Tons}$
Average 1989/1990 Throughput: 2.55 Tons

Surface Coating Operation (Permit # N-1195-14-0):

1990 Usage: Polyurethane: 200 gallons
Thinner: 200 gallons
Primer: 200 gallons

1989 Usage: Polyurethane: $(200 \text{ gallons})(0.97) = 194 \text{ gallons}$
Thinner: $(200 \text{ gallons})(0.97) = 194 \text{ gallons}$
Primer: $(200 \text{ gallons})(0.97) = 194 \text{ gallons}$

Average 1989/1990 Usage: Polyurethane: 197 gallons
Thinner: 197 gallons
Primer: 197 gallons

It will be assumed that half of the thinner was added to the polyurethane and half to the primer as reducer. Therefore the average 1989/1990 polyurethane and primer usage, including reducer, was:

Polyurethane: $197 \text{ gallons} + (0.5)(197 \text{ gal}) = 295.5 \text{ gallons}$
Primer: $197 \text{ gallons} + (0.5)(197 \text{ gal}) = 295.5 \text{ gallons}$

Paint Gun Cleaning Operation (Permit # N-1195-99-0):

1990 Solvent Loss: 24 gallons
1989 Solvent Loss: $(24 \text{ gallons})(0.97) = 23.3 \text{ gallons}$
Average 1989/1990 Solvent Loss: 23.7 gallons

Boilers:

Permit #	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (MMBTU)
N-1195-19-0	Natural Gas	1.2	2,912	3494.4
N-1195-20-0	Natural Gas	2.4	2,912	6988.8
N-1195-21-0	Natural Gas	2.4	2912	6988.8
N-1195-22-0	Natural Gas	0.9	3,276	2948.4
N-1195-25-0	Natural Gas	2.04	2,928	5973.1
N-1195-26-0	Natural Gas	1.2	4,392	5270.4
N-1195-27-0	Natural Gas	0.567	4,392	2490.3
N-1195-28-0	Natural Gas	0.96	4,880	4684.8
N-1195-34-0	Natural Gas	2.7	3,904	10,540.8
N-1195-35-0	Natural Gas	1.0	3,904	3,904.0
N-1195-36-0	Natural Gas	0.67	3,888	2,605.0
N-1195-39-0	Natural Gas	2.25	3,640	8,190.0
N-1195-40-0	Natural Gas	1.35	3,640	4,914.0
N-1195-41-0	Natural Gas	2.5	50	125.0
N-1195-45-0	Natural Gas	0.72	2,184	1,572.5
N-1195-46-0	Natural Gas	1.33	1,820	2,420.6
N-1195-47-0	Natural Gas	0.29	3,834	1,111.9
N-1195-48-0	Natural Gas	1.12	3,834	4,294.1
N-1195-49-0	Natural Gas	0.36	4,392	1,581.1
N-1195-50-0	Natural Gas	0.56	4,392	2,459.5
N-1195-51-0	Natural Gas	0.56	4,392	2,459.5
N-1195-52-0	Natural Gas	0.56	4,880	2,732.8
N-1195-53-0	Natural Gas	0.837	6,080	5,089.0
N-1195-54-0	Natural Gas	1.903	7,300	13,891.9
N-1195-55-0	Natural Gas	1.09	7,300	7,957.0
N-1195-56-0	Natural Gas	0.8	8,760	7,008.0
N-1195-57-0	Natural Gas	0.54	486	262.4
N-1195-58-0	Natural Gas	2.09	3,640	7,607.6
N-1195-59-0	Natural Gas	0.35	2,912	1,019.2
N-1195-62-0	Natural Gas	4.83	6,028	29,115.2
N-1195-63-0	Natural Gas	0.56	4,880	2,732.8
N-1195-64-0	Natural Gas	0.395	4,880	1,927.6
N-1195-65-0	Natural Gas	0.84	4,880	4,099.2
N-1195-67-0	Natural Gas	2.07	5,368	11,111.8
N-1195-110-0	Natural Gas	2.4	2,912	6,988.8
N-1195-111-0	Natural Gas	0.528	4,880	2,576.6
N-1195-112-0	Natural Gas	4.68	3,640	17,035.2
N-1195-113-0	Natural Gas	0.43	3,640	1,565.2
N-1195-115-0	Natural Gas	0.43	3,640	1,565.2
Total				209,302.5

1989 Usage = (209,302.5 MMBTU)(0.97) = 203,023.4 MMBTU

Average 1989/1990 Natural Gas Usage: 206,163.0 MMBTU

Diesel Fired Boilers:

Permit Number	Fuel Type	Gallons Of Fuel Usage (Year)
N-1195-32-0	#2 Fuel Oil	1,947 (1991)
N-1195-33-0	#2 Fuel Oil	1,300 (1991)
N-1195-36-0	#2 Fuel Oil	3,275 (1991)
N-1195-37-0	#2 Fuel Oil	1,477 (1994)
N-1195-66-0	#2 Fuel Oil	7,243 (1991)
Total		15,242

1989 Usage = (15,242 gallons)(0.97) = 14,784.7 gallons

Average 1989/1990 Natural Gas Usage: 15,013.4 gallons

Fixed Roof Underground JP-4 Storage Tank (N-1195-4-0):

1990 Throughput: 150,000 gallons
 1989 Throughput: (150,000 gallons)(0.97) = 145,500 gallons
 Average 1989/1990 Throughput: 147,750 gallons

Floating Roof Aboveground JP-4 Storage Tanks:

Permit #	1989 Throughput (gallons)	1990 Throughput (gallons)	Average 1989/1990 Throughput (gallons)
N-1195-5-0	29,893,295	30,817,830	30,355,563
N-1195-6-0	10,808,607	11,142,894	10,975,751
N-1195-7-0	13,858,933	14,287,560	14,073,247
N-1195-8-0	14,083,944	14,519,530	14,301,737
N-1195-125-0	12,743,105	13,137,222	12,940,164
N-1195-126-0	12,743,105	13,137,222	12,940,164
Total			95,586,626

Fixed Roof Aboveground Fixed Roof JP-4 Storage Tanks:

Permit #	1989 Throughput (gallons)	1990 Throughput (gallons)	Average 1989/1990 Throughput (gallons)
N-1195-9-0	3,880	4,000	3,940
N-1195-10-0	3,880	4,000	3,940
N-1195-124-0	1,455,000	1,500,000	1,477,500
Total			1,485,380

Fixed Roof Underground Diesel Storage Tanks (N-1195-118-0, N-1195-123-0):

Permit #	1989 Throughput (Gallons)	1990 Throughput (Gallons)	Average 1989/1990 Throughput (Gallons)
N-1195-118-0	178,701	184,228	181,465
N-1195-123-0	206,376	212,759	209,568
Total			391,033

Diesel Fired IC Engines Powering Generators:

Permit #	1989 Operating Hours	1990 Operation (Hours)	Average 1989/1990 Operation (Hours)
N-1195-68-0	23.3	24	23.7
N-1195-69-0	11.6	12	11.8
N-1195-71-0	11.6	12	11.8
N-1195-73-0	11.6	12	11.8
N-1195-74-0	11.6	12	11.8
N-1195-75-0	11.6	12	11.8
N-1195-76-0	11.6	12	11.8
N-1195-77-0	11.6	12	11.8
N-1195-79-0	23.3	24	23.7
N-1195-80-0	23.3	24	23.7
N-1195-81-0	23.3	24	23.7
N-1195-88-0	11.6	12	11.8
N-1195-89-0	11.6	12	11.8
N-1195-90-0	11.6	12	11.8
N-1195-91-0	11.6	12	11.8
N-1195-93-0	11.6	12	11.8
N-1195-95-0	0	0	0
N-1195-109-0	23.3	24	23.7

Solvent Degreasers:

Permit #	1989 Solvent Loss (Gallons)	1990 Solvent Loss (Gallons)	Average 1989/1990 Solvent Loss (Gallons)
N-1195-16-0	12.1	12.5	12.3
N-1195-17-0	12.1	12.5	12.3
N-1195-96-0	80.8	83.3	82.1
N-1195-97-0	12.1	12.5	12.3
N-1195-98-0	80.8	83.3	82.1

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for this action.

Fiberglass Repair Shop (Permit #N-1195-128-0):

This permit was transferred to Castle JPA and is still active. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Government Owned Vehicles:

The vehicles were relocated, not retired, therefore no real emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired stream cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations around Castle AFB).

1990 Gasoline Usage: 12,800 gallons
1989 Gasoline Usage: (12,800 gallons)(0.97) = 12,416 gallons
Average 1989/1990 Gasoline Usage: 12,608 gallons

1990 Diesel Usage: 216,100 gallons
1989 Diesel Usage: (216,100 gallons)(0.97) = 209,617 gallons
Average 1989/1990 Diesel Usage: 212,859 gallons

1990 JP-4 Usage: 102,400 gallons
1989 JP-4 Usage: (102,400 gallons)(0.97) = 99,328 gallons
Average 1989/1990 JP-4 Usage: 100,864 gallons

Boilers:

Building	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (MMBTU)
759	Natural Gas	0.9	2,912	2,620.8
1248	Natural Gas	0.7	3,408	2,385.6
1253	Natural Gas	4.2	3,408	14,313.6
1360	Natural Gas	1.9	4,880	9,272.0
1360	Natural Gas	1.09	4,880	5,319.2
Total Natural Gas Usage				33,911.2

1989 Usage = (33,911.2 MMBTU)(0.97) = 32,893.9 MMBTU
Average 1989/1990 fuel usage = 33,402.6 MMBTU

Building	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (Gallons) ⁸
1404	#2 Fuel Oil	0.2279	4,860	7,911
1405	#2 Fuel Oil	0.14	4,860	4,860
1509	#2 Fuel Oil	0.98	4,860	34,020
1762	#2 Fuel Oil	0.506	3,888	14,052
Total #2 Fuel Oil Usage				60,843

1989 Usage = (60,843 gallons)(0.97) = 59,018 gallons

Average 1989/1990 Fuel Usage: 59,931 gallons

Paint Strip Tank (Bldg. 1253):

1990 Stripper Usage: 30 gallons
 1989 Stripper Usage: (30 gallons)(0.97) = 29 gallons
 Average 1989/1990 Stripper Usage: 29.5 gallons

Fire Fighting Training Areas (Near Bldg. 1312):

1989 JP-4 Usage: 106,182 pounds (Provided by the applicant)
 1990 JP-4 Usage: 106,182 pounds (Provided by the applicant)
 Average 1989/1990 JP-4 Usage: 106,182 pounds

Surface Coating Operations (66 unpermitted coating operations):

In addition to the coatings, the applicant reported that 24,245 pounds of thinner was used. It will be assumed that thinner was added to the coatings in 50/50 proportions and the remainder was used for other than coating thinning.

1990 Enamel Usage: 2968 lb Enamel + 2968 lb Thinner = 5936 lb/yr
 1989 Enamel Usage: (5936 lb pounds)(0.97) = 5758 pounds
 Average 1989/1990 Enamel Usage: 5847 pounds

1990 Paint Usage: 2,176 lb paint + 2176 lb thinner
 = 4352 lb/yr
 1989 Paint Usage: (4352 pounds)(0.97) = 4221 pounds
 Average 1989/1990 Paint Usage: 4287 pounds

1990 Varnish Usage: 64.5 lb Varnish + 64.5 lb thinner
 = 129 lb/yr
 1989 Varnish Usage: (129 pounds)(0.97) = 125 pounds
 Average 1989/1990 Varnish Usage: 127 pounds

1990 Lacquer Usage: 2,370 lb Lacquer + 2,370 lb Thinner
 = 4740 lb/yr
 1989 Lacquer Usage: (4740 pounds)(0.97) = 4598 pounds

⁸ Assumes a heating value for #2 fuel oil of 140,000 BTU/gal (AP-42)

Average 1989/1990 Lacquer Usage: 4,669 pounds

1990 Primer Usage: 933 lb primer + 933 lb Thinner
= 1866 lb/yr

1989 Primer Usage: (1866 pounds)(0.97) = 1810 pounds

Average 1989/1990 Primer Usage: 1838 pounds

1990 Polyurethane Usage: 8717 lb poly. + 8717 lb Thin.
= 17,434 lb/yr

1989 Polyurethane Usage: (17,434 pounds)(0.97) = 16,911 pounds

Average 1989/1990 Polyurethane Usage: 17,173 pounds

1990 Thinner Usage (For wipe down and gun cleaning):
24,245 pounds - (2968 + 2176 + 64.5 + 2370 + 933 + 8717) pounds = 7017 pounds

1989 Thinner Usage: (7017 pounds)(0.97) = 6807 pounds

Average 1989/1990 Thinner Usage: 6912 pounds

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

The solvent degreaser removed from building 1532 utilized 1,1,1 - trichloroethane which is not a VOC as defined in District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for this action.

Combined 1990 Safety Kleen PD-680 Loss: 25 gallons

Combined 1989 Safety Kleen PD-680 Loss: (25 gallons)(0.97) = 24.3 gallons

Average 1989/1990 Loss: 24.7 gallons

Combined 1990 Methyl Ethyl Ketone Loss: 250 gallons

Combined 1989 Methyl Ethyl Ketone Loss: (250 gallons)(0.97)
= 242.5 gallons

Average 1989/1990 Loss: 246.3 gallons

Combined 1990 Safety Kleen SK-105 Loss: 583 Gallons

Combined 1989 Safety Kleen SK-105 Loss: (583 gallons)(0.97) =
565.5 gallons

Average 1989/1990 Loss: 574.3 gallons

Aircraft Wash Racks (Dock 2):

Combined 1990 Crown PD 680 T-3 Loss: 7,250 gallons

Combined 1989 Crown PD 680 T-3 Loss: (7250 gallons)(0.97) = 7032.5 gallons

Average 1989/1990 Loss: 7,141.3 gallons

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

Rating (Horsepower)	1989 Operation (Hours)	1990 Operation (Hours)	Average 1989/1990 Operation (Hours)
6	11.6	12	11.8
6	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

Rating (Horsepower)	1989 Operating Hours	1990 Operating Hours	Average 1989/1990 Operating Hours
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
30	11.6	12	11.8
40	11.6	12	11.8
6	11.6	12	11.8
6	11.6	12	11.8
15	11.6	12	11.8
75	11.6	12	11.8
0.75	11.6	12	11.8
8	11.6	12	11.8
8	11.6	12	11.8
60	11.6	12	11.8
60	11.6	12	11.8
60	11.6	12	11.8
11	11.6	12	11.8
11	11.6	12	11.8
3	11.6	12	11.8
250	23.3	24	23.7
250	23.3	24	23.7
250	23.3	24	23.7
250	23.3	24	23.7
15	23.3	24	23.7
3.5	11.6	12	11.8
3.5	11.6	12	11.8
3.5	11.6	12	11.8

2 Underground Diesel Storage Tank (Building 502):

1990 Throughput: 333,786 gallons
1989 Throughput: $(333,786 \text{ gallons})(0.97) = 323,772.4 \text{ gallons}$

Average 1989/1990 Throughput: 328,779 gallons

JP-4 Loading Racks:

JP-4 was piped from an off base location to 4 bulk storage tanks (N-1195-5-0, N-1195-6-0, N-1195-7-0 & N-1195-8-0) located at Castle AFB. From the bulk tanks the JP-4 was distributed to either trucks or other storage tanks. From the trucks, JP-4 was loaded into aircraft fuel tanks. From the other storage tanks fuel was distributed to a fuel hydrant system. From the fuel hydrant system, JP-4 was loaded into aircraft fuel tanks.

From information contained in the 1982 emission inventory the distribution of fuel was as follows:

JP-4 to bulk storage: 106.7 MMGal
Fuel to UST's: 103.7 MMGal
Fuel to Trucks: 3 MMGal

It will be assumed that the fuel distribution ratios during the baseline period were the same as in 1982. Therefore, it will be assumed that 2.8% of the bulk tank throughput was distributed by the loading rack. The baseline period bulk tank JP-4 throughputs are as follows:

Ave. 1989/1990 Bulk Tank Throughput: 69,706,298 gal

Ave. 1989/1990 Loading Rack Throughput: $(69,706,298 \text{ gal})(0.028)$
 $= 1,951,776 \text{ gal}$

Diesel Loading Racks:

The aircraft stationed at Castle AFB did not utilize diesel therefore no diesel was delivered through the hydrant system. It will therefore be assumed that all of the diesel was dispensed from the tanks through a loading rack. The quantity of diesel dispensed through the loading racks will be the combined throughput of the two diesel tanks located at building 502 and the tanks permitted under N-1195-118-0 and N-1195-123-0:

N-1195-118-0 & N-1195-123-0:

Ave. 1989/1990 Throughput: 391,033 gallons

2 Unpermitted Tanks (Building 502):

Ave. 1989/1990 Throughput: 328,779 gallons

Combined 1989/1990 Average Diesel Tank Throughputs:

391,033 gallons + 328,779 gallons = 719,812 gallons

Gasoline Powered Lawn Maintenance Equipment (26 unpermitted pieces of equipment):

Although Castle AFB has been shut down, the grounds continue to be maintained. It will be assumed that emissions from lawn maintenance will continue to occur and that the reductions are not real. No ERCs will be issued for the shut down of this equipment.

Gasoline Powered Construction Equipment (20 unpermitted pieces of equipment):

The applicant does not know what this equipment was used for or whether this type of activity will occur in the future. No ERCs will be issued for the shut down of this equipment because the reductions may not be real.

C. Historical Actual Emissions (HAE) :

Classified Document Incinerator (Permit # N-1195-12-0):

Average 1989/1990 Throughput: 2.45 tons

Average 1989/1990 Emissions:

NO_x: (3 lb/ton)(2.45 tons/yr) = 7 lb/yr

CO: (10 lb/ton)(2.45 tons/yr) = 25 lb/yr

VOC: (1.3 lb/ton)(2.45 tons/yr) = 3 lb/yr

SO_x: (2.5 lb/ton)(2.45 tons/yr) = 6 lb/yr

PM₁₀: (7 lb/ton)(2.45 tons/yr) = 17 lb/yr

Medical Waste Incinerator (Permit # N-1195-13-0):

NO_x: (3.56 lb/ton)(2.55 tons/yr) = 9 lb/yr

CO: (2.95 lb/ton)(2.55 tons/yr) = 8 lb/yr

VOC: (0.13 lb/ton)(2.55 tons/yr) = 0 lb/yr

SO_x: (2.17 lb/ton)(2.55 tons/yr) = 6 lb/yr

PM₁₀: (4.67 lb/ton)(2.55 tons/yr) = 12 lb/yr

Metal Parts and Products Coating Operation (Permit # N-1195-14-0):

Polyurethane:

Average 1989/1990 Polyurethane Usage: 295.5 gallons

VOC: $(2.8 \text{ lb/gal})(295.5 \text{ gal/yr}) = 827 \text{ lb/yr}$

PM₁₀: $(0.15 \text{ lb/gal})(295.5 \text{ gal/yr}) = 44 \text{ lb/yr}$

Primer:

Average 1989/1990 Primer Usage: 295.5 gallons

VOC: $(2.8 \text{ lb/gal})(295.5 \text{ gal}) = 827 \text{ lb/yr}$

PM₁₀: $(0.18 \text{ lb/gal})(295.5 \text{ gal}) = 53 \text{ lb/yr}$

Paint Gun Cleaning Operation (N-1195-99-0):

Average 1989/1990 Solvent Loss: 23.7 gal

VOC: $(6.4 \text{ lb/gal})(23.7 \text{ gal/yr}) = 152 \text{ lb/yr}$

Natural Gas and Diesel Fired Boilers (N-1195-19-0, N-1195-20-0, N-1195-21-0, N-1195-22-0, N-1195-25-0, N-1195-26-0, N-1195-27-0, N-1195-28-0, N-1195-32-0, N-1195-33-0, N-1195-34-0, N-1195-35-0, N-1195-36-0, N-1195-37-0, N-1195-38-0, N-1195-39-0, N-1195-40-0, N-1195-41-0, N-1195-44-0, N-1195-45-0, N-1195-46-0, N-1195-47-0, N-1195-48-0, N-1195-49-0, N-1195-50-0, N-1195-51-0, N-1195-52-0, N-1195-53-0, N-1195-54-0, N-1195-55-0, N-1195-56-0, N-1195-57-0, N-1195-58-0, N-1195-59-0, N-1195-62-0, N-1195-63-0, N-1195-64-0, N-1195-65-0, N-1195-66-0, N-1195-67-0, N-1195-85-0, N-1195-110-0, N-1195-111-0, N-1195-112-0, N-1195-113-0, N-1195-115-0):

Average 1989/1990 Natural Gas Usage Assuming Full Capacity Op.: 206,163 MMBTU/yr

During the public comment period the EPA commented that actual records of gas usage were not kept and that calculating the baseline period fuel usage assuming full capacity operation was improper. As a result of this comment the District agreed to apply a load factor of 0.50.

NO_x: $(0.1 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.5) = 10,308 \text{ lb/yr}$

CO: $(0.021 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.5) = 2,165 \text{ lb/yr}$

VOC: $(0.005 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.5) = 515 \text{ lb/yr}$

SO_x: $(0.0006 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.5) = 62 \text{ lb/yr}$

PM₁₀: $(0.012 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.5) = 1,237 \text{ lb/yr}$

Average 1989/1990 #2 Fuel Oil Usage: 15,013.4 gallons

NOx: $(20 \text{ lb}/1000 \text{ gal})(15,013.4 \text{ gal}/\text{yr}) = 300 \text{ lb}/\text{yr}$

CO: $(5 \text{ lb}/1000 \text{ gal})(15,013.4 \text{ gal}/\text{yr}) = 75 \text{ lb}/\text{yr}$

VOC: $(0.34 \text{ lb}/1000 \text{ gal})(15,013.4 \text{ gal}/\text{yr}) = 5 \text{ lb}/\text{yr}$

SOx: $(78.1 \text{ lb}/1000 \text{ gal})(15,013.4 \text{ gal}/\text{yr}) = 1,173 \text{ lb}/\text{yr}$

PM₁₀: $(2 \text{ lb}/1000 \text{ gal})(15,013.4 \text{ gal}/\text{yr}) = 30 \text{ lb}/\text{yr}$

Fixed Roof Underground JP-4 Storage Tank (N-1195-4-0):

1990 JP-4 Losses: 401 lb (EPA's Tanks Program)

1989 JP-4 Losses: $(401 \text{ lb})(0.97) = 389 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(401 \text{ lb} + 389 \text{ lb}) \div 2 = 395 \text{ lb}/\text{yr}$

Floating Roof Aboveground JP-4 Tanks (N-1195-5-0, N-1195-6-0, N-1195-7-0, N-1195-8-0, N-1195-125-0, N-1195-126-0):

1990 JP-4 Losses: 20,156 lb (EPA's Tanks 3 Program)

1989 JP-4 Losses: $(20,156 \text{ lb})(0.97) = 19,551 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(20,156 \text{ lb} + 19,551 \text{ lb}) \div 2 = 19,854 \text{ lb}/\text{yr}$

Fixed Roof Underground Diesel Storage Tanks (N-1195-118-0, N-1195-123-0):

1990 Diesel Losses: 9 lb (EPA's Tanks 3 Program)

1989 Diesel Losses: $(9 \text{ lb})(0.97) = 9 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(9 \text{ lb} + 9 \text{ lb}) \div 2 = 9 \text{ lb}/\text{yr}$

Fixed Roof Aboveground JP-4 Storage Tanks (N-1195-9-0, N-1195-10-0 & N-1195-124-0):

1990 JP-4 Losses (Uncontrolled): 1500 lb (EPA's Tanks 3 Program)

1989 JP-4 Losses (Uncontrolled): $(1500 \text{ lb})(0.97) = 1,455 \text{ lb}$

Average 1989/1990 VOC Emissions: $(1500 \text{ lb} + 1455 \text{ lb}) \div 2 = 1,478 \text{ lb}$

Diesel Fired IC Engines Powering Generators:

NOx

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	0.031	900	23.7	661
N-1195-69-0	0.031	100	11.8	37
N-1195-71-0	0.031	120	11.8	44
N-1195-73-0	0.031	300	11.8	110
N-1195-74-0	0.031	300	11.8	110
N-1195-75-0	0.031	300	11.8	110
N-1195-76-0	0.031	300	11.8	110
N-1195-77-0	0.031	310	11.8	113
N-1195-79-0	0.031	400	23.7	294
N-1195-80-0	0.031	400	23.7	294
N-1195-81-0	0.031	400	23.7	294
N-1195-88-0	0.031	58	11.8	21
N-1195-89-0	0.031	58	11.8	21
N-1195-90-0	0.031	58	11.8	21
N-1195-91-0	0.031	58	11.8	21
N-1195-93-0	0.031	58	11.8	21
N-1195-95-0	0.031	276	0.0	0
N-1195-109-0	0.031	900	23.7	661
Total				2,943

CO

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	6.68 X 10 ⁻³	900	23.7	143
N-1195-69-0	6.68 X 10 ⁻³	100	11.8	8
N-1195-71-0	6.68 X 10 ⁻³	120	11.8	10
N-1195-73-0	6.68 X 10 ⁻³	300	11.8	24
N-1195-74-0	6.68 X 10 ⁻³	300	11.8	24
N-1195-75-0	6.68 X 10 ⁻³	300	11.8	24
N-1195-76-0	6.68 X 10 ⁻³	300	11.8	24
N-1195-77-0	6.68 X 10 ⁻³	310	11.8	24
N-1195-79-0	6.68 X 10 ⁻³	400	23.7	63
N-1195-80-0	6.68 X 10 ⁻³	400	23.7	63
N-1195-81-0	6.68 X 10 ⁻³	400	23.7	63
N-1195-88-0	6.68 X 10 ⁻³	58	11.8	5
N-1195-89-0	6.68 X 10 ⁻³	58	11.8	5
N-1195-90-0	6.68 X 10 ⁻³	58	11.8	5
N-1195-91-0	6.68 X 10 ⁻³	58	11.8	5
N-1195-93-0	6.68 X 10 ⁻³	58	11.8	5
N-1195-95-0	6.68 X 10 ⁻³	276	0.0	0
N-1195-109-0	6.68 X 10 ⁻³	900	23.7	143
Total				638

VOC

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	0.002	900	23.7	43
N-1195-69-0	0.002	100	11.8	2
N-1195-71-0	0.002	120	11.8	3
N-1195-73-0	0.002	300	11.8	7
N-1195-74-0	0.002	300	11.8	7
N-1195-75-0	0.002	300	11.8	7
N-1195-76-0	0.002	300	11.8	7
N-1195-77-0	0.002	310	11.8	7
N-1195-79-0	0.002	400	23.7	19
N-1195-80-0	0.002	400	23.7	19
N-1195-81-0	0.002	400	23.7	19
N-1195-88-0	0.002	58	11.8	1
N-1195-89-0	0.002	58	11.8	1
N-1195-90-0	0.002	58	11.8	1
N-1195-91-0	0.002	58	11.8	1
N-1195-93-0	0.002	58	11.8	1
N-1195-95-0	0.002	276	0.0	0
N-1195-109-0	0.002	900	23.7	43
Total				188

SOx

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	2.05 X 10 ⁻³	900	23.7	44
N-1195-69-0	2.05 X 10 ⁻³	100	11.8	2
N-1195-71-0	2.05 X 10 ⁻³	120	11.8	3
N-1195-73-0	2.05 X 10 ⁻³	300	11.8	7
N-1195-74-0	2.05 X 10 ⁻³	300	11.8	7
N-1195-75-0	2.05 X 10 ⁻³	300	11.8	7
N-1195-76-0	2.05 X 10 ⁻³	300	11.8	7
N-1195-77-0	2.05 X 10 ⁻³	310	11.8	8
N-1195-79-0	2.05 X 10 ⁻³	400	23.7	19
N-1195-80-0	2.05 X 10 ⁻³	400	23.7	19
N-1195-81-0	2.05 X 10 ⁻³	400	23.7	19
N-1195-88-0	2.05 X 10 ⁻³	58	11.8	1
N-1195-89-0	2.05 X 10 ⁻³	58	11.8	1
N-1195-90-0	2.05 X 10 ⁻³	58	11.8	1
N-1195-91-0	2.05 X 10 ⁻³	58	11.8	1
N-1195-93-0	2.05 X 10 ⁻³	58	11.8	1
N-1195-95-0	2.05 X 10 ⁻³	276	0.0	0
N-1195-109-0	2.05 X 10 ⁻³	900	23.7	44
Total				191

PM₁₀

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	2.20 X 10 ⁻³	900	23.7	47
N-1195-69-0	2.20 X 10 ⁻³	100	11.8	3
N-1195-71-0	2.20 X 10 ⁻³	120	11.8	3
N-1195-73-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-74-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-75-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-76-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-77-0	2.20 X 10 ⁻³	310	11.8	8
N-1195-79-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-80-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-81-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-88-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-89-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-90-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-91-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-93-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-95-0	2.20 X 10 ⁻³	276	0.0	0
N-1195-109-0	2.20 X 10 ⁻³	900	23.7	47
Total				213

Solvent Degreasers (Permit #'s N-1195-16-0, N-1195-17-0, N-1195-96-0, N-1195-97-0 & N-1195-98-0):

N-1195-16-0, N-1195-17-0 & N-1195-97-0:

VOC: (6.27 lb/gal)(36.9 gal/yr) = 231 lb/yr

N-1195-96-0 & 1195-98-0:

VOC: (6.4 lb/gal)(164.2 gal/yr) = 1,051 lb/yr

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore no VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Fiberglass Repair Shop (Permit #N-1195-128-0):

This permit was transferred to Castle JPA and is still active. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Gasoline Powered Government Owned Vehicles:

The vehicles were relocated, not retired, therefore, no real emission reductions occurred and no ERCs will be issued.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired stream cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations around Castle AFB).

Gasoline Fired Equipment:

NOx: $(102 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 1,286 \text{ lb}/\text{yr}$
CO: $(3990 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 50,306 \text{ lb}/\text{yr}$
VOC: $(147.7 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 1862 \text{ lb}/\text{yr}$
SOx: $(5.31 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 67 \text{ lb}/\text{yr}$
PM₁₀: $(6.47 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 82 \text{ lb}/\text{yr}$

Diesel Fired Equipment:

NOx: $(469 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 99,831 \text{ lb}/\text{yr}$
CO: $(102 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 21,712 \text{ lb}/\text{yr}$
VOC: $(32.1 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 6,833 \text{ lb}/\text{yr}$
SOx: $(31.2 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 6,641 \text{ lb}/\text{yr}$
PM₁₀: $(33.5 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 7,131 \text{ lb}/\text{yr}$

JP-4 Fired Equipment:

NOx: $(469 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 47,305 \text{ lb}/\text{yr}$
CO: $(102 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 10,288 \text{ lb}/\text{yr}$
VOC: $(32.1 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 3,238 \text{ lb}/\text{yr}$
SOx: $(6.2 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 625 \text{ lb}/\text{yr}$
PM₁₀: $(33.5 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 3,379 \text{ lb}/\text{yr}$

Boilers (Buildings 759, 1248, 1253, 1360, 1404, 1405, 1509 and 1762):

Natural gas fired boilers:

Average 1989/1990 Natural Gas Usage: 33,402.6 MMBTU/yr

During the public comment period the EPA commented that actual records of gas usage were not kept and that calculating the baseline period fuel usage assuming full capacity operation was improper. As a result of this comment the District agreed to apply a load factor of 0.50.

NO_x: (0.1 lb/mmbtu)(33,402.6 mmbtu/yr)(0.50) = 1,670 lb/yr

CO: (0.021 lb/mmbtu)(33,402.6 mmbtu/yr)(0.50) = 351 lb/yr

VOC: (0.005 lb/mmbtu)(33,402.6 mmbtu/yr)(0.50) = 84 lb/yr

SO_x: (0.0006 lb/mmbtu)(33,402.6 mmbtu/yr)(0.50) = 10 lb/yr

PM₁₀: (0.012 lb/mmbtu)(33,402.6 mmbtu/yr)(0.50) = 200 lb/yr

Average 1989/1990 #2 Fuel Oil Usage: 59,931 gallons

NO_x: (20 lb/1000 gal)(59,931 gal/yr) = 1,199 lb/yr

CO: (5 lb/1000 gal)(59,931 gal/yr) = 300 lb/yr

VOC: (0.34 lb/1000 gal)(59,931 gal/yr) = 20 lb/yr

SO_x: (78.1 lb/1000 gal)(59,931 gal/yr) = 4,681 lb/yr

PM₁₀: (2 lb/1000 gal)(59,931 gal/yr) = 120 lb/yr

Paint Strip Tank (Building 1253):

VOC: (5.2 lb/gal)(29.5 gal/yr) = 153 lb/yr

Fire Fighting Training Areas:

NO_x: (4.15 lb/1000 pounds of fuel)(106,182 lb/yr) = 441 lb/yr

CO: (560 lb/1000 pounds of fuel)(106,182 lb/yr) = 59,462 lb/yr

VOC: (320 lb/1000 pounds of fuel)(106,182 lb/yr) = 33,978 lb/yr

SO_x: (0.4 lb/1000 pounds of fuel)(106,182 lb/yr) = 43 lb/yr

PM₁₀: (128 lb/1000 pounds of fuel)(106,182 lb/yr) = 13,591 lb/yr

Surface Coating Operations (66 unpermitted coating operations):

Paint:

VOC: (629.2 lb/ton)(4287 lb/yr)(1 ton/2000 lb) = 1349 lb/yr

PM₁₀: (33.1 lb/ton)(4287 lb/yr)(1 ton/2000 lb) = 71 lb/yr

Varnish:

VOC: (1,000 lb/ton)(127 lb/yr)(1 ton/2000 lb) = 64 lb/yr

PM₁₀: (24.0 lb/ton)(127 lb/yr)(1 ton/2000 lb) = 2 lb/yr

Lacquer:

VOC: $(708.9 \text{ lb/ton})(4669 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 1655 \text{ lb/yr}$

PM₁₀: $(31.2 \text{ lb/ton})(4669 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 73 \text{ lb/yr}$

Enamel:

VOC: $(736.8 \text{ lb/ton})(5847 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 2154 \text{ lb/yr}$

PM₁₀: $(30.2 \text{ lb/ton})(5847 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 88 \text{ lb/yr}$

Polyurethane:

VOC = $(608.7 \text{ lb/ton})(17,173 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 5,227 \text{ lb/yr}$

PM₁₀ = $(33.6 \text{ lb/ton})(17,173 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 289 \text{ lb/yr}$

Primer:

VOC: $(595.7 \text{ lb/ton})(1838 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 547 \text{ lb/yr}$

PM₁₀: $(38.4 \text{ lb/ton})(1838 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 35 \text{ lb/yr}$

Thinner (for other than coating reducer):

VOC: 6,912 lb/yr

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

VOC (SK-105 Solvent): $(6.4 \text{ lb/gal})(574.3 \text{ gal/yr}) = 3676 \text{ lb/yr}$

VOC(PD-680 Solvent): $(6.27 \text{ lb/gal})(24.7 \text{ gal/yr}) = 155 \text{ lb/yr}$

VOC (MEK Solvent): $(6.7 \text{ lb/gal})(246.3 \text{ gal}) = 1650 \text{ lb/yr}$

Aircraft Wash Racks:

The baseline period emissions will be calculated directly utilizing solvent and solvent loss information provided by the applicant.

VOC: $(6.7 \text{ lb/gal})(7,141.3 \text{ gal/yr}) = 47,847 \text{ lb/yr}$

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

NOx

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.011	6	11.8	1
0.011	6	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
Total			7

CO

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.439	6	11.8	31
0.439	6	11.8	31
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
Total			322

VOC

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.02	6	11.8	1
0.02	6	11.8	1
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
Total			12

SOx

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
5.91×10^{-4}	6	11.8	0
5.91×10^{-4}	6	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
Total			0

PM₁₀

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
7.21×10^{-4}	6	11.8	0
7.21×10^{-4}	6	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
Total			0

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

NOx

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.031	10	11.8	4
0.031	10	11.8	4
0.031	10	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	30	11.8	11
0.031	40	11.8	15
0.031	6	11.8	2
0.031	6	11.8	2
0.031	15	11.8	6
0.031	75	11.8	27
0.031	0.75	11.8	0
0.031	8	11.8	3
0.031	8	11.8	3
0.031	60	11.8	22
0.031	60	11.8	22
0.031	60	11.8	22
0.031	11	11.8	4
0.031	11	11.8	4
0.031	3	11.8	1
0.031	250	23.7	184
0.031	250	23.7	184
0.031	250	23.7	184
0.031	250	23.7	184
0.031	15	23.7	11
0.031	3.5	11.8	1
0.031	3.5	11.8	1
0.031	3.5	11.8	1
Total			987

CO

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	30	11.8	2
6.68 X 10 ⁻³	40	11.8	3
6.68 X 10 ⁻³	6	11.8	1
6.68 X 10 ⁻³	6	11.8	1
6.68 X 10 ⁻³	15	11.8	1
6.68 X 10 ⁻³	75	11.8	6
6.68 X 10 ⁻³	0.75	11.8	0
6.68 X 10 ⁻³	8	11.8	1
6.68 X 10 ⁻³	8	11.8	1
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	11	11.8	1
6.68 X 10 ⁻³	11	11.8	1
6.68 X 10 ⁻³	3	11.8	0
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	15	23.7	2
6.68 X 10 ⁻³	3.5	11.8	0
6.68 X 10 ⁻³	3.5	11.8	0
6.68 X 10 ⁻³	3.5	11.8	0
Total			217

VOC:

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.002	10	11.8	0
0.002	10	11.8	0
0.002	10	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	30	11.8	1
0.002	40	11.8	1
0.002	6	11.8	0
0.002	6	11.8	0
0.002	15	11.8	0
0.002	75	11.8	2
0.002	0.75	11.8	0
0.002	8	11.8	0
0.002	8	11.8	0
0.002	60	11.8	1
0.002	60	11.8	1
0.002	60	11.8	1
0.002	11	11.8	0
0.002	11	11.8	0
0.002	3	11.8	0
0.002	250	23.7	12
0.002	250	23.7	12
0.002	250	23.7	12
0.002	250	23.7	12
0.002	15	23.7	1
0.002	3.5	11.8	0
0.002	3.5	11.8	0
0.002	3.5	11.8	0
Total			61

SOx:

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	30	11.8	1
2.05 X 10 ⁻³	40	11.8	1
2.05 X 10 ⁻³	6	11.8	0
2.05 X 10 ⁻³	6	11.8	0
2.05 X 10 ⁻³	15	11.8	0
2.05 X 10 ⁻³	75	11.8	2
2.05 X 10 ⁻³	0.75	11.8	0
2.05 X 10 ⁻³	8	11.8	0
2.05 X 10 ⁻³	8	11.8	0
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	11	11.8	0
2.05 X 10 ⁻³	11	11.8	0
2.05 X 10 ⁻³	3	11.8	0
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	15	23.7	1
2.05 X 10 ⁻³	3.5	11.8	0
2.05 X 10 ⁻³	3.5	11.8	0
2.05 X 10 ⁻³	3.5	11.8	0
Total			64

PM₁₀

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	30	11.8	1
2.20 X 10 ⁻³	40	11.8	1
2.20 X 10 ⁻³	6	11.8	0
2.20 X 10 ⁻³	6	11.8	0
2.20 X 10 ⁻³	15	11.8	0
2.20 X 10 ⁻³	75	11.8	2
2.20 X 10 ⁻³	0.75	11.8	0
2.20 X 10 ⁻³	8	11.8	0
2.20 X 10 ⁻³	8	11.8	0
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	11	11.8	0
2.20 X 10 ⁻³	11	11.8	0
2.20 X 10 ⁻³	3	11.8	0
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	15	23.7	1
2.20 X 10 ⁻³	3.5	11.8	0
2.20 X 10 ⁻³	3.5	11.8	0
2.20 X 10 ⁻³	3.5	11.8	0
Total			68

Underground Diesel Storage Tanks (Building 502):

1990 Diesel Losses: 8 lb (EPA's Tanks Program)

1989 Diesel Losses: $(8 \text{ lb})(0.97) = 8 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(8 \text{ lb} + 8 \text{ lb}) \div 2 = 8 \text{ lb/yr}$

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because the contents (diesel) had a True Vapor Pressure of less than 1.5 psia and the tank capacities were less than 40,000 gallons each therefore no emission controls were required. Additionally, CAFB utilized no emission controls therefore no deductions are required for the purpose of ensuring that all reductions are real and surplus.

JP-4 Loading Racks:

EF_{voc} : 0.4 lb/1000 gallons

Ave. 1989/1990 JP-4 Throughput: 1,951,776 gallons

Ave. 1989/1990 VOC Emissions: $(0.4 \text{ lb VOC}/1000 \text{ gal})(1,951,776 \text{ gal}) = 781 \text{ lb/yr}$

Diesel Loading Racks:

EF_{voc} : 0.03 lb/1000 gal

Ave. 1089/1990 Diesel Throughput: 719,812 gallons

Ave. 1989/1990 VOC Emissions: $(0.03 \text{ lb VOC}/1000 \text{ gal})(719,812 \text{ gal}) = 22 \text{ lb/yr}$

D. Actual Emission Reductions (AER):

Per District rule 2201, Section 6.5.2, for the shutdown of emission units:

AER = HAE (for the unit prior to shutdown)

The baseline period records were not broken down by calendar quarter and the applicant does not have the information necessary to do so. Based on the types of operations at the base it is reasonable to assume that the emissions were uniform throughout the year. The reductions will be distributed assuming there were 90 days in quarter 1, 91 days in quarter 2 and 92 days in each quarter 3 and quarter 4.

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	41,004	35,968	35,463	3,346	6,592
Quarter 2	41,459	36,367	35,857	3,383	6,665
Quarter 3	41,915	36,767	36,251	3,420	6,739
Quarter 4	41,915	36,767	36,251	3,420	6,739

E. Air Quality Improvement Deduction:

Per the California Health and Safety Code, Section 40709.7, a 5% air quality improvement deduction will be made. The deductions are as follows:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	2,050	1,798	1,773	167	330
Quarter 2	2,073	1,818	1,793	169	333
Quarter 3	2,096	1,838	1,813	171	337
Quarter 4	2,096	1,838	1,813	171	337

F. Increase In Permitted Emissions (IPE):

No IPE associated with this project.

G. Bankable Emissions Reductions:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	38,954	34,170	33,690	3,179	6,262
Quarter 2	39,386	34,549	34,064	3,214	6,332
Quarter 3	39,819	34,929	34,438	3,249	6,402
Quarter 4	39,819	34,929	34,438	3,249	6,402
Total Annual	157,978	138,577	136,630	12,891	25,398

VI. Compliance:

A. Real Reductions:

The reductions were generated by shutting down emission units. Had the emission units not been shut down the emissions could still be occurring. Therefore the reductions are real.

B. Enforceable Reductions:

Permitted Units:

The Permits To Operate have been surrendered to the District. Operation of the equipment without a Permit would result in enforcement action being taken. Therefore the reductions are enforceable.

Unpermitted Units:

Although this equipment is exempt from District permits, the District is not prohibited by state law from issuing permits for this equipment.

Should any of this equipment be brought back into service, or should new, similar equipment be brought into service, District rule 2301, section 4.2.4 requires that permits be obtained and that conditions be placed on the permits that will ensure that the Emission Reduction Credits remain valid. Therefore the reductions are enforceable.

C. Quantifiable Reductions:

The reductions were calculated utilizing actual operating hours and approved emission factors or material usage and mass balance. Therefore the reductions are quantifiable.

D. Permanent Reductions:

Permitted Units:

The Permits To Operate have been surrendered to the District. Operation of the equipment without a Permit would result in enforcement action being taken. Therefore the reductions are permanent.

Unpermitted Units:

Although this equipment is exempt from District permits, the District is not prohibited by state law from issuing permits for this equipment.

Should any of this equipment be brought back into service, or should new, similar equipment be brought into service, District rule 2301, section 4.2.4 requires that permits be obtained and that conditions be placed on the permits that will ensure that the Emission Reduction Credits remain valid. Therefore the reductions are permanent.

E. Surplus Reductions:

This section will contain an explanation of what action was taken to ensure that all emission reductions during the baseline period are surplus:

Classified Document and Medical Waste Incinerators:

These operations were subject to Merced County APCD rule 417 (Incinerator Burning). This rule required only that incineration occur in a multi-chamber incinerator or other equipment determined by the Air Pollution Control Officer to be equivalent. The incinerators were the multi-chamber type, therefore the reductions are surplus.

Metal Parts and Products Coating Operations:

These operations were subject to Merced County APCD rule 409.4 (Surface Coating Of Manufactured Metal Parts And Products). The reductions were calculated utilizing the VOC content limit of the rule therefore the reductions are surplus.

Natural Gas and Diesel Fired Boilers:

This equipment was subject to Merced County rules 407 (Sulfur Compounds) and 408 (Fuel Burning Equipment). The emissions did not exceed the concentrations and rates specified in these rules therefore the reductions are surplus.

Fixed roof underground JP-4 storage tank:

The Storage Of Organic Liquids rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to underground tanks with capacities of less than 40,000 gallons. Therefore the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Fixed Roof Aboveground JP-4 Storage Tanks:

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because their capacities were less than 40,000 gallons each therefore no emission controls were required. Additionally, CAFB utilized no emission controls. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Floating Roof Aboveground JP-4 Storage Tanks:

These operations were subject to Merced County APCD Rule 410 (Storage Of Organic Liquids). The rule required only that certain equipment be in place. No numerical emission rate or concentration limits applied. The required equipment was properly installed and operated. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Fixed roof underground diesel storage tanks:

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because their capacities were less than 40,000 gallons therefore no emission controls were required. Additionally, CAFB utilized no emission controls. Therefore the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Diesel and gasoline fired IC engines powering generators:

No regulations that limited emissions or equipment type applied to these operations during the baseline period. No adjustments to the referenced emission factors are required therefore the calculated reductions are surplus.

Solvent Degreasers:

The Organic Solvent Degreasing Operations rule in affect during the baseline period (Merced County Rule 409.3) required only that certain equipment be utilized, no emission concentration or rate limits were specified. The equipment specifications were met therefore the calculated reductions are surplus.

Aerospace Ground Equipment:

No regulations that limited emissions or equipment type applied to these operations during the baseline period. Therefore the calculated reductions are surplus.

Paint Strip Tank:

The organic solvents rule in affect during the baseline period (Merced County APCD Rule 409) limited the emissions to 40 pounds per day of photochemically reactive material and 3,000 pounds per day of non-photochemically reactive material. The emissions were less than 40 pounds per day and CAFB was in compliance with this rule. Therefore the calculated reductions are surplus.

Fire Fighting Training Areas:

No regulations that limited the emissions or equipment type applied to this operation during the baseline period. Therefore the calculated reductions are surplus.

Aircraft Wash Racks:

The solvent utilized in this operation was non-photochemically reactive. The organic solvent rule in affect during the baseline period (Merced County APCD Rule 409) limited the emissions of non-photochemically reactive solvents to 3,000 pounds per day. The daily emissions were less than 3,000 pounds per day therefore the calculated reductions are surplus.

Fixed Roof Underground Diesel Storage Tanks (Building 502):

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because the contents (diesel) had a True Vapor Pressure of less than 1.5 psia. Additionally, CAFB utilized no emission controls. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

JP-4 Loading Racks:

This operation was subject to Merced County rule 412 (Organic Liquid Loading) which required 90% VOC control. The uncontrolled emissions calculated utilizing AP-42 emissions were adjusted downward by 90%. Therefore, the calculated reductions are surplus.

Diesel Loading Racks:

The Organic Liquid Loading Rule in affect during the baseline period (Merced County APCD Rule 412) did not apply to this operation because the True Vapor Pressure of diesel is less than 1.5 psia. Additionally, CAFB utilized no controls. Therefore the calculated reductions are surplus.

F. Timeliness:

The California Health and Safety Code Section 40709.7 states that a military base is eligible to file for Emission Reduction Credits (ERCs) provided that an application for ERCs is received by June 1, 1995 or within 180 days after the emission reduction occurred. The application for ERCs was received on May 24, 1995. Therefore the application for ERCs was timely.

VII. Recommendation:

Issue the following quantity of ERCs after the appropriate public notice period and after all relevant comments have been addressed:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	38,954	34,170	33,690	3,179	6,262
Quarter 2	39,386	34,549	34,064	3,214	6,332
Quarter 3	39,819	34,929	34,438	3,249	6,402
Quarter 4	39,819	34,929	34,438	3,249	6,402
Total Annual	157,978	138,577	136,630	12,891	25,398

This space is for the County Clerk's Filing Stamp

Proof of Publication
(2015.5 C.C.P.)

Proof of Publication of
NOTICE OF FINAL ACTION

RECEIVED
NOV 25 1998

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

RECEIVED

NOV 23 1998

ADMN. SERVICES
S.J.V.U.A.P.C.D.

(Copy of notice here)

STATE OF CALIFORNIA)
) ss.
County of Merced)

CYNTHIA SIAS

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Merced Sun-Star, a newspaper of general circulation, printed and published in the City of Merced, County of Merced, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Merced, State of California, under the date of July 14, 1964, Case Number 33224 that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

DATES RAN;
NOV. 18, 1998

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Cynthia Sias
Signature

Date NOVEMBER 18, 1998 19...

NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF EMISSION
REDUCTION CREDITS
NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits to Castle Joint Powers Authority for emission reductions generated by shutting down Castle Air Force Base which was near Atwater, CA.
All comments received following the District's preliminary decision on this project were considered. The application review for Project #980288 is available for public inspection at the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4230 KIERNAN AVENUE, SUITE 130, MODESTO, CA 95358
Legal 98-1253 November 18, 1998

Post-it® Fax Note	7671	Date 11-25-98	# of pages 1
To	Anthony Mendes	From	Cheryl Lawler
Co/Dept	North	Co.	Central
Phone #		Phone #	
Fax #		Fax #	

Proof of Publication - Merced Sun-Star, P.O. Box 739, Merced, California 95341 - Telephone 722-1511
Adjudged a newspaper of general circulation by court decree No. 33224 dated July 14, 1964.



San Joaquin Valley Unified Air Pollution Control District

November 13, 1998

Matt Haber
Chief, Permits Office
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105-3901

**RE: Proposed Emission Reduction Credits
Castle Air Force Base, Project 950288**

Dear Mr. Haber:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed your comments regarding the proposed issuance of Emission Reduction Credits for the shutdown of Castle Air Force Base (Castle AFB) and offers the following responses.

1) The State Implementation Plan and Other Emission Limits

EPA has questioned whether or not the District's emission inventory includes the emissions from the military operation of Castle AFB during the baseline period. EPA states that if the emissions have not been included, then the District is already relying on the shutdown of the base as part of its attainment plan. EPA has requested the District to demonstrate that the emission reductions are surplus of the attainment plan.

The District's emissions inventory system contains two types of sources. One is the Point Source inventory and the other is the Area Source inventory. The Point Sources are the larger sources for which emissions data is maintained for each specific device. The Area Sources are the smaller sources which are grouped together and reported as a whole and includes mobile sources. All Castle sources for which ERCs have been granted were included in the District's emissions inventory either as a point or area source. The calendar year 1992 Point Source inventory for Castle AFB included 64.4 tons of NO_x, 41.1 tons of VOC, 22.8 tons of CO, 1.3 tons of SO_x and 7.7 tons of PM. The Area Source emissions were included in the following categories:

Aerospace Ground Support

Gasoline, Diesel and/or JP-4 fired generators, light carts, bomblifts, air compressors, air conditioners and hydraulic test stands

David L. Crow

Executive Director/ Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • FAX (209) 233-8652

Central Region

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • FAX (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 862-5200 • FAX (805) 862-5201

050 - 040 - 0012 - 0000 Industrial Stationary IC engines - Other Fuels
050 - 040 - 1200 - 0000 Industrial Stationary IC engines - Diesel

Boilers

Natural gas and #2 fuel oil

050 - 995 - 0110 - 0000 Natural Gas Combustion
050 - 995 - 1220 - 0000 Industrial Distillate Oil Combustion

Firefighting Training Burns

099 - 995 - 0012 - 0000 Unspecified Combustion Sources

Surface Coating and Paint Stripping

230 - 995 - 9000 - 0000 Industrial Coatings

Solvent Degreasing

220 - 212 - 8100 - 0000 Maintenance Degreasing

Aircraft Wash Racks

299 - 995 - 8000 - 0000 Miscellaneous Industrial Solvent usage

Emergency Electrical Generators

Gasoline and Diesel

050 - 040 - 0012 - 0000 Industrial Stationary IC engines - Other Fuels
050 - 040 - 1200 - 0000 Industrial Stationary IC engines - Diesel

Loading Racks

JP-4 and Diesel

330 - 382 - 1100 - 0000 Bulk Plants/Terminals Breathing Losses
330 - 384 - 1100 - 0000 Bulk Plants/Terminals Working Losses

EPA has questioned whether or not the District has adjusted the actual emission reductions for current SIP requirements. EPA cites District Rule 2201 section 3.2.3 and the Clean Air Act section 173(c)(2) as evidence that the District must adjust the proposed credits for all current rules and emission reduction requirements in the State Implementation Plan and Attainment Demonstration, including the aerospace and degreasing MACT standards.

District Rule 2201 section 3.2.3 requires actual emission reductions to be surplus at the time that the application for Authority to Construct is deemed complete. Since no Authority to Construct is required for a shutdown, the District requires the actual emission reductions

to be surplus at the time that the shutdown occurred. For a military base in the State of California, the shutdown date is the date identified by the Base Closure and Realignment Commission (BRAC). In the case of Castle AFB, this occurred on April 12, 1991 (BRAC, Round 2 Closure). The District deemed emission reductions that were not surplus at that time ineligible for banking, as you have pointed out in your response.

2) Firefighting Training

EPA asserts that the actual emission reductions are not verifiable or enforceable, and that source tests and reliable emission estimates are unavailable for this activity. However, the District would not have recommended issuance of ERCs for the firefighting training activity unless it could demonstrate that the proposed ERCs are both verifiable and enforceable. The quantity of proposed ERCs is based upon records of the actual amount of JP-4 consumed and specific emission factors for firefighting training which were developed by the military. The engineering evaluation referenced the document from which the emission factors were obtained. Thus, the ERCs are verifiable. Only authorized firefighting agencies are allowed to produce such fires, and those agencies advise the District of training fires in advance of their occurrence. Since there are no firefighting agencies at Castle AFB, there will be no more training fires and the ERCs generated by the cessation of these training fires are enforceable.

EPA alleges that source tests and reliable emission factors are unavailable for this activity. However, EPA offers a flawed defense of its position by pointing out that the applicant's estimate of emissions results in one pound of fuel creating more than one pound of pollutants. The emission factors provided by the military and used by the District certainly do estimate that 1,000 pounds of fuel produces 1,013 pounds of criteria pollutants. Perhaps EPA overlooked the fact that oxygen is a reactant for combustion and its mass will also be reflected in the weight of the products formed.

To create these training fires, the fuel was placed into a specially designed pit and ignited. Since these fires are oxygen deficient, significant amounts of smoke and other products of incomplete combustion are produced. A mass balance of the carbon contained in the fuel and in the products of combustion can be used to demonstrate that these emission factors are reasonable. Jet naphtha (JP-4) contains about 84% carbon and 15% hydrogen. Thus 1,000 lbm fuel contains 840 lbm C. The emission factors for VOC and PM₁₀ are 320 lbm and 128 lbm per 1,000 lbm fuel, respectively. Since the VOC and the PM₁₀ emissions are not speciated, the most conservative scenario would be to assume that the entire mass of those pollutants consists only of unreacted hydrocarbon and thus contains no oxygen. This would account for 379 lbm C per 1,000 lbm fuel. The emission factor for CO is 560 lbm per 1,000 lbm fuel, which would account for another 240 lbm C per 1,000 lbm fuel. Therefore, of the total 840 lbm C contained in 1,000 lbm fuel, even under this inconceivable scenario there still remains 227 lbm C which would produce 605 lbm CO₂. Actually, the VOC and PM₁₀ species emitted are most likely to be at least partially oxygenated. Thus the quantity of CO₂ produced is much greater and water vapor is also formed, as one would expect.

3) Ground Support Equipment

EPA states that the District did not provide information to verify the amount of fuel used, and recommends that the District provide actual fuel usage data to ensure that the reductions are real. EPA also states that the District must verify the emission rates proposed by the applicant because EPA emission factors are not reliable enough for verification purposes. Lastly, EPA states that the emission reductions are not enforceable and thus may not be permanent.

The District provided actual fuel usage data by fuel type for this equipment as specified on page 20 of the engineering evaluation. It is unreasonable to demand that records of the actual quantity of fuel consumed by each individual emission unit be utilized in conjunction with emission unit specific source test data or manufacturer's data, particularly since these engines were exempt from permit. Moreover, it is unnecessary to have individual fuel quantities when the emission factors for each type of fuel apply to all of the engines combusting that fuel. The emission factors used were developed by the military to quantify emissions from engines used for military purposes. Like the EPA AP-42 emission factors, these emission factors are most appropriate for quantifying long term emission rates from multiple emission units within that source category. EPA questions the validity of the military's emission factors and states that its own published emission data is an unreliable source to verify those factors. However, the military emission factors range from 60% to 75% of the published EPA values for the same source categories. While EPA is best suited to attest to the validity of its own published data, if one assumes that the EPA AP-42 emission factors have some basis in fact then they certainly provide evidence to support that the military's emission factors are reasonable.

Despite EPA's statement to the contrary, the actual emission reductions are enforceable as both a legal and a practical matter. This stationary source was a federally funded military base that was identified by the Base Closure and Realignment Commission (BRAC, Round 2 Closure) on April 12, 1991 for closure by September 30, 1995. All of the aerospace ground equipment was removed from the base between January and March of 1995. In order for the military to once again operate any equipment at this stationary source, Congress would have to reauthorize funding for the base. Even if that implausible action was to occur, the District would not be prohibited from requiring the military to obtain Authorities to Construct prior to operation of permit exempt equipment in the same source category at this same stationary source.

4) Aircraft Wash Racks

EPA states that the District should not grant ERCs for this operation because the solvent was not defined as photochemically reactive by Merced County Rule 409. Regardless of the solvent's reactivity as defined in that rule, it is still a VOC pursuant to District Rule 1020 and thus is eligible for banking in accordance with the provisions of District Rules 2201 and 2301. EPA certainly would not allow emission increases of that solvent to be exempt from offsets because Merced County Rule 409 does not define it as photochemically reactive.

5) Metal Parts, Surface Coating, and JP-4 Loading Racks

EPA states that the proposed ERCs are based upon the maximum VOC content allowed by Merced County's metal parts coating rule, and that the District may only issue credits for actual emission reductions. Therefore, EPA recommended that the District utilize the actual VOC content of the materials used, if the reductions are in fact surplus. EPA made a similar comment regarding the JP-4 loading racks, stating that the District utilized the minimum allowable control efficiency required by the Merced County rule.

The actual VOC content of the coatings as applied at the base were at least 340 g/l, and may have been higher depending upon the amount of thinner used. As stated in the engineering evaluation, the military did not keep records of the substrates to which these coatings were applied. To ensure that actual emission reductions are not granted for emissions which could have otherwise been in excess of a prohibitory rule requirement, the District assumed that all of the coatings were applied to substrates which were subject to compliance with the Merced County metal parts coating rule. Therefore, the District discounted the VOC content of all coatings down to 340 g/l. Documentation for the JP-4 loading racks suggests that the military base may not have been achieving the minimum 90% control efficiency required by the Merced County organic liquid loading rule. Again, to ensure that actual emission reductions are not granted for emissions which could have otherwise been in excess of a prohibitory rule emission limitation, the District discounted the uncontrolled VOC emissions by the minimum 90% control efficiency requirement of the Merced County rule.

6) Boilers

EPA states that the historical actual emissions calculated for the natural gas fired boilers and the diesel fired internal combustion engines powering emergency standby generators are overstated because these units were assumed to be operating at maximum capacity every time that they were used. EPA also states that the applicant must produce actual fuel usage data for emission calculations. EPA recommends that actual source test data from these units or similar ones be used to quantify emissions because the EPA AP-42 emission factors are not reliable for this source category. Lastly, EPA asserts that the use of 0.55% sulfur content in the #2 fuel oil for calculation purposes is too high. EPA believes that the maximum sulfur content of #2 fuel oil is generally 0.4 – 0.5%, and that the actual sulfur content of the #2 fuel oil used at Castle AFB was probably even lower.

The District concurs that the natural gas fired boilers were unlikely to have been operating at maximum capacity every time that they were used and therefore the previously calculated historical actual emissions will be reduced. The District also agrees that actual fuel usage data for each unit would be the best method of quantifying the historic actual emissions. However, the District does not agree that the applicant must produce actual fuel usage data for these units in order to be eligible for emission reduction credits. Castle AFB did maintain daily logs of the hours that each of these units was operated, and the District contends that such records are a valid basis for quantifying historic actual

emissions. The District will reduce by 50% the previously calculated historical actual emissions for the natural gas fired boilers.

Page 27 of the Application Review will be amended as follows:

Average 1989/1990 Natural Gas Usage based on maximum heat input capacity and total hours of operation: 206,163 MMBTU/yr

Average Boiler Load: 0.50

NOx: $(0.1 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.50) = 20,616$ 10,308 lb/yr

CO: $(0.021 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.50) = 4,329$ 2,165 lb/yr

VOC: $(0.005 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.50) = 1,031$ 515 lb/yr

SOx: $(0.0006 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.50) = 124$ 62 lb/yr

PM₁₀: $(0.012 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr})(0.50) = 2,474$ 1,237 lb/yr

Page 33 of the Application Review will be amended as follows:

Average 1989/1990 Natural Gas Usage based on maximum heat input capacity and total hours of operation: 33,402.6 MMBTU/yr

Average Boiler Load: 0.50

NOx: $(0.1 \text{ lb/mmmbtu})(33,402.6 \text{ mmbtu/yr})(0.50) = 3,340$ 1,670 lb/yr

CO: $(0.021 \text{ lb/mmmbtu})(33,402.6 \text{ mmbtu/yr})(0.50) = 702$ 351 lb/yr

VOC: $(0.005 \text{ lb/mmmbtu})(33,402.6 \text{ mmbtu/yr})(0.50) = 167$ 84 lb/yr

SOx: $(0.0006 \text{ lb/mmmbtu})(33,402.6 \text{ mmbtu/yr})(0.50) = 20$ 10 lb/yr

PM₁₀: $(0.012 \text{ lb/mmmbtu})(33,402.6 \text{ mmbtu/yr})(0.50) = 404$ 200 lb/yr

The District disagrees with EPA's comment that the historical actual emissions calculated for the diesel fired internal combustion engines powering emergency standby generators are overstated. The total operation of each engine ranged from 11.7 to 23.7 hours per year. These very brief periods of operation were for electrical power backup test purposes and so the engines were likely to be operating at or near full load during these tests.

The District disagrees with EPA's statement that the EPA AP-42 emission factors are not reliable for this source category. As EPA must certainly be aware, the AP-42 authors assign an emission factor quality rating to each emission factor listed in the document. For natural gas combustion, the SOx emission factor has a quality rating of A (Excellent), the NOx emission factor has a quality rating of B (Above Average), and the CO, VOC, and PM10 emission factors have a quality rating of C (Average). For distillate fuel oil combustion, all of the emission factors have a quality rating of A (Excellent). If quality ratings of "Average", "Above Average" and "Excellent" represent unreliable emission factors, then one must question the use of EPA AP-42 to quantify actual or potential emissions for any reason.

Since Castle AFB did not have records of the sulfur content in each load of #2 fuel oil, the District sought literary references to establish the typical sulfur content. The AWMA

Engineering Manual, cited on the page 5 of the Application Review, lists the expected sulfur content to be 0.4% – 0.7% by weight. The apparently unreliable EPA AP-42 Appendix A lists the expected sulfur content to be 0.2% – 1.0% by weight. The District chose the reference with the lower average value to quantify the actual emission reduction. EPA provided no reference to substantiate it's claims that the maximum sulfur content of #2 fuel oil is generally 0.4 – 0.5% and that the actual sulfur content of the #2 fuel oil used at Castle AFB was probably even lower.

7) Floating Roof JP-4 Tanks

EPA recommends that the District document the assumptions and inputs used in the Tanks 3 Program to show that the emission calculations accurately represent the source's actual emissions. The District concurs that such information is necessary to demonstrate that the actual emission reductions are real and quantifiable. Although the report containing the input data and the modeling results was not attached with the engineering evaluation due to it's length of 46 pages, this information will remain with the file as part of the public record.

8) Baseline Periods

EPA is concerned about utilizing calendar year 1989 as a baseline year, stating that no emission data is available for that year and thus the emission reductions occurring in the 1989 year are not eligible for banking. EPA recommends selection of a more recent two year period as the baseline.

For the calendar year 1990, the military prepared a comprehensive report to identify all air pollutant emitting activities at the base and to develop an emission inventory for those activities. This emission data is more reliable than any other data that may be available for any two year period up through base closure in 1995. As explained in the engineering evaluation, all pollutant emitting activities occurring at the base either directly or indirectly support it's primary mission as an Air Force base. Given the virtually equal levels of military activity for calendar years 1989 and 1990 (37,190 flights and 38,458 flights respectively) and considering the nature of the ground operations in support of that activity, it is reasonable to conclude that the actual emissions during calendar year 1989 were proportional to the actual emissions during calendar year 1990. Actual emissions during subsequent years were significantly lower since military activity was on a continual decline from the April 12, 1991 date that the base was identified by BRAC for closure. Actual emissions during those subsequent years would not be representative of normal source operation. Furthermore, California Health and Safety Code section 40709.7(g) specifies the periods of time which are eligible for consideration as the baseline. The District would be precluded from using any period subsequent to the date that the closure decision became final.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Anthony Mendes at (209) 545-7000.

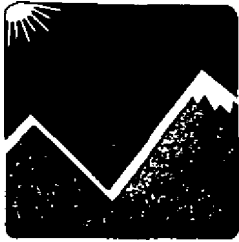
Sincerely,

A handwritten signature in black ink, appearing to read 'Seyed Sadredin', with a long horizontal flourish extending to the right.

Seyed Sadredin
Director of Permit Services

SS:AM:cl
Enclosures

c: Anthony Mendes, Permit Services Manager



San Joaquin Valley
Unified Air Pollution Control District

November 13, 1998

Castle Joint Powers Authority
Attn: Nicholas Pavlovich
340 C Street
Atwater, CA 95301

**RE: Notice of Final Action - Emission Reduction Credits
Project Number: 950288**

Dear Mr. Pavlovich:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Castle Joint Powers Authority for emission reductions generated by shutting down Castle Air Force Base which was near Atwater, CA.

Enclosed are the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

All comments received following the District's preliminary decision on this project were considered.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Anthony Mendes at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:MJS/cl
Enclosures

c: Anthony Mendes, Permit Services Manager

David L. Crow
Executive Director/ Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057



San Joaquin Valley
Unified Air Pollution Control District

November 13, 1998

Raymond Menebroker, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815

**RE: Notice of Final Action - Emission Reduction Credits
Project Number: 950288**

Dear Mr. Menebroker:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Castle Joint Powers Authority for emission reductions generated by shutting down Castle Air Force Base which was near Atwater, CA.

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Sincerely,

Seyed Sadredin
Director of Permit Services

SS:MJS/cl
Enclosures

c: Anthony Mendes, Permit Services Manager

David L. Crow
Executive Director/ Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

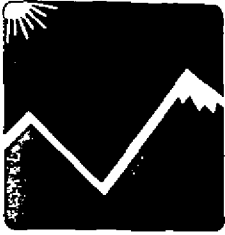
Merced Sun Star

**NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits to Castle Joint Powers Authority for emission reductions generated by shutting down Castle Air Force Base which was near Atwater, CA.

All comments received following the District's preliminary decision on this project were considered.

The application review for Project #950288 is available for public inspection at the **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4230 KIERNAN AVENUE, SUITE 130, MODESTO, CA 95356.**



San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-1

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For VOC Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
33,690 lbs	34,064 lbs	34,438 lbs	34,438 lbs

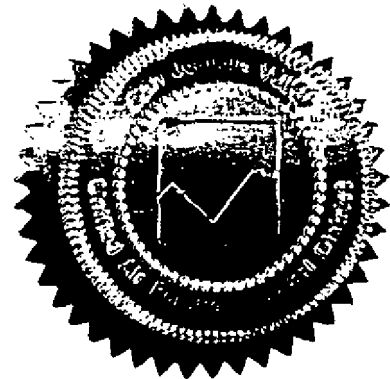
Conditions Attached

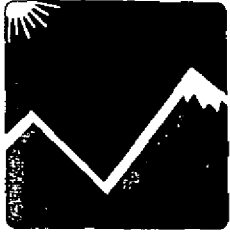
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Saadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-2

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For NOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
38,954 lbs	39,386 lbs	39,819 lbs	39,819 lbs

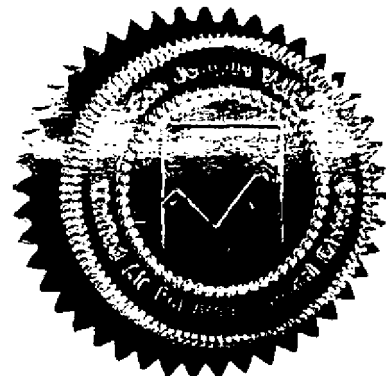
Conditions Attached

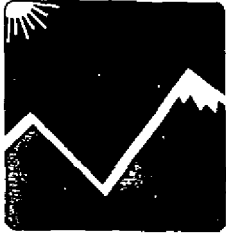
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-3

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For CO Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
34,170 lbs	34,549 lbs	34,929 lbs	34,929 lbs

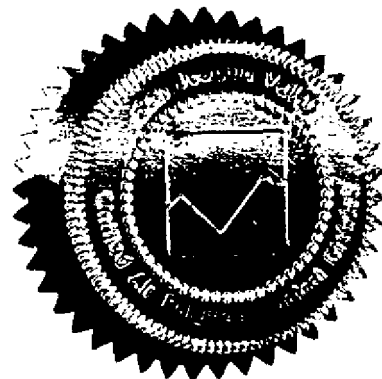
Conditions Attached

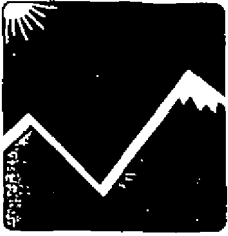
Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-4

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For PM10 Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
6,262 lbs	6,332 lbs	6,402 lbs	6,402 lbs

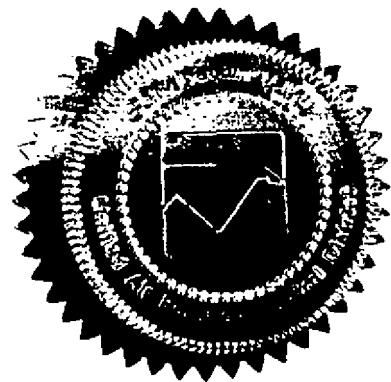
Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Unit
 Other:

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services





San Joaquin Valley
Unified Air Pollution Control District

Northern Regional Office * 4230 Kiernan Ave., Suite 130 * Modesto, CA 95356

Emission Reduction Credit Certificate
N-130-5

Issued To: Castle Joint Powers Authority
Issue Date: November 13, 1998

Location of Reduction: Castle Air Force Base
Castle Air Force Base, CA

For SOx Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
3,179 lbs	3,214 lbs	3,249 lbs	3,249 lbs

Conditions Attached

Method Of Reduction

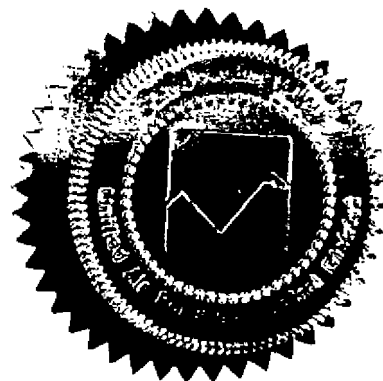
Shutdown of Entire Stationary Source

Shutdown of Emissions Unit

Other:

David L. Crow, APCO

Sergio Sauredin
Director of Permit Services



SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT
FEES

COPY

FACILITY ID # 1195
Castle Joint Powers Authority
Attn: Nicholas Pavlovich
340 C Street
Atwater, CA 95301

LOCATION: Castle Air Force Base
BILLING FOR: Emission Reduction Credit Application Processing Fee
BILLING DATE: November 25, 1998

TOTAL FEES: \$ 8,630.25
CREDIT: \$ 650.00
BALANCE DUE: \$ 7,980.25

THE ABOVE TOTALS ARE BASED ON THE FOLLOWING ITEMIZED LISTING:

<u>APPLICATIONS</u>	<u>FEE</u>	<u>DESCRIPTION</u>
N-109-1, N-109-2 N-109-3, N-109-4 N-109-5	\$ 8,630.25	155.5 hours @ \$55.50/hr

Please Return A Copy of This Bill With The Amount Due Within 30 Days To:

SAN JOAQUIN VALLEY UNIFIED APCD
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356

mjs

RECEIVED

DEC 22 1998

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

POST MARK 12-21-98 REVENUE CODE _____
INVOICE NO# _____ CK. AMOUNT 7980.25
CHECK NO. 7054 ENTERED _____

CASTLE JOINT POWERS AUTHORITY

7054

547 SAN JOAQUIN VALLY UNIFIED

007053

12/18/98

5495 FACILITY 1195

12/18/98

EMISSION REDUCTION APP

7,980.25

7,980.25

.00

7,980.25

RECEIVED

DEC 22 1998

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO REGION

12-21-98

7,980.25

ORIGINAL DOCUMENT IS PRINTED ON CHEMICAL REACTIVE PAPER & HAS A MICROPRINTED BORDER

01

CASTLE JOINT POWERS AUTHORITY

CASTLE AIRPORT BLDG. 411 - P.O. BOX 547
ATWATER, CA 95301-0547
(209) 384-7325

BANK OF AMERICA Merced Branch 0024
710 West Main Street
Merced, CA 95340

7054

CHECK NO. DATE

11-35/1210

007053 12/18/98 547

CHECK AMOUNT

PAY SEVEN THOUSAND NINE HUNDRED EIGHTY AND 25/100*****
DOLLARS*****

\$*****7,980.25

SAN JOAQUIN VALLY UNIFIED
AIR POLLUTION CONTROL DISTRICT
4230 KIERMAN AVE. SUITE 130
MODESTO CA 95356

VOID AFTER SIX MONTHS

TO THE
ORDER
OF

01 *Nick Parlovich*

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

⑈007054⑈ ⑆121000358⑆ 0024⑈80059⑈

The baseline period records were not broken down by calendar quarter and the applicant does not have the information necessary to do so. Based on the types of operations at the base it is reasonable to assume that the emissions were uniform throughout the year. The reductions will be distributed assuming there were 90 days in quarter 1, 91 days in quarter 2 and 92 days in each quarter 3 and quarter 4.

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	43,957	36,588	35,611	3,364	6,947
Quarter 2	44,446	36,994	36,007	3,401	7,024
Quarter 3	44,934	37,401	36,402	3,438	7,101
Quarter 4	44,934	37,401	36,402	3,438	7,101

change these to the ones on back of this page

170,271 148,384 144,422 13,641 28,173

E. Air Quality Improvement Deduction:

Per the California Health and Safety Code, Section 40709.7, a 5% air quality improvement deduction will be made. The deductions are as follows:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	2,198	1,829	1,781	168	347
Quarter 2	2,222	1,850	1,800	170	351
Quarter 3	2,247	1,870	1,820	172	355
Quarter 4	2,247	1,870	1,820	172	355

F. Increase In Permitted Emissions (IPE):

No IPE associated with this project.

G. Bankable Emissions Reductions:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	41,759	34,759	33,830	3,196	6,600
Quarter 2	42,224	35,144	34,207	3,231	6,673
Quarter 3	42,687	35,531	34,582	3,266	6,746
Quarter 4	42,687	35,531	34,582	3,266	6,746
Total Annual	169,357	140,965	137,201	12,959	26,765

NEW AER = Above AER - Old Page 27# + new Page 27# - Old Page 33# + New Page 33#

NOx = 170,271 - 20,616 + 10,308 - 3340 + 1670 = 166,293

CO = 148,384 - 4329 + 2165 - 702 + 351 = 145,869

VOC = 144,422 - 1031 + 515 - 167 + 84 = 143,823

SOx = 13,641 - 124 + 62 - 20 + 10 = 13,569

PM10 = 28,173 - 2474 + 1237⁴⁴ - 401 + 200 = 26,735

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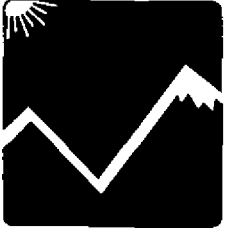
	NOx	CO	VOC	SOx	PM10
Q1	41,004	35,968	35,463	3,346	6,592
Q2	41,459 35,468	36,367	35,857	3,383	6,665
Q3	41,915	36,767	36,251	3,420	6,739
Q4	41,915	36,767	36,251	3,420	6,739
	166,293	145,869	143,822	13,569	26,735

AQID (5%)

	NOx	CO	VOC	SOx	PM10
Q1	2050	1,798	1,773	167	330
Q2	2,073	1,818	1,793	169	333
Q3	2,096	1,838	1,813	171	337
Q4	2,096	1,838	1,813	171	337

Bankable Reductions

	NOx	CO	VOC	SOx	PM10
Q1	38,954	34,170	33,690	3,179	6,262
Q2	39,386	34,549	34,064	3,214	6,332
Q3	39,819	34,929	34,438	3,249	6,402
Q4	39,819	34,929	34,438	3,249	6,402



San Joaquin Valley
Unified Air Pollution Control District

January 3, 1995

COPY

Mark A. Pohlmeier, Capt, USAF
93d Civil Engineering Squadron
Bldg 1200
Castle AFB CA 95342-5000

Re: Emission Reduction Credit (ERC) Application Process.

Dear Mr. Pohlmeier:

The San Joaquin Valley Unified Air Pollution Control District offers the following response to your letter dated 28 Oct 94.

The District requires a separate ERC application for each action which generates an actual emission reduction that has the potential of becoming a banked ERC. In this case, the action which generates an actual emission reduction is the closure of Castle AFB and the resultant shutdown of all emissions units used in support of the base operations. Therefore, only one application form and one \$650 application fee is required. The application would need to include the following information:

1. Identification of each individual emission unit for which an ERC is requested.
2. The date of cessation of emissions from each individual emission unit.
3. Operational data for a period of at least 8 consecutive calendar quarters prior to the specific date of cessation of emissions from each individual emission unit.
4. Any emission factors, source test results, or other emission data you may have which will assist the District in quantifying the historic actual emissions from any of the individual emission units.

Please note that the two (2) year baseline period for any individual emission unit cannot extend more than five (5) years

David L. Crow
Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

Central Region

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakerfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

Mark A. Pohlmeier, Capt, USAF
January 3, 1995
Page 2

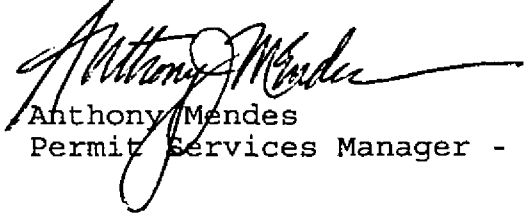
prior to the date that the ERC application is submitted to the District. Consequently, you may want to consider submitting two or more applications for the base closure, in stages, if the time period between shutdown of the first emission unit and shutdown of the last emission unit is greater than three (3) years.

Pursuant to District Rule 3060 Emission Reduction Credit Banking Fee, the District will assess a weighted labor rate fee (currently \$48 per hour) for the actual time spent to process each application. All application fees submitted will be credited toward the total amount due.

If you have any questions, or if you would like assistance in completing an ERC application, please call me at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services

A handwritten signature in black ink, appearing to read "Anthony Mendes", with a long horizontal flourish extending to the right.

Anthony Mendes
Permit Services Manager - Northern Region



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

May 9, 1997

RECEIVED

MAY 15 1997

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

Mr. Seyed Sadredin
Director of Permit Services
San Joaquin Valley Unified APCD
1999 Tuolumne Street, Suite 200
Fresno, CA 93721

Re: Proposed Emission Reduction Credits for Castle Air Force Base, Project # 950288

Dear Mr. Sadredin:

The U.S. Environmental Protection Agency (EPA) appreciates the opportunity to comment on the proposed Emission Reduction Credits (ERCs). We have enclosed our comments but, due to the detailed nature of these credits and the need for additional information to evaluate the proposed credits, we may submit additional comments in the future.

We agree with the District that ERCs should not be granted for automobiles, landscaping equipment, and a fiberglass shop that will continue to operate. However, we are concerned that other proposed ERCs would be invalid unless the District can demonstrate that the emissions are contained in the State Implementation Plan (SIP) emissions inventory and the District's attainment demonstration. In addition, some of the proposed ERCs are not accurately quantified and will be invalid if they do not represent real emission reductions. The District must also reduce these credits for all current emission limits and SIP requirements, not just those that were effective in 1990. We recommend that the District not issue these ERCs until these problems are corrected.

We look forward to working with you and your staff to resolve these outstanding issues. If you have any questions concerning our comments, please call me at 415-744-1254 or have your staff contact Ed Pike at 415-744-1211.

Sincerely,

Matt Haber
Chief, Permits Office
Air Division

Enclosure

cc: Anthony Mendes, Permit Services Manager - Northern Region
Russ Stowe, Castle Joint Powers Authority

EPA Comments on Proposed Emission Reduction Credits for Castle Air Force Base

1) The State Implementation Plan and Other Emission Limits

EPA is concerned that some of these emissions may not be contained in the emissions inventory for the District's attainment plan. If this is the case, then the District is already relying on the emission reductions from these shutdowns to achieve federal air pollution standards. In this case the reductions would not be surplus and could not be credited as Emission Reduction Credits (ERCs) or used as New Source Review (NSR) offsets. EPA therefore requests that the District demonstrate that its inventory includes all of the baseline emissions from Castle Air Force Base (Castle AFB) and that the reductions are surplus of the attainment plan. If the inventory does not specifically list sources at Castle AFB, the District should provide the data used to develop the inventory.

EPA is also concerned that the District has not adjusted these ERCs for current SIP requirements or other rules (such as the aerospace and degreasing MACT standards). The only reductions are for SIP requirements that were effective during 1989 and 1990. The District must adjust the proposed credits for all current rules and emission reduction requirements in the State Implementation Plan and Attainment Demonstration (District Rule 2201 section 3.2.3, Clean Air Act section 173(c)(2)).

2) Firefighting Training

The proposed emission reduction credits for firefighting training are currently not verifiable or enforceable. It is our understanding that source tests and reliable emission estimates are unavailable for this activity. In fact, the applicant estimates that every pound of fuel used for this training created more than a pound of pollution. We recommend that the District not issue credits for this activity unless the emissions are verified and meet the other requirements for issuing credits.

3) Ground Support Equipment

The District analysis does not provide any information to verify how much fuel was used by this equipment during the baseline period. We recommend that the District provide actual fuel usage data to ensure that these reductions are real. In addition, the District must verify the emission factors proposed by the applicant. Because the EPA emission factors are not reliable enough to verify the applicants proposed emission rates, we recommend basing the emission factors on source testing or other source-specific emission data (such as manufacturer's emission data). Alternatively, the District could use emission data from similar sources to develop a conservative emission estimate for these units.

We are also concerned that these reductions are not enforceable, and therefore not necessarily permanent. The applicant is not precluded from operating these units in the future, and these units may also be shifted to other bases in San Joaquin Valley or other non-

attainment areas without providing offsets. Therefore, the District must ensure that this equipment (and other equipment used to create credits) has not and will not be operated at this site or another site before granting emission reduction credits.

4. Aircraft Wash Racks

The District analysis states that the emissions from this unit were exempt from the requirements of Merced County Rule 409 for photochemically reactive pollutants because they are not photochemically reactive. Therefore, it appears that the District should not grant VOC emission reduction credits for this reduction, since they would allow increased emissions of photochemically reactive pollutants.

5) Metal Parts, Surface Coating, and JP-4 Loading Racks

The proposed credits for metal parts surface coating operations are based on the maximum content of volatile organic compounds (VOC) that these coatings could have had under Merced's regulation. The District may issue credits only for reductions of actual emissions. We recommend basing the VOC content on the actual VOC content of the materials used, (assuming that they are surplus) as was done for solvent degreasing. The District could also assume that the base used materials with the lowest VOC content. In addition, the emission calculations for JP-4 loading racks assume the minimum allowable control efficiency rather than using the actual emissions. We recommend basing the credits for the JP-4 Loading Racks on the actual emissions or emissions calculations based on the actual efficiency of the control device.

6) Boilers

The emission rates for natural gas fired boilers are calculated as if the boilers operated at maximum capacity every time they were used. Since it is extremely unlikely that every boiler was operating at maximum capacity every time it was used, these credits over estimate the actual reduction. Therefore, the applicant must produce actual fuel usage data to verify how much these boilers were actually used. This comment also applies to the credits proposed for diesel fired internal combustion engines powering generators.

In addition, we recommend using source specific information for the boilers rather than AP-42 data. The AP-42 emission factors are not reliable for this source category. If these particular units have never been source tested, we recommend using source test data from similar units to quantify these emissions.

Finally, we believe that the proposed credit for sulfur oxides is too high. The credit is based on an assumption that the sulfur content of the diesel #2 fuel burned was 0.55%. We believe that this fuel type generally contains a maximum of 0.4% or 0.5% sulfur, and that the actual sulfur content was likely lower. Therefore, we recommend basing the credit on the actual sulfur content for the base or a similar source.

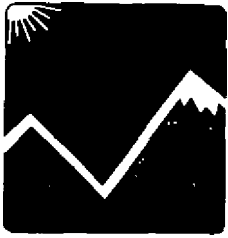
7) Floating Roof JP-4 Tanks

The emissions for floating roof tanks are based on EPA's Tanks 3 Program. We recommend that the District document the assumptions and inputs used in these models to show that the emission calculations accurately represent the source's actual emissions.

8) Baseline Periods

EPA is concerned that the District is using 1989 as a baseline year even though no emissions data is available for that year. Because the reductions from 1989 cannot be quantified and do not qualify for banking (District Rule 2201 section 3.2.1 and Rule 2301 section 4.2.1), we recommend selecting a more recent two year baseline with enough data to quantify the base's emissions.

f:\user\share\nsst\erc\castle.erc



San Joaquin Valley
Unified Air Pollution Control District

April 7, 1997

RECEIVED

APR 09 1997

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

Castle Joint Powers Authority
Attn: Russ Stowe
Castle Air Force Base, CA 95342-5000

**RE: Preliminary Public Notice - Emission Reduction Credit Certificates
Project # 950288**

Dear Mr. Stowe:

Enclosed, for your review and comment, is the analysis of the Castle Joint Powers Authority's application for emission reduction credits for the shutdown of equipment located at Castle Air Force Base near Atwater, California.

The Preliminary Public Notice for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mark Schonhoff of Permit Services, at the Modesto office at (209) 545-7000. /

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:MJS/bja
Enclosure

c: Anthony Mendes, Permit Services Manager - Northern Region

David L. Crow
Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region

4230 Kerman Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-6652

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1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060



San Joaquin Valley Unified Air Pollution Control District

April 7, 1997

Raymond Menebroker, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
P. O. Box 2815
Sacramento, CA 95812-2815

**RE: Preliminary Public Notice - Emission Reduction Credit Certificates
Project # 950288**

Dear Mr. Menebroker:

Enclosed, for your review and comment, is the analysis of the Castle Joint Powers Authority's application for emission reduction credits for the shutdown of equipment located at Castle Air Force Base near Atwater, California.

The Preliminary Public Notice for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mark Schonhoff of Permit Services, at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:MJS/bja
Enclosure

c: Anthony Mendes, Permit Services Manager - Northern Region

David L. Crow

Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • Fax (209) 233-2057

Northern Region

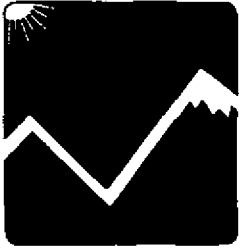
4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

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1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 862-5200 • Fax (805) 862-5201



**San Joaquin Valley
Unified Air Pollution Control District**

April 7, 1997

Mr. Matt Haber, Chief
New Source Section
US EPA - Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

**RE: Preliminary Public Notice - Emission Reduction Credit Certificates
Project # 950288**

Dear Mr. Bigos:

Enclosed, for your review and comment, is the analysis of the Castle Joint Powers Authority's application for emission reduction credits for the shutdown of equipment located at Castle Air Force Base near Atwater, California.

The Preliminary Public Notice for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mark Schonhoff of Permit Services, at the Modesto office at (209) 545-7000.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:MJS/bja
Enclosure

c: Anthony Mendes, Permit Services Manager - Northern Region

David L. Crow

Executive Director/Air Pollution Control Officer

1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • Fax (209) 233-2057

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(209) 497-1000 • Fax (209) 233-2057

Southern Region

2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 862-5200 • Fax (805) 862-5201

Project #: 950288
Application #'s: N-109-1, N-109-2, N-109-3, N-109-4, N-109- 5

Engineer: Mark Schonhoff
Date: April 3, 1997

Company Name: Castle Joint Powers Authority (Castle JPA)
Location Address: Castle Air Force Base, CA

Contact Name: Russ Stowe
Phone: (209) 726-4304

Date Application Received: 5/24/95
Date Application Deemed Complete: 5/25/96

I. Summary:

Emission reduction credits (ERCs) are being granted for reductions in NOx, CO, VOC, SOx and PM₁₀ emissions that occurred at Castle Air Force Base (CAFB). The reductions were generated on September 25, 1995 and came as a result of shutting down various equipment. The proposed quantities are as follows:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	41,759	34,759	33,830	3,196	6,600
Quarter 2	42,224	35,144	34,207	3,231	6,673
Quarter 3	42,687	35,531	34,582	3,266	6,746
Quarter 4	42,687	35,531	34,582	3,266	6,746
Total Annual	169,357	140,965	137,201	12,959	26,765

II. Applicable Rules:

Rule 2301: Emission Reduction Credit Banking (Adopted September 19, 1991; Amended March 11, 1992; Amended December 17, 1992)

Rule 2303 Mobile Source Emission Reduction Credits (May 19, 1994)

California Health And Safety Code, Section 40709.7 (1996)

III. Location Of Reductions:

- Castle Air Force Base
Castle Air Force Base, CA

IV. Method Of Generating Reductions:

Shut down of emission units

V. ERC Calculations:

A. Assumptions and Emission Factors:

Emission Factors:

This section will be divided into two parts, permitted sources and unpermitted sources:

Permitted Sources:

Gasoline Dispensing (N-1196-1-0, N-1195-1-0, N-1195-2-0, N-1195-3-0, N-1195-119-0):

Gasoline dispensing operations are not eligible for ERCs per District Rule 2301, section 4.4.1.

Classified Document Incinerator (Permit # N-1195-12-0):

EF _{NOx} :	3 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{CO} :	10 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{VOC} :	1.3 lb/ton ¹	
EF _{SOx} :	2.5 lb/ton	(AP-42, table 2.1-12, 1/95)
EF _{PM10} :	7 lb/ton ²	

Medical Waste Incinerator (Permit # N-1195-13-0):

EF _{NOx} :	3.56 lb/ton	(AP-42, table 2.3-1, 1/95)
EF _{CO} :	2.95 lb/ton	(AP-42, table 2.3-1, 1/95)
EF _{VOC} :	0.13 lb/ton ³	

¹ From AP-42, table 2.1-12 (1/95), the total organic compound (TOC) emissions are expected to have been 3 lb/ton. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 3 (External Combustion Boilers - Natural Gas)" the methane fraction of the TOC is expected to have been 0.56. Therefore the non-methane hydrocarbon emissions are estimated to have been 1.3 lb/ton of material incinerated.

² From AP-42, table 2.3-2 (1/95), the TSP emissions are expected to have been 7.0 lb/ton of material incinerated. The PM₁₀ manual, code 134, states that 100% of the particulate matter would have been PM₁₀.

EF_{SOx}: 2.17 lb/ton (AP-42, table 2.3-1, 1/95)
EF_{PM10}: 4.67 lb/ton⁴

Metal Parts and Products Coating Operation (Permit # N-1195-14-0):

The applicant stated that polyurethane and primer were utilized in this operation, but did not keep records of the specific materials used, therefore, emission factors must be estimated. In order to ensure that the reductions are surplus the VOC emission factors will be assumed to be the VOC limit of the applicable rule in effect during the baseline period (Merced County APCD Rule 409.4).

VOC:

The metal parts and products coating rule in effect during the baseline period (Merced County APCD Rule 409) limited the VOC content of coatings to 340 grams per liter (2.8 lb/gal) therefore, the emission factors for polyurethane and primer are as follows:

Polyurethane:

EF_{VOC}: 340 g VOC/l paint (2.8 lb/gal)

Primer:

EF_{VOC}: 340 g VOC/l paint (2.8 lb/gal)

PM₁₀:

Polyurethane:

Density Of Paint: 8.9 lb/gal (AP-42, table 4.2.2.1-2)

Transfer Efficiency: 75% (typical - Volume II, Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Booth Control: 90% (STAPPA-ALAPCO Air Quality Permits Handbook (1991), section 14.4.2.2)

PM10 Fraction: 0.96 (PM10 manual, code 222)

EF_{PM10} = (8.9 lb/gal - 2.8 lb/gal)(1-0.75)(1-0.9)(0.96) = 0.15 lb/gal

³ From AP-42, table 2.3-2 (1/95), the total organic compound (TOC) emissions are expected to have been 0.3 lb/ton. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 3 (External Combustion Boilers - Natural Gas)" the methane fraction of the TOC is expected to have been 0.56. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.13 lb/ton of material incinerated.

⁴From AP-42, table 2.3-2, 1/95, the TSP emissions are expected to have been 4.67 lb/ton of material incinerated. The PM₁₀ manual, code 134, states that 100% of the particulate matter would have been PM₁₀.

Primer:

Density Of Primer: 10.5 lb/gal (AP-42, table 4.2.2.1-2)

Transfer Efficiency: 75% (typical - Volume II, Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Booth Control: 90% (STAPPA-ALAPCO Air Quality Permits Handbook (1991), section 14.4.2.2)

PM10 Fraction: 0.96 (PM10 manual, code 222)

$$EF_{PM10} = (10.5 \text{ lb/gal} - 2.8 \text{ lb/gal})(1-0.75)(1-0.9)(0.96) = 0.18 \text{ lb/gal}$$

Thinner:

The thinner was added to the polyurethane and the primer for the purpose of dilution, therefore, the thinner emissions are accounted for in the polyurethane and primer emission factors.

Paint Gun Cleaning Operation (N-1195-99-0):

Solvent Type: Safety Kleen SK-6782

VOC Content: 6.4 lb/gal

Natural Gas and Diesel Fired Boilers (N-1195-19-0, N-1195-20-0, N-1195-21-0, N-1195-22-0, N-1195-25-0, N-1195-26-0, N-1195-27-0, N-1195-28-0, N-1195-32-0, N-1195-33-0, N-1195-34-0, N-1195-35-0, N-1195-36-0, N-1195-37-0, N-1195-38-0, N-1195-39-0, N-1195-40-0, N-1195-41-0, N-1195-44-0, N-1195-45-0, N-1195-46-0, N-1195-47-0, N-1195-48-0, N-1195-49-0, N-1195-50-0, N-1195-51-0, N-1195-52-0, N-1195-53-0, N-1195-54-0, N-1195-55-0, N-1195-56-0, N-1195-57-0, N-1195-58-0, N-1195-59-0, N-1195-62-0, N-1195-63-0, N-1195-64-0, N-1195-65-0, N-1195-66-0, N-1195-67-0, N-1195-85-0, N-1195-110-0, N-1195-111-0, N-1195-112-0, N-1195-113-0, N-1195-115-0):

Natural Gas Emission Factors (Commercial boilers rated at 0.3 mmbtu/hr - 10 mmbtu/hr):

Note: The conversion from the AP-42 emission factor, in lb/mmcf of fuel usage, to the lb/mmbtu emission factor assumes a natural gas heating value of 1000 btu/cf.

EF_{NOx} : 100 lb/mmcf (0.1 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{CO} : 21 lb/mmcf (0.021 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{VOC} : 5.28 lb/mmcf (0.005 lb/mmbtu), AP-42 table 1.4-3, 1/95

EF_{SOx} : 0.6 lb/mmcf (0.0006 lb/mmbtu), AP-42 table 1.4-2, 1/95

EF_{PM10} : 12 lb/mmcf (0.012 lb/mmbtu), AP-42 table 1.4-1, 1/95

#2 Fuel Oil Emission Factors (Commercial/institutional/residential combustors):

EF_{NOx} : 20 lb/1000 gal (AP-42 table 1.3-2, 1/95)

EF_{CO} : 5 lb/1000 gal (AP-42 table 1.3-2, 1/95)

EF_{VOC}: 0.34 lb/1000 gal (AP-42 table 1.3-4, 1/95)
EF_{PM10}: 2 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF_{SOx}: 142S lb/1000 gal (AP-42 table 1.3-2, 1/95) where:

S is the weight percent of the sulfur in the fuel

Typical #2 fuel oil is expected to contain 0.4% to 0.7% sulfur by weight (Air and Waste Management Association Air Pollution Engineering Manual, Chapter 7, Fuel Oil Section, Table 1) For the purpose of determining the SOx emission factor the midpoint sulfur content if 0.55% will be utilized.

EF_{SOx}: 142(0.55) lb/1000 gallons = 78.1 lb/1000 gal

Fixed Roof Underground JP-4 Storage Tank (Permit # N-1195-4-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Floating Roof Aboveground JP-4 Storage Tanks (Permit #'s N-1195-5-0, N-1195-6-0, N-1195-7-0, N-1195-8-0, N-1195-125-0 & N-1195-126-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Fixed Roof Underground Diesel Storage Tanks (Permit #'s N-1195-118-0 & N-1195-123-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Fixed Roof Above Ground JP-4 Storage Tanks (N-1195-9-0, N-1195-10-0 & N-1195-124-0):

The baseline period emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

Diesel Fired IC Engines Powering Generators (Permit #'s N-1195-68-0, N-1195-69-0, N-1195-71-0, N-1195-73-0, N-1195-74-0, N-1195-75-0, N-1195-76-0, N-1195-77-0, N-1195-79-0, N-1195-80-0, N-1195-81-0, N-1195-88-0, N-1195-89-0, N-1195-90-0, N-1195-91-0, N-1195-93-0, N-1195-95-0 & N-1195-109-0):

EF_{NOx}: 0.031 lb/hp-hr (AP-42, table 3.3-2, 1/95)
EF_{CO}: 6.68 X 10⁻³ lb/hp-hr (AP-42, table 3.3-2, 1/95)

EF_{VOC}: 0.002 lb/hp-hr⁵
EF_{SOx}: 2.05 X 10⁻³ lb/hp-hr (AP-42, table 3.3-2, 1/95)
EF_{PM10}: 2.20 X 10⁻³ lb/hp-hr (AP-42, table 3.3-2, 1/95)

Solvent Degreasers (Permit #'s N-1195-16-0, N-1195-17-0, N-1195-96-0, N-1195-97-0 & N-1195-98-0):

The baseline emissions will be calculated utilizing solvent delivery records and estimated solvent evaporation rates. It will be assumed that VOC emissions, but no PM₁₀ emissions occurred. The applicant reported the type of solvent used in each operation, therefore the VOC emission factors are as follows:

N-1195-16-0, N-1195-17-0 & N-1195-97-0:

Solvent Type: Crown Chemical PD-680
VOC Content: 6.27 lb/gal

N-1195-96-0 & N-1195-98-0:

Solvent Type: Safety Kleen SK-105
VOC Content: 6.4 lb/gal

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore no VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Fiberglass Repair Shop (Permit # N-1195-128-0):

This permit was transferred to Castle JPA and is still active as N-3489-23-0. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Gasoline Powered Government Owned Vehicles:

The vehicles were relocated, not retired, therefore, no real emission reductions occurred and no ERCs will be issued.

⁵ From AP-42, table 3.3-2 (1/95) the total organic compound (TOC) emissions are expected to have been 2.48 X 10⁻³ lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 9 (Industrial IC Engines - Distillate Oil)" the methane fraction of the TOC is expected to have been 0.116. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.002 lb/hp-hr.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired steam cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations at Castle AFB).

Gasoline Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	102 lb/1000 gal
EF _{CO} :	3990 lb/1000 gal
EF _{VOC} :	147.7 lb/1000 gal
EF _{SOx} :	5.31 lb/1000 gal
EF _{PM10} :	6.47 lb/1000 gal

Diesel Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	469 lb/1000 gallons
EF _{CO} :	102 lb/1000 gallons
EF _{VOC} :	32.1 lb/1000 gallons
EF _{SOx} :	31.2 lb/1000 gallons
EF _{PM10} :	33.5 lb/1000 gallons

JP-4 Fired Equipment:

From Castle AFB's AERO's Manual, Page 3.7.0-19, Volume 5

EF _{NOx} :	469 lb/1000 gallons
EF _{CO} :	102 lb/1000 gallons
EF _{VOC} :	32.1 lb/1000 gallons
EF _{SOx} :	6.2 lb/1000 gallons
EF _{PM10} :	33.5 lb/1000 gallons

Natural Gas and Diesel Fired Boilers (Buildings 759, 1248, 1253, 1360, 1404, 1405, 1509 and 1762):

Natural Gas Emission Factors (Commercial boilers rated at 0.3 mmbtu/hr - 10 mmbtu/hr):

Note: The conversion from the AP-42 emission factor, in lb/mmcf of fuel usage, to the lb/mmbtu emission factor assumes a natural gas heating value of 1000 btu/cf.

EF _{NOx} :	100 lb/mmcf (0.1 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF _{CO} :	21 lb/mmcf (0.021 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF _{VOC} :	5.28 lb/mmcf (0.005 lb/mmbtu), AP-42 table 1.4-3, 1/95
EF _{SOx} :	0.6 lb/mmcf (0.0006 lb/mmbtu), AP-42 table 1.4-2, 1/95
EF _{PM10} :	12 lb/mmcf (0.012 lb/mmbtu), AP-42 table 1.4-1, 1/95

#2 Fuel Oil Emission Factors (Commercial/institutional/residential combustors):

EF _{NOx} :	20 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF _{CO} :	5 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF _{VOC} :	0.34 lb/1000 gal (AP-42 table 1.3-4, 1/95)
EF _{PM10} :	2 lb/1000 gal (AP-42 table 1.3-2, 1/95)
EF _{SOx} :	142S lb/1000 gal (AP-42 table 1.3-2, 1/95) where:

S is the weight percent of the sulfur in the fuel

Typical #2 fuel oil is expected to contain 0.4% to 0.7% sulfur by weight (Air and Waste Management Association Air Pollution Engineering Manual, Chapter 7, Fuel Oil Section, Table 1) For the purpose of determining the SOx emission factor the midpoint sulfur content of 0.55% will be utilized.

$$EF_{SOx}: 142(0.55) \text{ lb/1000 gallons} = 78.1 \text{ lb/1000 gal}$$

Paint Strip Tank (Building 1253):

VOC emissions, but no PM₁₀ emissions occurred as a result of paint stripper use.

VOC Content: 5.2 lb/gal (From Applicant)

Fire Fighting Training Areas:

The following emission factors were provided by Castle AFB and are from:

Kirtland TR AFWL-TR 73 106, Quantitative Evaluation Of Smoke Abatement for Crash/Rescue Training Facilities ; and

USAFOEHL McClellan PROF 71 M-23 1971, Air Pollution Emissions From JP-4 Fires Used In Fire Fighting Training

EF_{NOx}: 4.15 lb/1000 pounds of fuel
EF_{CO}: 560 lb/1000 pounds of fuel
EF_{VOC}: 320 lb/1000 pounds of fuel
EF_{SOx}: 0.4 lb/1000 pounds of fuel
EF_{PM10}: 128 lb/1000 pounds of fuel

Surface Coating Operations (66 unpermitted coating operations):

The applicant reported that paint, varnish, lacquer, enamel, primer and thinner were utilized in these operations. The applicant further stated that the types of materials coated are unknown. For the purpose of ensuring that the reductions are surplus it will be assumed that the paint, lacquer and enamel were utilized to coat metal parts and products and that the varnish was utilized to coat wood products. The VOC emission factors will be the VOC content limit of the applicable rules in effect during the baseline period.

The baseline period data was submitted in pounds of material used, therefore emission factors in terms of pounds of VOC emissions per ton of material usage are required.

VOC:

The Metal Parts and Products Coating rule in effect during the baseline period (Merced County APCD Rule 409) limited the VOC content of coatings to 340 grams per liter (2.8 lb/gal) therefore, the emission factor for paint, lacquer and enamel are as follows:

Paint:

VOC Content: 340 g VOC/l paint (2.8 lb/gal) - Rule Limit
Density: 8.9 lb paint/gal paint (AP-42 Table 4.2.2.1-2)

EF_{VOC}: (2.8 lb VOC/gal paint)(1 gal paint/8.9 lb paint) X
(2000 lb paint/ton paint) = 629.2 lb VOC/ton paint

Lacquer:

VOC Content: 340 g VOC/l lacquer (2.8 lb/gal) - Rule Limit
Density: 7.9 lb lacquer/gal lacquer (AP-42 Table 4.2.2.1-2)

EF_{VOC}: (2.8 lb VOC/gal lacquer)(1 gal lacquer/7.9 lb lacquer) X
(2000 lb lacquer/ton lacquer) = 708.9 lb VOC/ton lacquer

Enamel:

VOC Content: 340 g VOC/l enamel (2.8 lb/gal) - Rule Limit

Density: 7.6 lb enamel/gal enamel (AP-42 Table 4.2.2.1-2)

$EF_{VOC}:(2.8 \text{ lb VOC/gal enamel})(1 \text{ gal enamel}/7.6 \text{ lb enamel}) \times$
 $(2000 \text{ lb enamel/ton enamel}) = 736.8 \text{ lb VOC/ton enamel}$

Polyurethane:

VOC Content: 340 g VOC/l paint (2.8 lb/gal) - Rule Limit

Density: 9.2 lb polyurethane/gal paint (AP-42 Table 4.2.2.1-2)

$EF_{VOC}:(2.8 \text{ lb VOC/gal poly.})(1 \text{ gal poly.}/9.2 \text{ lb paint}) \times$
 $(2000 \text{ lb poly./ton poly.}) = 608.7 \text{ lb VOC/ton poly.}$

Primer:

VOC Content: 340 g VOC/l primer (2.8 lb/gal) - Rule Limit

Density: 9.4 lb primer/gal primer (AP-42 Table 4.2.2.1-2)

$EF_{VOC}:(2.8 \text{ lb VOC/gal primer})(1 \text{ gal primer}/9.4 \text{ lb primer}) \times$
 $(2000 \text{ lb primer/ton primer}) = 595.7 \text{ lb VOC/ton primer}$

Varnish:

There was not a wood products coating rule in effect during the baseline period therefore, the AP-42 emission factor will be utilized.

$EF_{VOC}: 1,000 \text{ lb VOC/ton of material usage (AP-42 Table 4.2.1)}$

Thinner:

$EF_{VOC}: 2,000 \text{ lb VOC/ton of material usage (Assume 100% VOC)}$

PM_{10} :

AP-42 does not include PM_{10} emission factors, therefore, PM_{10} emission factors will be estimated. The applicant reported the material usage in tons, therefore the emission factor will be in terms of pounds of PM_{10} per ton of material used.

For the purpose of conservatively estimating the PM_{10} emissions, it will be assumed that a high transfer efficiency spray application method was used and the coating was performed in a booth. The following assumptions will be made:

1. Transfer efficiency was 75% (HVLV, Volume II, Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

2. Control efficiency was 90% (Volume II , Section 14 of the STAPPA - ALAPCO Air Quality Permits Handbook (1991))

Enamel:

Density: 7.6 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: $736.8 \text{ lb}/2000 \text{ lb} = 0.37$
Solid Content: $(7.6 \text{ lb/gal})(1-0.37) = 4.8 \text{ lb/gal}$
Solid Fraction: $4.8 \text{ lb solid}/7.6 \text{ lb material} = 0.63$
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
EF_{PM10}: $(0.63 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 30.2 \text{ lb/ton coating}$

Lacquer:

Density: 7.9 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: $708.9 \text{ lb}/2000 \text{ lb} = 0.35$
Solid Content: $(7.9 \text{ lb/gal})(1-0.35) = 5.1 \text{ lb/gal}$
Solid Fraction: $5.1 \text{ lb solid}/7.9 \text{ lb material} = 0.65$
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
EF_{PM10}: $(0.65 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 31.2 \text{ lb/ton coating}$

Paint (Acrylic Enamel):

Density: 8.9 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: $629.2 \text{ lb}/2000 \text{ lb} = 0.31$
Solid Content: $(8.9 \text{ lb/gal})(1-0.31) = 6.1 \text{ lb/gal}$
Solid Fraction: $6.1 \text{ lb solid}/8.9 \text{ lb material} = 0.69$
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
EF_{PM10}: $(0.69 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 33.1 \text{ lb/ton coating}$

Polyurethane:

Density: 9.2 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: $608.7 \text{ lb}/2000 \text{ lb} = 0.30$
Solid Content: $(9.2 \text{ lb/gal})(1-0.30) = 6.4 \text{ lb/gal}$
Solid Fraction: $6.4 \text{ lb solid}/9.2 \text{ lb material} = 0.70$
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)
EF_{PM10}: $(0.70 \text{ lb TSP/lb material usage})(0.96 \text{ lb PM}_{10}/\text{lb TSP})$
 $\times (1-0.75)(1-0.9)(2000 \text{ lb/ton}) = 33.6 \text{ lb/ton coating}$

Primer:

Density: 9.4 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: 595.7 lb/2000 lb = 0.30 (Derived From AP-42 Table 4.2-1)
Solid Content: (9.4 lb/gal)(1-0.30) = 6.6 lb/gal
Solid Fraction: 7.4 lb solid/9.4 lb material = 0.8
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)

EF_{PM10}: (0.8 lb TSP/lb material usage)(0.96 lb PM₁₀/lb TSP)
X (1-0.75)(1-0.9)(2000 lb/ton) = 38.4 lb /ton coating

Varnish:

Density: 6.6 lb/gal (AP-42 Table 4.2.2.1-2)
VOC Fraction: 1000 lb/2000 lb = 0.50 (Derived From AP-42 Table 4.2-1)
Solid Content: (6.6 lb/gal)(1-0.50) = 3.3 lb/gal
Solid Fraction: 3.3 lb solid/6.6 lb material = 0.50
PM₁₀ Fraction: 0.96 (PM₁₀ manual, code 222)

EF_{PM10}: (0.50 lb TSP/lb material usage)(0.96 lb PM₁₀/lb TSP)
X (1-0.75)(1-0.9)(2000 lb/ton) = 24.0 lb/ton coating

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

The solvent degreaser removed from building 1532 utilized 1,1,1 - trichloroethane which is not a VOC as defined in District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

The VOC emission reductions from the remaining degreasers will be calculated directly utilizing the solvent and solvent loss information provided by the applicant. The types of solvent used, and their VOC contents are as follows:

Bldg. 59, 1200, 1260, 1335, 1344 and the ACRP Bearing Shop:

Solvent Type: SK-105
VOC Content: 6.4 lb/gal
Bldg. 1550 & 1260:

Solvent Type: Crown Chemical PD-680
VOC Content: 6.27 lb/gal

Bldg. 1253:

Solvent Type: MEK
VOC Content: 6.7 lb/gal

Aircraft Wash Racks:

The baseline period emissions will be calculated directly utilizing solvent and solvent loss information provided by the applicant.

Solvent Type: Crown Chemical PD-680 -T-3
VOC Content: 6.7 lb/gal

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

EF _{NOx} :	0.011 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{CO} :	0.439 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{VOC} :	0.02 lb/hp-hr ⁶	
EF _{SOx} :	5.91 X 10 ⁻⁴ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{PM10} :	7.21 X 10 ⁻⁴ lb/hp-hr	(AP-42, table 3.3-2, 1/95)

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

EF _{NOx} :	0.031 lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{CO} :	6.68 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{VOC} :	0.002 ⁷	
EF _{SOx} :	2.05 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)
EF _{PM10} :	2.20 X 10 ⁻³ lb/hp-hr	(AP-42, table 3.3-2, 1/95)

Fixed Roof Underground Diesel Storage Tanks (Building 502):

The baseline emissions were quantified by the SJVUAPCD Technical Services Division utilizing the EPA Tanks 3 program.

⁶ From AP-42, table 3.3-2 (1/95) the total organic compound (TOC) emissions are expected to have been 0.022 lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 502 (Industrial IC Engines - Gasoline)" the methane fraction of the TOC is expected to have been 0.0924. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.02 lb/hp-hr.

⁷ From AP-42, table 3.3-2 the total organic compound (TOC) emissions are expected to have been 2.48 X 10⁻³ lb/hp-hr. From CARB document "Identification Of Volatile Organic Species Profiles, August 1991, Profile 9 (Industrial IC Engines - Distillate Oil)" the methane fraction of the TOC is expected to have been 0.116. Therefore the non-methane hydrocarbon emissions are estimated to have been 0.002 lb/hp-hr.

JP-4 Loading Racks:

Uncontrolled VOC: 4 lb/1000 gallons of throughput (AP-42, table 5.2-5, 1/95, splash loading)

This operation was however subject to Merced County APCD Rule 412 (Organic Liquid Loading), which required 90% VOC emission control. Therefore, to ensure that the reductions are surplus a 90% control factor will be applied to the uncontrolled value:

Controlled VOC: $(4 \text{ lb/1000 gal})(1-0.9) = 0.4 \text{ lb/1000 gallons}$

Diesel Loading Racks:

VOC: 0.03 lb/1000 gallons of throughput (AP-42, table 5.2-5, 1/95, splash loading)

Gasoline Powered Lawn Maintenance Equipment (26 unpermitted pieces of equipment):

Although Castle AFB has been shut down, the grounds are still maintained. It will be assumed that emissions from lawn maintenance will continue to occur and that the reductions are not real. No ERCs will be issued for the shut down of this equipment.

Gasoline Powered Construction Equipment (20 unpermitted pieces of equipment):

The applicant does not know what this equipment was used for or whether this type of activity will occur in the future. No ERCs will be issued for the shut down of this equipment because the reductions may not be real.

B. Baseline Period Determination and Data:

Baseline Period Determination:

The baseline period for quantifying emission reductions is normally the two year period ending on the date that the base closure or realignment decision became final (California Health And Safety Code, Section 40709.7). That date was April 12, 1991. If that period is not representative of normal source operation then another two consecutive year period within the five years immediately preceding the base closure or realignment decision may be used. Calendar years 1989 and 1990 will be considered the baseline period.

Baseline Data:

For most emission units, Castle AFB had access to only 1990 baseline data. Since the level of base activity is dependent on the number of flights conducted, it will be assumed that the 1989 baseline data can be estimated accurately utilizing the ratio of the number of flights in 1989 to the number of flights in 1990. Castle AFB reported that the number of flights conducted during 1989 and 1990 were 37,190 and 38,458 respectively. For the units whose baseline period is calendar years 1989 and 1990, and 1989 data was not provided the 1989 baseline data will be estimated by multiplying the 1990 data provided by Castle AFB by 0.97.

For some of the units, 1991, 1993 or 1994 fuel usage or operating time was reported. It will be assumed that year's fuel usage or operating time was the same as the 1990 fuel usage or operating time. The 1989 fuel usage or operating time will be estimated utilizing the method stated above.

Permitted Sources:

Gasoline Dispensing (N-1196-1-0, N-1195-1-0, N-1195-2-0, N-1195-3-0, N-1195-119-0):

Gasoline dispensing operations are not eligible for ERCs per District Rule 2301, section 4.4.1.

Classified Document Incinerator (Permit # N-1195-12-0):

1990 Throughput:	2.5 Tons
1989 Throughput:	$(2.5 \text{ Tons})(0.97) = 2.4 \text{ Tons}$
Average 1989/1990 Throughput:	2.45 Tons

Medical Waste Incinerator (Permit # N-1195-13-0):

1990 Throughput:	2.6 Tons
1989 Throughput:	$(2.6 \text{ Tons})(0.97) = 2.5 \text{ Tons}$
Average 1989/1990 Throughput:	2.55 Tons

Surface Coating Operation (Permit # N-1195-14-0):

1990 Usage:	Polyurethane:	200 gallons
	Thinner:	200 gallons
	Primer:	200 gallons

1989 Usage: Polyurethane: (200 gallons)(0.97) = 194 gallons
Thinner: (200 gallons)(0.97) = 194 gallons
Primer: (200 gallons)(0.97) = 194 gallons

Average 1989/1990 Usage: Polyurethane: 197 gallons
Thinner: 197 gallons
Primer: 197 gallons

It will be assumed that half of the thinner was added to the polyurethane and half to the primer as reducer. Therefore the average 1989/1990 polyurethane and primer usage, including reducer, was:

Polyurethane: 197 gallons + (0.5)(197 gal) = 295.5 gallons
Primer: 197 gallons + (0.5)(197 gal) = 295.5 gallons

Paint Gun Cleaning Operation (Permit # N-1195-99-0):

1990 Solvent Loss: 24 gallons
1989 Solvent Loss: (24 gallons)(0.97) = 23.3 gallons
Average 1989/1990 Solvent Loss: 23.7 gallons

Boilers:

Permit #	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (MMBTU)
N-1195-19-0	Natural Gas	1.2	2,912	3494.4
N-1195-20-0	Natural Gas	2.4	2,912	6988.8
N-1195-21-0	Natural Gas	2.4	2912	6988.8
N-1195-22-0	Natural Gas	0.9	3,276	2948.4
N-1195-25-0	Natural Gas	2.04	2,928	5973.1
N-1195-26-0	Natural Gas	1.2	4,392	5270.4
N-1195-27-0	Natural Gas	0.567	4,392	2490.3
N-1195-28-0	Natural Gas	0.96	4,880	4684.8
N-1195-34-0	Natural Gas	2.7	3,904	10,540.8
N-1195-35-0	Natural Gas	1.0	3,904	3,904.0
N-1195-36-0	Natural Gas	0.67	3,888	2,605.0
N-1195-39-0	Natural Gas	2.25	3,640	8,190.0
N-1195-40-0	Natural Gas	1.35	3,640	4,914.0
N-1195-41-0	Natural Gas	2.5	50	125.0
N-1195-45-0	Natural Gas	0.72	2,184	1,572.5
N-1195-46-0	Natural Gas	1.33	1,820	2,420.6
N-1195-47-0	Natural Gas	0.29	3,834	1,111.9
N-1195-48-0	Natural Gas	1.12	3,834	4,294.1
N-1195-49-0	Natural Gas	0.36	4,392	1,581.1
N-1195-50-0	Natural Gas	0.56	4,392	2,459.5
N-1195-51-0	Natural Gas	0.56	4,392	2,459.5
N-1195-52-0	Natural Gas	0.56	4,880	2,732.8
N-1195-53-0	Natural Gas	0.837	6,080	5,089.0
N-1195-54-0	Natural Gas	1.903	7,300	13,891.9
N-1195-55-0	Natural Gas	1.09	7,300	7,957.0
N-1195-56-0	Natural Gas	0.8	8,760	7,008.0
N-1195-57-0	Natural Gas	0.54	486	262.4
N-1195-58-0	Natural Gas	2.09	3,640	7,607.6
N-1195-59-0	Natural Gas	0.35	2,912	1,019.2
N-1195-62-0	Natural Gas	4.83	6,028	29,115.2
N-1195-63-0	Natural Gas	0.56	4,880	2,732.8
N-1195-64-0	Natural Gas	0.395	4,880	1,927.6
N-1195-65-0	Natural Gas	0.84	4,880	4,099.2
N-1195-67-0	Natural Gas	2.07	5,368	11,111.8
N-1195-110-0	Natural Gas	2.4	2,912	6,988.8
N-1195-111-0	Natural Gas	0.528	4,880	2,576.6
N-1195-112-0	Natural Gas	4.68	3,640	17,035.2
N-1195-113-0	Natural Gas	0.43	3,640	1,565.2
N-1195-115-0	Natural Gas	0.43	3,640	1,565.2
Total				209,302.5

1989 Usage = (209,302.5 MMBTU)(0.97) = 203,023.4 MMBTU
Average 1989/1990 Natural Gas Usage: 206,163.0 MMBTU

Diesel Fired Boilers:

Permit Number	Fuel Type	Gallons Of Fuel Usage (Year)
N-1195-32-0	#2 Fuel Oil	1,947 (1991)
N-1195-33-0	#2 Fuel Oil	1,300 (1991)
N-1195-36-0	#2 Fuel Oil	3,275 (1991)
N-1195-37-0	#2 Fuel Oil	1,477 (1994)
N-1195-66-0	#2 Fuel Oil	7,243 (1991)
Total		15,242

1989 Usage = (15,242 gallons)(0.97) = 14,784.7 gallons

Average 1989/1990 Natural Gas Usage: 15,013.4 gallons

Fixed Roof Underground JP-4 Storage Tank (N-1195-4-0):

1990 Throughput: 150,000 gallons
 1989 Throughput: (150,000 gallons)(0.97) = 145,500 gallons
 Average 1989/1990 Throughput: 147,750 gallons

Floating Roof Aboveground JP-4 Storage Tanks:

Permit #	1989 Throughput (gallons)	1990 Throughput (gallons)	Average 1989/1990 Throughput (gallons)
N-1195-5-0	29,893,295	30,817,830	30,355,563
N-1195-6-0	10,808,607	11,142,894	10,975,751
N-1195-7-0	13,858,933	14,287,560	14,073,247
N-1195-8-0	14,083,944	14,519,530	14,301,737
N-1195-125-0	12,743,105	13,137,222	12,940,164
N-1195-126-0	12,743,105	13,137,222	12,940,164
Total			95,586,626

Fixed Roof Aboveground Fixed Roof JP-4 Storage Tanks:

Permit #	1989 Throughput (gallons)	1990 Throughput (gallons)	Average 1989/1990 Throughput (gallons)
N-1195-9-0	3,880	4,000	3,940
N-1195-10-0	3,880	4,000	3,940
N-1195-124-0	1,455,000	1,500,000	1,477,500
Total			1,485,380

Fixed Roof Underground Diesel Storage Tanks (N-1195-118-0, N-1195-123-0):

Permit #	1989 Throughput (Gallons)	1990 Throughput (Gallons)	Average 1989/1990 Throughput (Gallons)
N-1195-118-0	178,701	184,228	181,465
N-1195-123-0	206,376	212,759	209,568
Total			391,033

Diesel Fired IC Engines Powering Generators:

Permit #	1989 Operating Hours	1990 Operation (Hours)	Average 1989/1990 Operation (Hours)
N-1195-68-0	23.3	24	23.7
N-1195-69-0	11.6	12	11.8
N-1195-71-0	11.6	12	11.8
N-1195-73-0	11.6	12	11.8
N-1195-74-0	11.6	12	11.8
N-1195-75-0	11.6	12	11.8
N-1195-76-0	11.6	12	11.8
N-1195-77-0	11.6	12	11.8
N-1195-79-0	23.3	24	23.7
N-1195-80-0	23.3	24	23.7
N-1195-81-0	23.3	24	23.7
N-1195-88-0	11.6	12	11.8
N-1195-89-0	11.6	12	11.8
N-1195-90-0	11.6	12	11.8
N-1195-91-0	11.6	12	11.8
N-1195-93-0	11.6	12	11.8
N-1195-95-0	0	0	0
N-1195-109-0	23.3	24	23.7

Solvent Degreasers:

Permit #	1989 Solvent Loss (Gallons)	1990 Solvent Loss (Gallons)	Average 1989/1990 Solvent Loss (Gallons)
N-1195-16-0	12.1	12.5	12.3
N-1195-17-0	12.1	12.5	12.3
N-1195-96-0	80.8	83.3	82.1
N-1195-97-0	12.1	12.5	12.3
N-1195-98-0	80.8	83.3	82.1

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for this action.

Fiberglass Repair Shop (Permit #N-1195-128-0):

This permit was transferred to Castle JPA and is still active. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Government Owned Vehicles:

The vehicles were relocated, not retired, therefore no real emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired stream cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations around Castle AFB).

1990 Gasoline Usage:	12,800 gallons
1989 Gasoline Usage:	(12,800 gallons)(0.97) = 12,416 gallons
Average 1989/1990 Gasoline Usage:	12,608 gallons
1990 Diesel Usage:	216,100 gallons
1989 Diesel Usage:	(216,100 gallons)(0.97) = 209,617 gallons
Average 1989/1990 Diesel Usage:	212,859 gallons
1990 JP-4 Usage:	102,400 gallons
1989 JP-4 Usage:	(102,400 gallons)(0.97) = 99,328 gallons
Average 1989/1990 JP-4 Usage:	100,864 gallons

Boilers:

Building	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (MMBTU)
759	Natural Gas	0.9	2,912	2,620.8
1248	Natural Gas	0.7	3,408	2,385.6
1253	Natural Gas	4.2	3,408	14,313.6
1360	Natural Gas	1.9	4,880	9,272.0
1360	Natural Gas	1.09	4,880	5,319.2
Total Natural Gas Usage				33,911.2

1989 Usage = (33,911.2 MMBTU)(0.97) = 32,893.9 MMBTU

Average 1989/1990 fuel usage = 33,402.6 MMBTU

Building	Fuel Type	Boiler Rating (MMBTU/hr)	1990 Operation (Hours)	1990 Fuel Usage (Gallons) ⁸
1404	#2 Fuel Oil	0.2279	4,860	7,911
1405	#2 Fuel Oil	0.14	4,860	4,860
1509	#2 Fuel Oil	0.98	4,860	34,020
1762	#2 Fuel Oil	0.506	3,888	14,052
Total #2 Fuel Oil Usage				60,843

1989 Usage = (60,843 gallons)(0.97) = 59,018 gallons

Average 1989/1990 Fuel Usage: 59,931 gallons

Paint Strip Tank (Bldg. 1253):

1990 Stripper Usage: 30 gallons
 1989 Stripper Usage: (30 gallons)(0.97) = 29 gallons
 Average 1989/1990 Stripper Usage: 29.5 gallons

Fire Fighting Training Areas (Near Bldg. 1312):

1989 JP-4 Usage: 106,182 pounds (Provided by the applicant)
 1990 JP-4 Usage: 106,182 pounds (Provided by the applicant)
 Average 1989/1990 JP-4 Usage: 106,182 pounds

Surface Coating Operations (66 unpermitted coating operations):

In addition to the coatings, the applicant reported that 24,245 pounds of thinner was used. It will be assumed that thinner was added to the coatings in 50/50 proportions and the remainder was used for other than coating thinning.

⁸ Assumes a heating value for #2 fuel oil of 140,000 BTU/gal (AP-42)

1990 Enamel Usage: 2968 lb Enamel + 2968 lb Thinner = 5936 lb/yr
1989 Enamel Usage: (5936 lb pounds)(0.97) = 5758 pounds
Average 1989/1990 Enamel Usage: 5847 pounds

1990 Paint Usage: 2,176 lb paint + 2176 lb thinner = 4352 lb/yr
1989 Paint Usage: (4352 pounds)(0.97) = 4221 pounds
Average 1989/1990 Paint Usage: 4287 pounds

1990 Varnish Usage: 64.5 lb Varnish + 64.5 lb thinner = 129 lb/yr
1989 Varnish Usage: (129 pounds)(0.97) = 125 pounds
Average 1989/1990 Varnish Usage: 127 pounds

1990 Lacquer Usage: 2,370 lb Lacquer + 2,370 lb Thinner = 4740 lb/yr
1989 Lacquer Usage: (4740 pounds)(0.97) = 4598 pounds
Average 1989/1990 Lacquer Usage: 4,669 pounds

1990 Primer Usage: 933 lb primer + 933 lb Thinner = 1866 lb/yr
1989 Primer Usage: (1866 pounds)(0.97) = 1810 pounds
Average 1989/1990 Primer Usage: 1838 pounds

1990 Polyurethane Usage: 8717 lb poly. + 8717 lb Thin. = 17,434 lb/yr
1989 Polyurethane Usage: (17,434 pounds)(0.97) = 16,911 pounds
Average 1989/1990 Polyurethane Usage: 17,173 pounds

1990 Thinner Usage (For wipe down and gun cleaning):
24,245 pounds - (2968 + 2176 + 64.5 + 2370 + 933 + 8717) pounds = 7017 pounds
1989 Thinner Usage: (7017 pounds)(0.97) = 6807 pounds
Average 1989/1990 Thinner Usage: 6912 pounds

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

The solvent degreaser removed from building 1532 utilized 1,1,1 - trichloroethane which is not a VOC as defined in District rule 1020 section 3.53. Therefore, no real VOC emission reductions occurred and no ERCs will be issued for this action.

Combined 1990 Safety Kleen PD-680 Loss: 25 gallons
Combined 1989 Safety Kleen PD-680 Loss: (25 gallons)(0.97) = 24.3 gallons
Average 1989/1990 Loss: 24.7 gallons

Combined 1990 Methyl Ethyl Ketone Loss: 250 gallons
Combined 1989 Methyl Ethyl Ketone Loss: (250 gallons)(0.97) = 242.5 gallons
Average 1989/1990 Loss: 246.3 gallons

Combined 1990 Safety Kleen SK-105 Loss: 583 Gallons
 Combined 1989 Safety Kleen SK-105 Loss: (583 gallons)(0.97) = 565.5 gallons
 Average 1989/1990 Loss: 574.3 gallons

Aircraft Wash Racks (Dock 2):

Combined 1990 Crown PD 680 T-3 Loss: 7,250 gallons
 Combined 1989 Crown PD 680 T-3 Loss: (7250 gallons)(0.97) = 7032.5 gallons
 Average 1989/1990 Loss: 7,141.3 gallons

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

Rating (Horsepower)	1989 Operation (Hours)	1990 Operation (Hours)	Average 1989/1990 Operation (Hours)
6	11.6	12	11.8
6	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

Rating (Horsepower)	1989 Operating Hours	1990 Operating Hours	Average 1989/1990 Operating Hours
10	11.6	12	11.8
10	11.6	12	11.8
10	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
12	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
24	11.6	12	11.8
30	11.6	12	11.8
40	11.6	12	11.8
6	11.6	12	11.8
6	11.6	12	11.8
15	11.6	12	11.8
75	11.6	12	11.8
0.75	11.6	12	11.8
8	11.6	12	11.8
8	11.6	12	11.8
60	11.6	12	11.8
60	11.6	12	11.8
60	11.6	12	11.8
11	11.6	12	11.8
11	11.6	12	11.8
3	11.6	12	11.8
250	23.3	24	23.7
250	23.3	24	23.7
250	23.3	24	23.7
250	23.3	24	23.7
15	23.3	24	23.7
3.5	11.6	12	11.8
3.5	11.6	12	11.8
3.5	11.6	12	11.8

2 Underground Diesel Storage Tank (Building 502):

1990 Throughput: 333,786 gallons
1989 Throughput: $(333,786 \text{ gallons})(0.97) = 323,772.4 \text{ gallons}$

Average 1989/1990 Throughput: 328,779 gallons

JP-4 Loading Racks:

JP-4 was piped from an off base location to 4 bulk storage tanks (N-1195-5-0, N-1195-6-0, N-1195-7-0 & N-1195-8-0) located at Castle AFB. From the bulk tanks the JP-4 was distributed to either trucks or other storage tanks. From the trucks, JP-4 was loaded into aircraft fuel tanks. From the other storage tanks fuel was distributed to a fuel hydrant system. From the fuel hydrant system, JP-4 was loaded into aircraft fuel tanks.

From information contained in the 1982 emission inventory the distribution of fuel was as follows:

JP-4 to bulk storage: 106.7 MMGal
Fuel to UST's: 103.7 MMGal
Fuel to Trucks: 3 MMGal

It will be assumed that the fuel distribution ratios during the baseline period were the same as in 1982. Therefore, it will be assumed that 2.8% of the bulk tank throughput was distributed by the loading rack. The baseline period bulk tank JP-4 throughputs are as follows:

Ave. 1989/1990 Bulk Tank Throughput: 69,706,298 gal

Ave. 1989/1990 Loading Rack Throughput: $(69,706,298 \text{ gal})(0.028) = 1,951,776 \text{ gal}$

Diesel Loading Racks:

The aircraft stationed at Castle AFB did not utilize diesel therefore no diesel was delivered through the hydrant system. It will therefore be assumed that all of the diesel was dispensed from the tanks through a loading rack. The quantity of diesel dispensed through the loading racks will be the combined throughput of the two diesel tanks located at building 502 and the tanks permitted under N-1195-118-0 and N-1195-123-0:

N-1195-118-0 & N-1195-123-0:

Ave. 1989/1990 Throughput: 391,033 gallons

2 Unpermitted Tanks (Building 502):

Ave. 1989/1990 Throughput: 328,779 gallons

Combined 1989/1990 Average Diesel Tank Throughputs:

391,033 gallons + 328,779 gallons = 719,812 gallons

Gasoline Powered Lawn Maintenance Equipment (26 unpermitted pieces of equipment):

Although Castle AFB has been shut down, the grounds continue to be maintained. It will be assumed that emissions from lawn maintenance will continue to occur and that the reductions are not real. No ERCs will be issued for the shut down of this equipment.

Gasoline Powered Construction Equipment (20 unpermitted pieces of equipment):

The applicant does not know what this equipment was used for or whether this type of activity will occur in the future. No ERCs will be issued for the shut down of this equipment because the reductions may not be real.

C. Historical Actual Emissions (HAE) :

Classified Document Incinerator (Permit # N-1195-12-0):

Average 1989/1990 Throughput: 2.45 tons

Average 1989/1990 Emissions:

NO_x: (3 lb/ton)(2.45 tons/yr) = 7 lb/yr

CO: (10 lb/ton)(2.45 tons/yr) = 25 lb/yr

VOC: (1.3 lb/ton)(2.45 tons/yr) = 3 lb/yr

SO_x: (2.5 lb/ton)(2.45 tons/yr) = 6 lb/yr

PM₁₀: (7 lb/ton)(2.45 tons/yr) = 17 lb/yr

Medical Waste Incinerator (Permit # N-1195-13-0):

NO_x: (3.56 lb/ton)(2.55 tons/yr) = 9 lb/yr

CO: (2.95 lb/ton)(2.55 tons/yr) = 8 lb/yr

VOC: (0.13 lb/ton)(2.55 tons/yr) = 0 lb/yr

SO_x: (2.17 lb/ton)(2.55 tons/yr) = 6 lb/yr

PM₁₀: (4.67 lb/ton)(2.55 tons/yr) = 12 lb/yr

Metal Parts and Products Coating Operation (Permit # N-1195-14-0):

Polyurethane:

Average 1989/1990 Polyurethane Usage: 295.5 gallons

VOC: $(2.8 \text{ lb/gal})(295.5 \text{ gal/yr}) = 827 \text{ lb/yr}$

PM₁₀: $(0.15 \text{ lb/gal})(295.5 \text{ gal/yr}) = 44 \text{ lb/yr}$

Primer:

Average 1989/1990 Primer Usage: 295.5 gallons

VOC: $(2.8 \text{ lb/gal})(295.5 \text{ gal}) = 827 \text{ lb/yr}$

PM₁₀: $(0.18 \text{ lb/gal})(295.5 \text{ gal}) = 53 \text{ lb/yr}$

Paint Gun Cleaning Operation (N-1195-99-0):

Average 1989/1990 Solvent Loss: 23.7 gal

VOC: $(6.4 \text{ lb/gal})(23.7 \text{ gal/yr}) = 152 \text{ lb/yr}$

Natural Gas and Diesel Fired Boilers (N-1195-19-0, N-1195-20-0, N-1195-21-0, N-1195-22-0, N-1195-25-0, N-1195-26-0, N-1195-27-0, N-1195-28-0, N-1195-32-0, N-1195-33-0, N-1195-34-0, N-1195-35-0, N-1195-36-0, N-1195-37-0, N-1195-38-0, N-1195-39-0, N-1195-40-0, N-1195-41-0, N-1195-44-0, N-1195-45-0, N-1195-46-0, N-1195-47-0, N-1195-48-0, N-1195-49-0, N-1195-50-0, N-1195-51-0, N-1195-52-0, N-1195-53-0, N-1195-54-0, N-1195-55-0, N-1195-56-0, N-1195-57-0, N-1195-58-0, N-1195-59-0, N-1195-62-0, N-1195-63-0, N-1195-64-0, N-1195-65-0, N-1195-66-0, N-1195-67-0, N-1195-85-0, N-1195-110-0, N-1195-111-0, N-1195-112-0, N-1195-113-0, N-1195-115-0):

Average 1989/1990 Natural Gas Usage: 206,163 MMBTU/yr

NOx: $(0.1 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr}) = 20,616 \text{ lb/yr}$

CO: $(0.021 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr}) = 4,329 \text{ lb/yr}$

VOC: $(0.005 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr}) = 1,031 \text{ lb/yr}$

SOx: $(0.0006 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr}) = 124 \text{ lb/yr}$

PM₁₀: $(0.012 \text{ lb/mmmbtu})(206,163 \text{ MMBTU/yr}) = 2,474 \text{ lb/yr}$

Average 1989/1990 #2 Fuel Oil Usage: 15,013.4 gallons

NOx: $(20 \text{ lb/1000 gal})(15,013.4 \text{ gal/yr}) = 300 \text{ lb/yr}$

CO: $(5 \text{ lb/1000 gal})(15,013.4 \text{ gal/yr}) = 75 \text{ lb/yr}$

VOC: $(0.34 \text{ lb/1000 gal})(15,013.4 \text{ gal/yr}) = 5 \text{ lb/yr}$

SOx: $(78.1 \text{ lb/1000 gal})(15,013.4 \text{ gal/yr}) = 1,173 \text{ lb/yr}$

PM₁₀: $(2 \text{ lb/1000 gal})(15,013.4 \text{ gal/yr}) = 30 \text{ lb/yr}$

Fixed Roof Underground JP-4 Storage Tank (N-1195-4-0):

1990 JP-4 Losses: 401 lb (EPA's Tanks Program)

1989 JP-4 Losses: $(401 \text{ lb})(0.97) = 389 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(401 \text{ lb} + 389 \text{ lb}) \div 2 = 395 \text{ lb/yr}$

Floating Roof Aboveground JP-4 Tanks (N-1195-5-0, N-1195-6-0, N-1195-7-0, N-1195-8-0, N-1195-125-0, N-1195-126-0):

1990 JP-4 Losses: 20,156 lb (EPA's Tanks 3 Program)

1989 JP-4 Losses: $(20,156 \text{ lb})(0.97) = 19,551 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(20,156 \text{ lb} + 19,551 \text{ lb}) \div 2 = 19,854 \text{ lb/yr}$

Fixed Roof Underground Diesel Storage Tanks (N-1195-118-0, N-1195-123-0):

1990 Diesel Losses: 9 lb (EPA's Tanks 3 Program)

1989 Diesel Losses: $(9 \text{ lb})(0.97) = 9 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(9 \text{ lb} + 9 \text{ lb}) \div 2 = 9 \text{ lb/yr}$

Fixed Roof Aboveground JP-4 Storage Tanks (N-1195-9-0, N-1195-10-0 & N-1195-124-0):

1990 JP-4 Losses (Uncontrolled): 1500 lb (EPA's Tanks 3 Program)

1989 JP-4 Losses (Uncontrolled): $(1500 \text{ lb})(0.97) = 1,455 \text{ lb}$

Average 1989/1990 VOC Emissions: $(1500 \text{ lb} + 1455 \text{ lb}) \div 2 = 1,478 \text{ lb}$

Diesel Fired IC Engines Powering Generators:

NOx

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	0.031	900	23.7	661
N-1195-69-0	0.031	100	11.8	37
N-1195-71-0	0.031	120	11.8	44
N-1195-73-0	0.031	300	11.8	110
N-1195-74-0	0.031	300	11.8	110
N-1195-75-0	0.031	300	11.8	110
N-1195-76-0	0.031	300	11.8	110
N-1195-77-0	0.031	310	11.8	113
N-1195-79-0	0.031	400	23.7	294
N-1195-80-0	0.031	400	23.7	294
N-1195-81-0	0.031	400	23.7	294
N-1195-88-0	0.031	58	11.8	21
N-1195-89-0	0.031	58	11.8	21
N-1195-90-0	0.031	58	11.8	21
N-1195-91-0	0.031	58	11.8	21
N-1195-93-0	0.031	58	11.8	21
N-1195-95-0	0.031	276	0.0	0
N-1195-109-0	0.031	900	23.7	661
Total				2,943

CO

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	6.68×10^{-3}	900	23.7	143
N-1195-69-0	6.68×10^{-3}	100	11.8	8
N-1195-71-0	6.68×10^{-3}	120	11.8	10
N-1195-73-0	6.68×10^{-3}	300	11.8	24
N-1195-74-0	6.68×10^{-3}	300	11.8	24
N-1195-75-0	6.68×10^{-3}	300	11.8	24
N-1195-76-0	6.68×10^{-3}	300	11.8	24
N-1195-77-0	6.68×10^{-3}	310	11.8	24
N-1195-79-0	6.68×10^{-3}	400	23.7	63
N-1195-80-0	6.68×10^{-3}	400	23.7	63
N-1195-81-0	6.68×10^{-3}	400	23.7	63
N-1195-88-0	6.68×10^{-3}	58	11.8	5
N-1195-89-0	6.68×10^{-3}	58	11.8	5
N-1195-90-0	6.68×10^{-3}	58	11.8	5
N-1195-91-0	6.68×10^{-3}	58	11.8	5
N-1195-93-0	6.68×10^{-3}	58	11.8	5
N-1195-95-0	6.68×10^{-3}	276	0.0	0
N-1195-109-0	6.68×10^{-3}	900	23.7	143
Total				638

VOC

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	0.002	900	23.7	43
N-1195-69-0	0.002	100	11.8	2
N-1195-71-0	0.002	120	11.8	3
N-1195-73-0	0.002	300	11.8	7
N-1195-74-0	0.002	300	11.8	7
N-1195-75-0	0.002	300	11.8	7
N-1195-76-0	0.002	300	11.8	7
N-1195-77-0	0.002	310	11.8	7
N-1195-79-0	0.002	400	23.7	19
N-1195-80-0	0.002	400	23.7	19
N-1195-81-0	0.002	400	23.7	19
N-1195-88-0	0.002	58	11.8	1
N-1195-89-0	0.002	58	11.8	1
N-1195-90-0	0.002	58	11.8	1
N-1195-91-0	0.002	58	11.8	1
N-1195-93-0	0.002	58	11.8	1
N-1195-95-0	0.002	276	0.0	0
N-1195-109-0	0.002	900	23.7	43
Total				188

SOx

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	2.05×10^{-3}	900	23.7	44
N-1195-69-0	2.05×10^{-3}	100	11.8	2
N-1195-71-0	2.05×10^{-3}	120	11.8	3
N-1195-73-0	2.05×10^{-3}	300	11.8	7
N-1195-74-0	2.05×10^{-3}	300	11.8	7
N-1195-75-0	2.05×10^{-3}	300	11.8	7
N-1195-76-0	2.05×10^{-3}	300	11.8	7
N-1195-77-0	2.05×10^{-3}	310	11.8	8
N-1195-79-0	2.05×10^{-3}	400	23.7	19
N-1195-80-0	2.05×10^{-3}	400	23.7	19
N-1195-81-0	2.05×10^{-3}	400	23.7	19
N-1195-88-0	2.05×10^{-3}	58	11.8	1
N-1195-89-0	2.05×10^{-3}	58	11.8	1
N-1195-90-0	2.05×10^{-3}	58	11.8	1
N-1195-91-0	2.05×10^{-3}	58	11.8	1
N-1195-93-0	2.05×10^{-3}	58	11.8	1
N-1195-95-0	2.05×10^{-3}	276	0.0	0
N-1195-109-0	2.05×10^{-3}	900	23.7	44
Total				191

PM₁₀

Permit #	Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
N-1195-68-0	2.20 X 10 ⁻³	900	23.7	47
N-1195-69-0	2.20 X 10 ⁻³	100	11.8	3
N-1195-71-0	2.20 X 10 ⁻³	120	11.8	3
N-1195-73-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-74-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-75-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-76-0	2.20 X 10 ⁻³	300	11.8	8
N-1195-77-0	2.20 X 10 ⁻³	310	11.8	8
N-1195-79-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-80-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-81-0	2.20 X 10 ⁻³	400	23.7	21
N-1195-88-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-89-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-90-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-91-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-93-0	2.20 X 10 ⁻³	58	11.8	2
N-1195-95-0	2.20 X 10 ⁻³	276	0.0	0
N-1195-109-0	2.20 X 10 ⁻³	900	23.7	47
Total				213

Solvent Degreasers (Permit #'s N-1195-16-0, N-1195-17-0, N-1195-96-0, N-1195-97-0 & N-1195-98-0):

N-1195-16-0, N-1195-17-0 & N-1195-97-0:

VOC: (6.27 lb/gal)(36.9 gal/yr) = 231 lb/yr

N-1195-96-0 & 1195-98-0:

VOC: (6.4 lb/gal)(164.2 gal/yr) = 1,051 lb/yr

Liquid Oxygen Cleaning Cart Station (Permit # N-1195-127-0):

This operation utilized 1,1,1 - trichloroethane which is not a VOC per District rule 1020 section 3.53. Therefore no VOC emission reductions occurred and no ERCs will be issued for the shut-down of this equipment.

Fiberglass Repair Shop (Permit #N-1195-128-0):

This permit was transferred to Castle JPA and is still active. No reductions have occurred and no ERCs will be issued.

Unpermitted Sources:

Gasoline Powered Government Owned Vehicles:

The vehicles were relocated, not retired, therefore, no real emission reductions occurred and no ERCs will be issued.

Aerospace Ground Equipment:

(1 gasoline fired generator, 1 gasoline fired light cart, 1 gasoline fired blower, 1 gasoline fired bomblift, 2 gasoline fired air compressors, 1 diesel fired generator, 2 diesel fired bomblifts, one diesel fired stream cleaner, 1 diesel fired air conditioner, 2 diesel fired heaters, 2 diesel fired air compressors, 1 diesel fired light cart, 1 diesel fired hydraulic test stand, 1 diesel fired jacking manifold, and one JP-4 powered generator. The equipment was located at various locations around Castle AFB).

Gasoline Fired Equipment:

NOx: $(102 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 1,286 \text{ lb}/\text{yr}$
CO: $(3990 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 50,306 \text{ lb}/\text{yr}$
VOC: $(147.7 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 1862 \text{ lb}/\text{yr}$
SOx: $(5.31 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 67 \text{ lb}/\text{yr}$
PM₁₀: $(6.47 \text{ lb}/1000 \text{ gal})(12,608 \text{ gal}/\text{yr}) = 82 \text{ lb}/\text{yr}$

Diesel Fired Equipment:

NOx: $(469 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 99,831 \text{ lb}/\text{yr}$
CO: $(102 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 21,712 \text{ lb}/\text{yr}$
VOC: $(32.1 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 6,833 \text{ lb}/\text{yr}$
SOx: $(31.2 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 6,641 \text{ lb}/\text{yr}$
PM₁₀: $(33.5 \text{ lb}/1000 \text{ gallons})(212,859 \text{ gal}/\text{yr}) = 7,131 \text{ lb}/\text{yr}$

JP-4 Fired Equipment:

NOx: $(469 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 47,305 \text{ lb}/\text{yr}$
CO: $(102 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 10,288 \text{ lb}/\text{yr}$
VOC: $(32.1 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 3,238 \text{ lb}/\text{yr}$
SOx: $(6.2 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 625 \text{ lb}/\text{yr}$
PM₁₀: $(33.5 \text{ lb}/1000 \text{ gallons})(100,864 \text{ gal}/\text{yr}) = 3,379 \text{ lb}/\text{yr}$

Boilers (Buildings 759, 1248, 1253, 1360, 1404, 1405, 1509 and 1762):

Natural gas fired boilers:

Average 1989/1990 Natural Gas Usage: 33,402.6 MMBTU/yr

NOx: $(0.1 \text{ lb/mmbtu})(33,402.6 \text{ mmbtu/yr}) = 3,340 \text{ lb/yr}$

CO: $(0.021 \text{ lb/mmbtu})(33,402.6 \text{ mmbtu/yr}) = 702 \text{ lb/yr}$

VOC: $(0.005 \text{ lb/mmbtu})(33,402.6 \text{ mmbtu/yr}) = 167 \text{ lb/yr}$

SOx: $(0.0006 \text{ lb/mmbtu})(33,402.6 \text{ mmbtu/yr}) = 20 \text{ lb/yr}$

PM₁₀: $(0.012 \text{ lb/mmbtu})(33,402.6 \text{ mmbtu/yr}) = 401 \text{ lb/yr}$

Average 1989/1990 #2 Fuel Oil Usage: 59,931 gallons

NOx: $(20 \text{ lb/1000 gal})(59,931 \text{ gal/yr}) = 1,199 \text{ lb/yr}$

CO: $(5 \text{ lb/1000 gal})(59,931 \text{ gal/yr}) = 300 \text{ lb/yr}$

VOC: $(0.34 \text{ lb/1000 gal})(59,931 \text{ gal/yr}) = 20 \text{ lb/yr}$

SOx: $(78.1 \text{ lb/1000 gal})(59,931 \text{ gal/yr}) = 4,681 \text{ lb/yr}$

PM₁₀: $(2 \text{ lb/1000 gal})(59,931 \text{ gal/yr}) = 120 \text{ lb/yr}$

Paint Strip Tank (Building 1253):

VOC: $(5.2 \text{ lb/gal})(29.5 \text{ gal/yr}) = 153 \text{ lb/yr}$

Fire Fighting Training Areas:

NOx: $(4.15 \text{ lb/1000 pounds of fuel})(106,182 \text{ lb/yr}) = 441 \text{ lb/yr}$

CO: $(560 \text{ lb/1000 pounds of fuel})(106,182 \text{ lb/yr}) = 59,462 \text{ lb/yr}$

VOC: $(320 \text{ lb/1000 pounds of fuel})(106,182 \text{ lb/yr}) = 33,978 \text{ lb/yr}$

SOx: $(0.4 \text{ lb/1000 pounds of fuel})(106,182 \text{ lb/yr}) = 43 \text{ lb/yr}$

PM₁₀: $(128 \text{ lb/1000 pounds of fuel})(106,182 \text{ lb/yr}) = 13,591 \text{ lb/yr}$

Surface Coating Operations (66 unpermitted coating operations):

Paint:

VOC: $(629.2 \text{ lb/ton})(4287 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 1349 \text{ lb/yr}$

PM₁₀: $(33.1 \text{ lb/ton})(4287 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 71 \text{ lb/yr}$

Varnish:

VOC: $(1,000 \text{ lb/ton})(127 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 64 \text{ lb/yr}$

PM₁₀: $(24.0 \text{ lb/ton})(127 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 2 \text{ lb/yr}$

Lacquer:

VOC: $(708.9 \text{ lb/ton})(4669 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 1655 \text{ lb/yr}$

PM₁₀: $(31.2 \text{ lb/ton})(4669 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 73 \text{ lb/yr}$

Enamel:

VOC: $(736.8 \text{ lb/ton})(5847 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 2154 \text{ lb/yr}$

PM₁₀: $(30.2 \text{ lb/ton})(5847 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 88 \text{ lb/yr}$

Polyurethane:

VOC = $(608.7 \text{ lb/ton})(17,173 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 5,227 \text{ lb/yr}$

PM₁₀ = $(33.6 \text{ lb/ton})(17,173 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 289 \text{ lb/yr}$

Primer:

VOC: $(595.7 \text{ lb/ton})(1838 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 547 \text{ lb/yr}$

PM₁₀: $(38.4 \text{ lb/ton})(1838 \text{ lb/yr})(1 \text{ ton}/2000 \text{ lb}) = 35 \text{ lb/yr}$

Thinner (for other than coating reducer):

VOC: 6,912 lb/yr

Solvent Degreasers (Buildings 59, 1200, 1335, 1344, 1550, 1260, 1532, 1253, and in the ACRP bearing shop):

VOC (SK-105 Solvent): $(6.4 \text{ lb/gal})(574.3 \text{ gal/yr}) = 3676 \text{ lb/yr}$

VOC(PD-680 Solvent): $(6.27 \text{ lb/gal})(24.7 \text{ gal/yr}) = 155 \text{ lb/yr}$

VOC (MEK Solvent): $(6.7 \text{ lb/gal})(246.3 \text{ gal}) = 1650 \text{ lb/yr}$

Aircraft Wash Racks:

The baseline period emissions will be calculated directly utilizing solvent and solvent loss information provided by the applicant.

VOC: $(6.7 \text{ lb/gal})(7,141.3 \text{ gal/yr}) = 47,847 \text{ lb/yr}$

Gasoline Fired Emergency Generators (7 generators at unspecified locations on CAFB):

NOx

Emission Factor (lb/bhp- r)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.011	6	11.8	1
0.011	6	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
0.011	10	11.8	1
Total			7

CO

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.439	6	11.8	31
0.439	6	11.8	31
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
0.439	10	11.8	52
Total			322

VOC

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.02	6	11.8	1
0.02	6	11.8	1
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
0.02	10	11.8	2
Total			12

SOx

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
5.91×10^{-4}	6	11.8	0
5.91×10^{-4}	6	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
5.91×10^{-4}	10	11.8	0
Total			0

PM₁₀

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
7.21×10^{-4}	6	11.8	0
7.21×10^{-4}	6	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
7.21×10^{-4}	10	11.8	0
Total			0

Diesel Fired Emergency Generators (40 generators at unspecified locations on CAFB):

NOx

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.031	10	11.8	4
0.031	10	11.8	4
0.031	10	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	12	11.8	4
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	24	11.8	9
0.031	30	11.8	11
0.031	40	11.8	15
0.031	6	11.8	2
0.031	6	11.8	2
0.031	15	11.8	6
0.031	75	11.8	27
0.031	0.75	11.8	0
0.031	8	11.8	3
0.031	8	11.8	3
0.031	60	11.8	22
0.031	60	11.8	22
0.031	60	11.8	22
0.031	11	11.8	4
0.031	11	11.8	4
0.031	3	11.8	1
0.031	250	23.7	184
0.031	250	23.7	184
0.031	250	23.7	184
0.031	250	23.7	184
0.031	15	23.7	11
0.031	3.5	11.8	1
0.031	3.5	11.8	1
0.031	3.5	11.8	1
Total			987

CO

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	10	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	12	11.8	1
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	24	11.8	2
6.68 X 10 ⁻³	30	11.8	2
6.68 X 10 ⁻³	40	11.8	3
6.68 X 10 ⁻³	6	11.8	1
6.68 X 10 ⁻³	6	11.8	1
6.68 X 10 ⁻³	15	11.8	1
6.68 X 10 ⁻³	75	11.8	6
6.68 X 10 ⁻³	0.75	11.8	0
6.68 X 10 ⁻³	8	11.8	1
6.68 X 10 ⁻³	8	11.8	1
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	60	11.8	5
6.68 X 10 ⁻³	11	11.8	1
6.68 X 10 ⁻³	11	11.8	1
6.68 X 10 ⁻³	3	11.8	0
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	250	23.7	40
6.68 X 10 ⁻³	15	23.7	2
6.68 X 10 ⁻³	3.5	11.8	0
6.68 X 10 ⁻³	3.5	11.8	0
6.68 X 10 ⁻³	3.5	11.8	0
Total			217

VOC:

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
0.002	10	11.8	0
0.002	10	11.8	0
0.002	10	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	12	11.8	0
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	24	11.8	1
0.002	30	11.8	1
0.002	40	11.8	1
0.002	6	11.8	0
0.002	6	11.8	0
0.002	15	11.8	0
0.002	75	11.8	2
0.002	0.75	11.8	0
0.002	8	11.8	0
0.002	8	11.8	0
0.002	60	11.8	1
0.002	60	11.8	1
0.002	60	11.8	1
0.002	11	11.8	0
0.002	11	11.8	0
0.002	3	11.8	0
0.002	250	23.7	12
0.002	250	23.7	12
0.002	250	23.7	12
0.002	250	23.7	12
0.002	15	23.7	1
0.002	3.5	11.8	0
0.002	3.5	11.8	0
0.002	3.5	11.8	0
Total			61

SOx:

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	10	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	12	11.8	0
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	24	11.8	1
2.05 X 10 ⁻³	30	11.8	1
2.05 X 10 ⁻³	40	11.8	1
2.05 X 10 ⁻³	6	11.8	0
2.05 X 10 ⁻³	6	11.8	0
2.05 X 10 ⁻³	15	11.8	0
2.05 X 10 ⁻³	75	11.8	2
2.05 X 10 ⁻³	0.75	11.8	0
2.05 X 10 ⁻³	8	11.8	0
2.05 X 10 ⁻³	8	11.8	0
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	60	11.8	2
2.05 X 10 ⁻³	11	11.8	0
2.05 X 10 ⁻³	11	11.8	0
2.05 X 10 ⁻³	3	11.8	0
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	250	23.7	12
2.05 X 10 ⁻³	15	23.7	1
2.05 X 10 ⁻³	3.5	11.8	0
2.05 X 10 ⁻³	3.5	11.8	0
2.05 X 10 ⁻³	3.5	11.8	0
Total			64

PM₁₀

Emission Factor (lb/bhp-hr)	Engine Rating (bhp)	Average 1989/1990 Operation (hr)	Emissions (lb/yr)
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	10	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	12	11.8	0
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	24	11.8	1
2.20 X 10 ⁻³	30	11.8	1
2.20 X 10 ⁻³	40	11.8	1
2.20 X 10 ⁻³	6	11.8	0
2.20 X 10 ⁻³	6	11.8	0
2.20 X 10 ⁻³	15	11.8	0
2.20 X 10 ⁻³	75	11.8	2
2.20 X 10 ⁻³	0.75	11.8	0
2.20 X 10 ⁻³	8	11.8	0
2.20 X 10 ⁻³	8	11.8	0
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	60	11.8	2
2.20 X 10 ⁻³	11	11.8	0
2.20 X 10 ⁻³	11	11.8	0
2.20 X 10 ⁻³	3	11.8	0
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	250	23.7	13
2.20 X 10 ⁻³	15	23.7	1
2.20 X 10 ⁻³	3.5	11.8	0
2.20 X 10 ⁻³	3.5	11.8	0
2.20 X 10 ⁻³	3.5	11.8	0
Total			68

Underground Diesel Storage Tanks (Building 502):

1990 Diesel Losses: 8 lb (EPA's Tanks Program)

1989 Diesel Losses: $(8 \text{ lb})(0.97) = 8 \text{ lb}$ (See Baseline Data Section)

Average 1989/1990 VOC emissions: $(8 \text{ lb} + 8 \text{ lb}) \div 2 = 8 \text{ lb/yr}$

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because the contents (diesel) had a True Vapor Pressure of less than 1.5 psia and the tank capacities were less than 40,000 gallons each therefore no emission controls were required. Additionally, CAFB utilized no emission controls therefore no deductions are required for the purpose of ensuring that all reductions are real and surplus.

JP-4 Loading Racks:

EF_{VOC} : 0.4 lb/1000 gallons

Ave. 1989/1990 JP-4 Throughput: 1,951,776 gallons

Ave. 1989/1990 VOC Emissions: $(0.4 \text{ lb VOC}/1000 \text{ gal})(1,951,776 \text{ gal}) = 781 \text{ lb}$

Diesel Loading Racks:

EF_{VOC} : 0.03 lb/1000 gal

Ave. 1089/1990 Diesel Throughput: 719,812 gallons

Ave. 1989/1990 VOC Emissions: $(0.03 \text{ lb VOC}/1000 \text{ gal})(719,812 \text{ gal}) = 22 \text{ lb/yr}$

D. Actual Emission Reductions (AER):

Per District rule 2201, Section 6.5.2, for the shutdown of emission units:

AER = HAE (for the unit prior to shutdown)

The baseline period records were not broken down by calendar quarter and the applicant does not have the information necessary to do so. Based on the types of operations at the base it is reasonable to assume that the emissions were uniform throughout the year. The reductions will be distributed assuming there were 90 days in quarter 1, 91 days in quarter 2 and 92 days in each quarter 3 and quarter 4.

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	43,957	36,588	35,611	3,364	6,947
Quarter 2	44,446	36,994	36,007	3,401	7,024
Quarter 3	44,934	37,401	36,402	3,438	7,101
Quarter 4	44,934	37,401	36,402	3,438	7,101

E. Air Quality Improvement Deduction:

Per the California Health and Safety Code, Section 40709.7, a 5% air quality improvement deduction will be made. The deductions are as follows:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	2,198	1,829	1,781	168	347
Quarter 2	2,222	1,850	1,800	170	351
Quarter 3	2,247	1,870	1,820	172	355
Quarter 4	2,247	1,870	1,820	172	355

F. Increase In Permitted Emissions (IPE):

No IPE associated with this project.

G. Bankable Emissions Reductions:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	41,759	34,759	33,830	3,196	6,600
Quarter 2	42,224	35,144	34,207	3,231	6,673
Quarter 3	42,687	35,531	34,582	3,266	6,746
Quarter 4	42,687	35,531	34,582	3,266	6,746
Total Annual	169,357	140,965	137,201	12,959	26,765

VI. Compliance:

A. Real Reductions:

The reductions were generated by shutting down emission units. Had the emission units not been shut down the emissions could still be occurring. Therefore the reductions are real.

B. Enforceable Reductions:

Permitted Units:

The Permits To Operate have been surrendered to the District. Operation of the equipment without a Permit would result in enforcement action being taken. Therefore the reductions are enforceable.

Unpermitted Units:

Although this equipment is exempt from District permits, the District is not prohibited by state law from issuing permits for this equipment.

Should any of this equipment be brought back into service, or should new, similar equipment be brought into service, District rule 2301, section 4.2.4 requires that permits be obtained and that conditions be placed on the permits that will ensure that the Emission Reduction Credits remain valid. Therefore the reductions are enforceable.

C. Quantifiable Reductions:

The reductions were calculated utilizing actual operating hours and approved emission factors or material usage and mass balance. Therefore the reductions are quantifiable.

D. Permanent Reductions:

Permitted Units:

The Permits To Operate have been surrendered to the District. Operation of the equipment without a Permit would result in enforcement action being taken. Therefore the reductions are permanent.

Unpermitted Units:

Although this equipment is exempt from District permits, the District is not prohibited by state law from issuing permits for this equipment.

Should any of this equipment be brought back into service, or should new, similar equipment be brought into service, District rule 2301, section 4.2.4 requires that permits be obtained and that conditions be placed on the permits that will ensure that the Emission Reduction Credits remain valid. Therefore the reductions are permanent.

E. Surplus Reductions:

This section will contain an explanation of what action was taken to ensure that all emission reductions during the baseline period are surplus:

Classified Document and Medical Waste Incinerators:

These operations were subject to Merced County APCD rule 417 (Incinerator Burning). This rule required only that incineration occur in a multi-chamber incinerator or other equipment determined by the Air Pollution Control Officer to be equivalent. The incinerators were the multi-chamber type, therefore the reductions are surplus.

Metal Parts and Products Coating Operations:

These operations were subject to Merced County APCD rule 409.4 (Surface Coating Of Manufactured Metal Parts And Products). The reductions were calculated utilizing the VOC content limit of the rule therefore the reductions are surplus.

Natural Gas and Diesel Fired Boilers:

This equipment was subject to Merced County rules 407 (Sulfur Compounds) and 408 (Fuel Burning Equipment). The emissions did not exceed the concentrations and rates specified in these rules therefore the reductions are surplus.

Fixed roof underground JP-4 storage tank:

The Storage Of Organic Liquids rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to underground tanks with capacities of less than 40,000 gallons. Therefore the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Fixed Roof Aboveground JP-4 Storage Tanks:

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because their capacities were less than 40,000 gallons each therefore no emission controls were required. Additionally, CAFB utilized no emission controls. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Floating Roof Aboveground JP-4 Storage Tanks:

These operations were subject to Merced County APCD Rule 410 (Storage Of Organic Liquids). The rule required only that certain equipment be in place. No numerical emission rate or concentration limits applied. The required equipment was properly installed and operated. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Fixed roof underground diesel storage tanks:

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because their capacities were less than 40,000 gallons therefore no emission controls were required. Additionally, CAFB utilized no emission controls. Therefore the reductions calculated utilizing the EPA Tanks 3 program are surplus.

Diesel and gasoline fired IC engines powering generators:

No regulations that limited emissions or equipment type applied to these operations during the baseline period. No adjustments to the referenced emission factors are required therefore the calculated reductions are surplus.

Solvent Degreasers:

The Organic Solvent Degreasing Operations rule in affect during the baseline period (Merced County Rule 409.3) required only that certain equipment be utilized, no emission concentration or rate limits were specified. The equipment specifications were met therefore the calculated reductions are surplus.

Aerospace Ground Equipment:

No regulations that limited emissions or equipment type applied to these operations during the baseline period. Therefore the calculated reductions are surplus.

Paint Strip Tank:

The organic solvents rule in affect during the baseline period (Merced County APCD Rule 409) limited the emissions to 40 pounds per day of photochemically reactive material and 3,000 pounds per day of non-photochemically reactive material. The emissions were less than 40 pounds per day and CAFB was in compliance with this rule. Therefore the calculated reductions are surplus.

Fire Fighting Training Areas:

No regulations that limited the emissions or equipment type applied to this operation during the baseline period. Therefore the calculated reductions are surplus.

Aircraft Wash Racks:

The solvent utilized in this operation was non-photochemically reactive. The organic solvent rule in affect during the baseline period (Merced County APCD Rule 409) limited the emissions of non-photochemically reactive solvents to 3,000 pounds per day. The daily emissions were less than 3,000 pounds per day therefore the calculated reductions are surplus.

Fixed Roof Underground Diesel Storage Tanks (Building 502):

The Storage Of Organic Liquids Rule in affect during the baseline period (Merced County APCD Rule 410) did not apply to these tanks because the contents (diesel) had a True Vapor Pressure of less than 1.5 psia. Additionally, CAFB utilized no emission controls. Therefore, the reductions calculated utilizing the EPA Tanks 3 program are surplus.

JP-4 Loading Racks:

This operation was subject to Merced County rule 412 (Organic Liquid Loading) which required 90% VOC control. The uncontrolled emissions calculated utilizing AP-42 emissions were adjusted downward by 90%. Therefore, the calculated reductions are surplus.

Diesel Loading Racks:

The Organic Liquid Loading Rule in affect during the baseline period (Merced County APCD Rule 412) did not apply to this operation because the True Vapor Pressure of diesel is less than 1.5 psia. Additionally, CAFB utilized no controls. Therefore the calculated reductions are surplus.

F. Timeliness:

The California Health and Safety Code Section 40709.7 states that a military base is eligible to file for Emission Reduction Credits (ERCs) provided that an application for ERCs is received by June 1, 1995 or within 180 days after the emission reduction occurred. The application for ERCs was received on May 24, 1995. Therefore the application for ERCs was timely.

VII. Recommendation:

Issue the following quantity of ERCs after the appropriate public notice period and after all relevant comments have been addressed:

	NOx (lb)	CO (lb)	VOC (lb)	SOx (lb)	PM ₁₀ (lb)
Quarter 1	41,759	34,759	33,830	3,196	6,600
Quarter 2	42,224	35,144	34,207	3,231	6,673
Quarter 3	42,687	35,531	34,582	3,266	6,746
Quarter 4	42,687	35,531	34,582	3,266	6,746
Total Annual	169,357	140,965	137,201	12,959	26,765

The Merced Sun Star

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDIT CERTIFICATES**

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer solicits public comment on the proposed issuance of emission reduction credit certificates to the Castle Joint Powers Authority for the shutdown of the Castle Air Force Base. The quantity of emission reductions credits proposed is 169,357 pounds per year of NOx, 140,965 pounds per year of CO, 137,201 pounds per year of VOC, 12,959 pounds per year of SOx and 26,765 pounds per year of PM10.

The analysis of the regulatory basis for these certificates, and of the resulting effect on ambient air quality, is available for public inspection at the District office at the address below. Written comments on Project # 950288 must be submitted within 30 days of the publication date of this notice to SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, NORTHERN REGION, 4230 Kiernan Ave., Suite 130, Modesto, California, 95356.

NORTHERN REGION

CENTRAL REGION

SOUTHERN REGION

ERC/PUBLIC NOTICE CHECK LIST

PROJECT# 950288

MODEM FILE NAME: CAS50288.pbc

REQST. COMPL.

- ERC TRANSFER OF PREVIOUSLY BANKED CREDITS
- ERC PRELIMINARY PUBLIC NOTICE
- ERC FINAL PUBLIC NOTICE
- NSR/CEQA PRELIMINARY PUBLIC NOTICE
- NSR/CEQA FINAL PUBLIC NOTICE

ENCLOSED DOCUMENTS REQUIRE:

Enter Correct Date, Print All Documents from Modemed File and Obtain Directors Signature

Send **PRELIMINARY** Notice Letters to CARB, EPA and Applicant; Including the Following Attachments:

Application Evaluation

Other Public Notice

Send **PRELIMINARY** Public Notice for Publication to The Merced Sun Star

Send Signed Copies of **PRELIMINARY** Notice Letters to Regional Office Attn: Anthony Mendes

Director's Signature and District Seal Embossed on ERC Certificates

Director's Signature on Cover Letter and Mail Cover Letter & ERC Certificates by Certified Mail to:

Applicant: _____

Applicant and Additional Addressees (see cover letters)

Other _____

Send Copies of Signed and Seal Embossed ERC Certificates and Signed cover letter to Regional Office Attn: _____

Other Special Instructions (please specify) _____

Date Completed _____/By _____

Date Added to Seyed Directory: C:\AW directory on 4/2/97
Upon Completion FAX to Regional Office Attn: Mark Schonhoff

Rec'd
4/1/97
Z



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 93D COMBAT SUPPORT GROUP (SAC)
CASTLE AIR FORCE BASE, CALIFORNIA 95342-5000

MAY 22 1992

Mr John Lathrop
San Joaquin Valley Unified Air Pollution Control District
Merced County Zone
385 E. 13th Street
Merced, CA 95340

Dear Mr Lathrop

Attached please find the air emission inventory for 1991. The air emission inventory estimates the air emissions from sources at Castle. This inventory should be used as Castle's baseline inventory. This inventory will be used when calculating emission reductions credits as the base closes.

If you have any questions, please call Lt Scanlon at 726-4841.

A handwritten signature in cursive script that reads "Thomas R. Baker".

THOMAS R. BAKER, Lt Col, USAF
Chief, Environmental Studies & Issues

1 Atch
Air Inventory

I. Introduction

II. Discussion

III. Conclusion

IV. Recommendations

V. Results

Appendix -

A. Point of contacts

B. Definition of terms

✓C. Incinerators

✓D. Fire fighting

E. Heating, power production

✓F. Aircraft flying operations

G. Surface Coatings

H. Generators

I. AGE

J. Fuel evaporation losses

K. Aircraft ground ops

L. Motor vehicles

M. Miscellaneous

I. INTRODUCTION

An air emission inventory was conducted at Castle AFB for FY 1991, by 2Lt Paula Scanlon of Environmental Management of the Civil Engineering Squadron. The air emission inventory complies with guidelines established in AFR 19-7, Environmental Pollution Monitoring, and AFR 161-33, the Aerospace Medicine Program.

I collected and used emission source data for FY 1991 to calculate yearly emission rates for the following classes of pollutants: oxides of nitrogen (NOx), oxides of sulfur (SOx), carbon monoxide (CO), particulates (PA), and hydrocarbons (HC). I inventoried the following emission sources: incinerators, heat and power production facilities, surface coating operations, fuel storage tanks, motor vehicles, aerospace ground equipment, aircraft ground operations, and aircraft flying operations.

The air emission inventory is an estimate of annual mass emissions of PA, SOx, CO, HC, NOx generated from the installation. I calculated pollutant emission per source by multiplying the usage factor (amount of fuel consumed/stored or surface coating used) by appropriate emission factors. Emission factors were taken from sources listed in the bibliography. I included all calculations and emission factor sources so base personnel can use it as a guide for future inventories.

II. DISCUSSION

Air emission inventories are one method of assessing air pollution. Other methods include air quality models and air quality measurements. The advantages of the air emission inventory are low cost, ability to provide historical emission comparisons with operational changes, and low skill less requirements. The disadvantages are the inability to relate the results to health and welfare or air quality standards (ambient air concentrations) and accuracy limitations.

The accuracy of the emission inventory is limited by the accuracy of the data collected and applicable emission factors used. The source data for this report were obtained from those offices tasked with maintaining related records. Usage factors were based on the following:

- a. Classified incinerator - Since the incinerated material is classified, records are not kept. The usage factor was estimated by the operator.
- b. Pathological incinerator - The usage factor was estimated by the operator.
- c. Fire fighting practice pits: Records.
- d. Heating and power production: The total gallons of fuel usage was used.
- e. Aircraft flying operations: Report of touch & gos and landings and takeoffs from Col. Baker.
- f. Aerospace ground equipment: Total usage factor was given by operator.

g. Aircraft ground operations: Information given by operator.

h. Motor vehicles: Information from Pass & Registration. We estimated that privately owned vehicles would travel 5mi/day. Government vehicle fuel usage was known.

i. Internal Combustion Engines: Information obtained from Internal Combustion Report. It was estimated that construction equipment is used 20hr/wk for 6 mo. It was estimated that lawn equipment is used 40hr/wk for 6 mo. Emergency generator usage is known.

j. Surface Coatings: Information obtained from case files in Bioenvironmental Engineering.

k. Fuel Evaporation Losses: JP-4 from 1981 Emission Report since fuel usage was the same amount in 1990 as in 1981. Diesel and Gas fuel usage was obtained from fuels management.

The emission factors are obtained from source tests, material balance studies and engineering estimates. They are statistical or estimated averages with no consideration to process parameters (temperature, reactant concentrations, etc.). When these factors are used discriminately, they do give a reasonable estimate and are best employed for yearly comparisons.

III. CONCLUSIONS

A. The total emission for each pollutant is summarized in Table 1.

B. The largest air pollutant source for the base is aircraft flying operations.

C. As stated previously, these results can't be directly correlated to health or welfare standards but rather serve as a basis of comparison for subsequent inventories.

D. This emission inventory can be used to document the relative contribution of the base to the air pollution load of the local community, study the impact of proposed mission changes on the environment, and provide base line data for initiating or managing emission controls.

IV. RECOMMENDATIONS

A. This inventory report should be used as a basis of comparison for future inventories and as a guideline by base personnel for preparation of future emission inventories.

B. This inventory should be maintained and updated as required by the base, State of California or other regulatory agencies.

TABLE A: TOTAL POLLUTANTS
 AIR POLLUTION EMISSIONS INVENTORY (FY 91)
 POLLUTANTS EMITTED IN U.S. TONS/YR

POLLUTION SOURCES	PA	SOX	CO	HC	NOX
✓ A. INCINERATORS:					
CLASSIFIED	8.75E-03	3.13E-03	4.38E-02	1.88E-03	3.75E-03
PATHOLOGICAL	3.64E-03	5.00E-06	5.00E-06	5.00E-06	1.37E-03
✓ B. FIRE FIGHTING:	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. HEATING & POWER					
NATURAL	1.63E-01	7.58E-01	2.98E+00	7.89E-01	1.49E+01
DIESEL	1.75E-01	1.73E-01	5.67E-01	2.09E-01	2.61E+00
D. ACFT FLYING OPS	3.51E+01	5.73E+01	2.15E+03	1.62E+03	4.19E+02
E. SURFACE COATINGS					
ENAMEL				6.20E-01	
PAINT				6.10E-01	
VARNISH				2.00E-02	
LACQUER				9.10E-01	
PRIMER				3.10E-01	
SHELLAC				2.18E+00	
THINNER				1.06E+01	
F. I.C. ENGINES	9.96E-01	5.90E-01	3.30E+02	3.56E+01	6.07E+00
G. AGE GROUND EQUIP					
J-P4	1.72E+00	3.17E-01	5.22E+00	1.64E+00	2.40E+01
MOGAS	4.14E-02	3.40E-02	2.55E+01	9.45E-01	6.53E-01
DIESEL	3.62E+00	3.37E+00	1.10E+01	3.47E+00	5.07E+01
H. FUEL EVAP LOSSES					
JP-4				9.29E+01	
GAS				1.80E+00	
DIESEL				3.20E-03	
I. ACFT GROUND OPS					
TRIM/POWER	1.11E+00	7.16E-01	5.44E+00	4.19E+00	7.35E+00
J. MOTOR VEHICLES	1.02E+01	4.82E+00	2.88E+02	4.82E+01	5.08E+01
K. MISCELLANEOUS				3.90E+01	
TOTAL:	53.11	68.08	2817.93	1864.06	576.10

419 tons/yr

TABLE B: STATIONARY SOURCE POLLUTANTS
 AIR POLLUTION EMISSIONS INVENTORY (FY 91)
 POLLUTANTS EMITTED IN U.S. TONS/YR

POLLUTION SOURCES	PA	SOX	CO	HC	NOX
A. INCINERATORS:					
CLASSIFIED	8.75E-03	3.13E-03	4.38E-02	1.88E-03	3.75E-03
PATHOLOGICAL	3.64E-03	5.00E-06	5.00E-06	5.00E-06	1.37E-03
B. FIRE FIGHTING:	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. HEATING & POWER					
NATURAL	1.63E-01	7.58E-01	2.98E+00	7.89E-01	1.49E+01
DIESEL	1.75E-01	1.73E-01	5.67E-01	2.09E-01	2.61E+00
D. SURFACE COATINGS					
ENAMEL				6.20E-01	
PAINT				6.10E-01	
VARNISH				2.00E-02	
LACQUER				9.10E-01	
PRIMER				3.10E-01	
SHELLAC				2.18E+00	
THINNER				1.06E+01	
E. I.C. ENGINES	9.96E-01	5.90E-01	3.30E+02	3.56E+01	6.07E+00
F. FUEL EVAP LOSSES					
JP-4				9.29E+01	
GAS				1.80E+00	
DIESEL				3.20E-03	
G. ACFT GROUND OPS					
TRIM/POWER	1.11E+00	7.16E-01	5.44E+00	4.19E+00	7.35E+00
H. MISCELLANEOUS				3.90E+01	
TOTAL:	2.46	2.24	338.61	189.80	30.96

AIR EMISSION INVENTORY 1991
POINT OF CONTACTS FOR INFORMATION

INCINERATORS: MR JOHNSON X 2543
BLDG 533 X 2281

FIRE FIGHTING: SGT HUNTER X 2441

HEATING AND POWER PRODUCTION: SGT BARNHILL X 2307
FRED LINDINBERG

AIRCRAFT FLYING OPERATIONS: LT. COL BAKER'S REPORT ON MISSIONS

AEOSPACE GOUND EQUIPMENT: SGT WILLIAMS X 4279

AIRCRAFT GROUND OPERATIONS: TSGT MIROLSER X 4538

MOTOR VEHICLES: PASS & REGISTRATION X 2181

INTERNAL COMBUSTION ENGINES: REPORT IN FILE

FUEL EVAPORATION LOSSES: FUELS X 2486

SURFACE COATINGS: CASE FILES AT BIOENVIRONMENTAL ENGINEERING.

AIR POLLUTANTS

Air pollutants are contaminants in the atmosphere. The presence in the outdoor atmosphere of one or more contaminants or combinations thereof, in such quantities and of such duration as may be or may tend to be injurious to human, plant, or animal life, or property, or which unreasonably interferes with the comfortable enjoyment of life or property or the conduct of business.

CARBON MONOXIDE

Carbon monoxide (CO) is a colorless and odorless gas. It is very stable and has a lifetime of two to four months in the atmosphere. CO is the most widely distributed and most commonly occurring air pollutant. The total emissions of CO to the atmosphere exceed those of all other air pollutants combined. The national emissions of carbon monoxide are roughly 85.4 million metric tons per year in 1980, of which approximately 90 percent is from man-made sources.

HYDROCARBONS

Hydrocarbon (HC) pollutants originate primarily from the incomplete combustion of fuels, particularly the more volatile fuels such as gasoline, and from the use of hydrocarbons to process raw materials such as solvents. The major man-made sources are gasoline-powered vehicles, but also include other types of vehicles such as aircraft. Man-made stationary sources which emit hydrocarbons primarily, include petroleum and petrochemical operations and solvent usage, with some contribution from waste burning. Hydrocarbons are not, by themselves, generally considered a health hazard; rather, it is their reaction with other pollutants and sunlight which produces photochemical smog. This condition reduces visibility and can cause eye irritation and an aggravation of respiratory problems.

SULFUR DIOXIDE

Sulfur dioxide (SO₂) is the dominant oxide of sulfur present in the atmosphere. SO₂ is a nonflammable, nonexplosive, colorless gas. It can act as either a reducing agent or as an oxidizing agent and it can react with materials in the air to form sulfur trioxide, sulfurous acid, and sulfate salts. Sulfur dioxide is generated during the combustion of any sulfur-bearing raw materials. Combustion of fuels account for over 90 percent of all SO₂ emitted. This is due to the relatively high sulfur content of some bituminous coals and residual fuel oils, and to the very large amounts of these fuels consumed in this country and around the world as a source of power.

OXIDES OF NITROGEN

Of the various oxides of nitrogen (NO_x), only nitric oxide (NO) and nitrogen dioxide (NO₂) are considered important air pollutants. NO is formed when combustion takes place at a high enough temperature to cause a reaction between the nitrogen and oxygen in the air. Temperatures this high are reached only in efficient combustion processes or when combustion takes place at high pressure. These conditions are primarily found in automobile or aircraft engine cylinders, electric power plants, and other very large energy conversion processes. Nitric oxide, which is relatively harmless, is the form generally emitted into the atmosphere. It will, at varying times, oxidize to

NO2 which is considerably a more toxic gas. This oxidation process is a product or by-product of a number of industries including fertilizer and explosives manufacturing.

PARTICULATE MATTER

Particulate matter (PM) or total suspended particulates (TSP) are defined as any material (Except uncombined water) that exists as a solid or liquid in the atmosphere or in a gas stream under standard conditions or temperature and pressure. Particles discharged in the atmosphere may be in the form of fly ash, soot, dust, fog, or fumes. Small particles are produced by condensation grinding, spraying and pulverization by vehicles and pedestrians. Natural sources include ocean salt, volcanic ash, wind erosion, forest fire smoke and ash, and plant and seed pollen.

REFERENCE: Manual Calculation Methods for Air Pollution Inventories, May 1988.

AIR EMISSIONS INVENTORY 1991

INCINERATORS:

CLASSIFIED WASTE: PAPER MULTIPLE CHAMBER
 AVE WASTE PER BURN: 100 LB/BURN
 BURNS/YR: 50

POLLUTANT	BURNS/YR	TONS/BURN	EM FACTOR	LB POL/YR	TON/YR
PA	50	0.05	7	17.50	8.75E-03
SOX	50	0.05	2.5	6.25	3.13E-03
CO	50	0.05	10	25.00	1.25E-02
HC	50	0.05	3	7.50	3.75E-03
NOX	50	0.05	3	7.50	3.75E-03

PATHOLOGICAL INCINERATOR

AVE WASTE PER BURN: 35 LB/BURN
 BURNS/YR: 52

POLLUTANT	BURNS/YR	TONS/BURN	EM FACTOR	LB POL/YR	TON/YR
PA	52	0.0175	8	7.28	3.64E-03
SOX	52	0.0175	0.01	0.01	4.55E-06
CO	52	0.0175	0.01	0.01	4.55E-06
HC	52	0.0175	0.01	0.01	4.55E-06
NOX	52	0.0175	3	2.73	1.37E-03

REFERENCE: AP-42 PG. 2.1-2, TABLE 2.1-1, VOL 1, 1985

✓ FIRE FIGHTING PRACTICE PITS

$$\left(310.78 \frac{\text{gal fuel}}{\text{burn}} \right) \left(51 \frac{\text{burns}}{\text{yr}} \right) \left(\frac{6.7 \text{ lb fuel}}{\text{gal}} \right) \left(\frac{128 \text{ lb PA}}{1000 \text{ lb fuel}} \right)$$

YEAR 1989:
 FUEL: 310.78 GAL/BURN JP4
 DESITY OF JP4: 6.7 LB/ GAL

POLLUTANT	BURNS/YR	1000LBFUEL/BN	EM FACTOR	LB POL/YR	TON/YR
PA	51	2.082	128	13591.30	6.80E+00
SOX	51	2.082	0.4	42.47	2.12E-02
CO	51	2.082	560	59461.92	2.97E+01
HC	51	2.082	320	33978.24	1.70E+01
NOX	51	2.082	4.15	440.66	2.20E-01

YEAR 1990:
 FUEL: 3500 GAL/8 BURNS= 437.5 GAL/BURN
 DENSITY OF JP4: 6.7 LB/GAL

POLLUTANT	BURNS/YR	1000LBFUEL/BN	EM FACTOR	LB POL/YR	TON/YR
PA	8	2.93	128	3000.32	1.50E+00
SOX	8	2.93	0.4	9.38	4.69E-03
CO	8	2.93	560	13126.40	6.56E+00
HC	8	2.93	320	7500.80	3.75E+00
NOX	8	2.93	4.15	97.28	4.86E-02

NEC:

POLLUTANT	1989	1990	1991
PA	6.80E+01	1.50E+00	0
SOX	2.12E-02	4.69E-03	0
CO	2.97E+01	6.56E+00	0
HC	1.70E+01	3.75E+00	0
NOX	2.20E-01	4.86E-02	0

REFERENCE: KIRTLAND TR AFWL-TR 73 106, QUANTITATIVE EVALUATION OF SMOKE ABATEMENT FOR CRASH/RESCUE TRAINING FACILITIES.

USAFOEHL MCCLELLAN PROF 71 M-23 1971, AIR POLLUTION EMISSIONS FROM JP-4 FIRES USED IN FIRE FIGHTING TRAINING.

$$1989 \text{ fuel} = \left(310.78 \frac{\text{gal}}{\text{burn}} \right) \left(\frac{51 \text{ burns}}{\text{yr}} \right) \left(\frac{6.7 \text{ lb fuel}}{\text{gal}} \right) = 106,194 \text{ lb}$$

$$1990 \text{ fuel} = \left(\frac{3500 \text{ gal}}{\text{yr}} \right) \left(\frac{6.7 \text{ lb fuel}}{\text{gal}} \right) = 23,450 \text{ lb}$$

Training Fire Emission Factors

	<u>Kilograms per Metric Ton of JP-4 Burned</u>
CO	560.0
HC	320.0
NO _x (as NO ₂)	4.15
Total Particulate	128.0
SO _x (SO ₂)	Neg.*

*No measurable amounts of SO₂, SO₃, were found in samples from the JP-4 fires.

HEATING AND POWER PRODUCTION

N-1195-41-0

BLDG 54
 FUEL: NATURAL GAS/OIL
 HRS USED: 50.00

~~N-1195-39-0~~

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2500000.00	0.000001	50.00	0.00	1.00	0.13	6.25E-05
SOX	2500000.00	0.000001	50.00	0.00	0.60	0.08	3.75E-05
CO	2500000.00	0.000001	50.00	0.00	20.00	2.50	1.25E-03
HC	2500000.00	0.000001	50.00	0.00	5.30	0.66	3.31E-04
NOX	2500000.00	0.000001	50.00	0.00	100.00	12.50	6.25E-03

BLDG 175
 FUEL: NATURAL GAS/OIL
 MONTHS USED:NOV-APR
 DAYS: 182.00
 HRS USED: 20.00

N-1195-39-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2250000.00	0.000001	3640.00	0.001	1.00	8.19	4.10E-03
SOX	2250000.00	0.000001	3640.00	0.001	0.60	4.91	2.46E-03
CO	2250000.00	0.000001	3640.00	0.001	20.00	163.80	8.19E-02
HC	2250000.00	0.000001	3640.00	0.001	5.30	43.41	2.17E-02
NOX	2250000.00	0.000001	3640.00	0.001	100.00	819.00	4.10E-01

BLDG 175 (BACKUP)
 FUEL: NATURAL GAS/OIL
 MONTHS USED:NOV-APR
 DAYS: 182.00
 HRS USED: 20.00

N-1195-40-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1350000.00	0.000001	3640.00	0.001	1.00	4.91	2.46E-03
SOX	1350000.00	0.000001	3640.00	0.001	0.60	2.95	1.47E-03
CO	1350000.00	0.000001	3640.00	0.001	20.00	98.28	4.91E-02
HC	1350000.00	0.000001	3640.00	0.001	5.30	26.04	1.30E-02
NOX	1350000.00	0.000001	3640.00	0.001	100.00	491.40	2.46E-01

BLDG 325
 FUEL: NATURAL GAS/OIL
 MONTHS USED:NOV-APR
 DAYS: 182.00
 HRS USED: 16.00

N-1195-19-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1200000.00	0.000001	2912.00	0.001	1.00	3.49	1.75E-03
SOX	1200000.00	0.000001	2912.00	0.001	0.60	2.10	1.05E-03
CO	1200000.00	0.000001	2912.00	0.001	20.00	69.89	3.49E-02
HC	1200000.00	0.000001	2912.00	0.001	5.30	18.52	9.26E-03
NOX	1200000.00	0.000001	2912.00	0.001	100.00	349.44	1.75E-01

2. BLDG 360
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182.00
 HRS USED: 20.00

TO JPA
 N-3489-9-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	7290000.00	0.000001	3640.00	0.001	1.00	26.54	1.33E-02
SOX	7290000.00	0.000001	3640.00	0.001	0.60	15.92	7.96E-03
CO	7290000.00	0.000001	3640.00	0.001	20.00	530.71	2.65E-01
HC	7290000.00	0.000001	3640.00	0.001	5.30	140.64	7.03E-02
NOX	7290000.00	0.000001	3640.00	0.001	100.00	2653.56	1.33E+00

BLDG 360 (BACKUP)
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182.00
 HRS USED: 20.00

TO JPA
 N-3489-10-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	7290000.00	0.000001	3640.00	0.001	1.00	26.54	1.33E-02
SOX	7290000.00	0.000001	3640.00	0.001	0.60	15.92	7.96E-03
CO	7290000.00	0.000001	3640.00	0.001	20.00	530.71	2.65E-01
HC	7290000.00	0.000001	3640.00	0.001	5.30	140.64	7.03E-02
NOX	7290000.00	0.000001	3640.00	0.001	100.00	2653.56	1.33E+00

BLDG 360 (BACKUP)
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182.00
 HRS USED: 20.00

Ry N-1195-112-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	4680000.00	0.000001	3640.00	0.001	1.00	17.04	8.52E-03
SOX	4680000.00	0.000001	3640.00	0.001	0.60	10.22	5.11E-03
CO	4680000.00	0.000001	3640.00	0.001	20.00	340.70	1.70E-01
HC	4680000.00	0.000001	3640.00	0.001	5.30	90.29	4.51E-02
NOX	4680000.00	0.000001	3640.00	0.001	100.00	1703.52	8.52E-01

BLDG 443
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182.00
 HRS USED: 16.00

N-1195-20-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2400000.00	0.000001	2912.00	0.001	1.00	6.99	3.49E-03
SOX	2400000.00	0.000001	2912.00	0.001	0.60	4.19	2.10E-03
CO	2400000.00	0.000001	2912.00	0.001	20.00	139.78	6.99E-02
HC	2400000.00	0.000001	2912.00	0.001	5.30	37.04	1.85E-02
NOX	2400000.00	0.000001	2912.00	0.001	100.00	698.88	3.49E-01

2
BLDG 443 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: NOV-APR
DAYS: 182.00
HRS USED: 16.00

N-1195-21-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2400000.00	0.000001	2912.00	0.001	1.00	6.99	3.49E-03
SOX	2400000.00	0.000001	2912.00	0.001	0.60	4.19	2.10E-03
CO	2400000.00	0.000001	2912.00	0.001	20.00	139.78	6.99E-02
HC	2400000.00	0.000001	2912.00	0.001	5.30	37.04	1.85E-02
NOX	2400000.00	0.000001	2912.00	0.001	100.00	698.88	3.49E-01

BLDG 443 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: NOV-APR
DAYS: 182.00
HRS USED: 16.00

N-1195-110-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2400000.00	0.000001	2912.00	0.001	1.00	6.99	3.49E-03
SOX	2400000.00	0.000001	2912.00	0.001	0.60	4.19	2.10E-03
CO	2400000.00	0.000001	2912.00	0.001	20.00	139.78	6.99E-02
HC	2400000.00	0.000001	2912.00	0.001	5.30	37.04	1.85E-02
NOX	2400000.00	0.000001	2912.00	0.001	100.00	698.88	3.49E-01

HEATING AND POWER PRODUCTION

W

BLDG 759
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182
 HRS USED: 16

No PTO

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	900000	0.000001	2912	0.001	1	2.62	1.31E-03
SOX	900000	0.000001	2912	0.001	0.6	1.57	7.86E-04
CO	900000	0.000001	2912	0.001	20	52.42	2.62E-02
HC	900000	0.000001	2912	0.001	5.3	13.89	6.95E-03
NOX	900000	0.000001	2912	0.001	100	262.08	1.31E-01

BLDG 786
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182
 HRS USED: 12

N-1195-45-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	720000	0.000001	2184	0.001	1	1.57	7.86E-04
SOX	720000	0.000001	2184	0.001	0.6	0.94	4.72E-04
CO	720000	0.000001	2184	0.001	20	31.45	1.57E-02
HC	720000	0.000001	2184	0.001	5.3	8.33	4.17E-03
NOX	720000	0.000001	2184	0.001	100	157.25	7.86E-02

BLDG 789
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182
 HRS USED: 10

N-1195-46-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1330000	0.000001	1820	0.001	1	2.42	1.21E-03
SOX	1330000	0.000001	1820	0.001	0.6	1.45	7.26E-04
CO	1330000	0.000001	1820	0.001	20	48.41	2.42E-02
HC	1330000	0.000001	1820	0.001	5.3	12.83	6.41E-03
NOX	1330000	0.000001	1820	0.001	100	242.06	1.21E-01

see 1991/1992 PTO's

BLDG 871
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-APR
 DAYS: 182
 HRS USED: 20

N-1195-58-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2090000	0.000001	3640	0.001	1	7.61	3.80E-03
SOX	2090000	0.000001	3640	0.001	0.6	4.56	2.28E-03
CO	2090000	0.000001	3640	0.001	20	152.15	7.61E-02
HC	2090000	0.000001	3640	0.001	5.3	40.32	2.02E-02
NOX	2090000	0.000001	3640	0.001	100	760.76	3.80E-01

BLDG 871 (USED ONLY AS BACKUP)

FUEL:NATURAL GAS/OIL

MONTHS USED: NOV-APR

DAYS: 182

HRS USED: 20

N-1195-113-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	430000	0.000001	3640	0.001	1	1.57	7.83E-04
SOX	430000	0.000001	3640	0.001	0.6	0.94	4.70E-04
CO	430000	0.000001	3640	0.001	20	31.30	1.57E-02
HC	430000	0.000001	3640	0.001	5.3	8.30	4.15E-03
NOX	430000	0.000001	3640	0.001	100	156.52	7.83E-02

BLDG 1015

FUEL:NATURAL GAS/OIL

MONTHS USED: NOV-APR

DAYS: 182

HRS USED: 18

N-1195-22-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	900000	0.000001	3276	0.001	1	2.95	1.47E-03
SOX	900000	0.000001	3276	0.001	0.6	1.77	8.85E-04
CO	900000	0.000001	3276	0.001	20	58.97	2.95E-02
HC	900000	0.000001	3276	0.001	5.3	15.63	7.81E-03
NOX	900000	0.000001	3276	0.001	100	294.84	1.47E-01

BLDG 1038

FUEL:NATURAL GAS/OIL

MONTHS USED: NOV-APR

DAYS: 182

HRS USED: 16

N-1195-59-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	350000	0.000001	2912	0.001	1	1.02	5.10E-04
SOX	350000	0.000001	2912	0.001	0.6	0.61	3.06E-04
CO	350000	0.000001	2912	0.001	20	20.38	1.02E-02
HC	350000	0.000001	2912	0.001	5.3	5.40	2.70E-03
NOX	350000	0.000001	2912	0.001	100	101.92	5.10E-02

BLDG 1182

FUEL:NATURAL GAS/OIL

MONTHS USED: ALL YEAR

DAYS: 365

HRS USED: 23

TO JPA

N-3489-4-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	8370000	0.000001	8395	0.001	1	70.27	3.51E-02
SOX	8370000	0.000001	8395	0.001	0.6	42.16	2.11E-02
CO	8370000	0.000001	8395	0.001	20	1405.32	7.03E-01
HC	8370000	0.000001	8395	0.001	5.3	372.41	1.86E-01
NOX	8370000	0.000001	8395	0.001	100	7026.62	3.51E+00

BLDG 1182 (BACKUP)
 FUEL:NATURAL GAS/OIL
 MONTHS USED: ALL YEAR
 DAYS: 365
 HRS USED: 23

TO JPA
 N-3489-5-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	8370000	0.000001	8395	0.001	1	70.27	3.51E-02
SOX	8370000	0.000001	8395	0.001	0.6	42.16	2.11E-02
CO	8370000	0.000001	8395	0.001	20	1405.32	7.03E-01
HC	8370000	0.000001	8395	0.001	5.3	372.41	1.86E-01
NOX	8370000	0.000001	8395	0.001	100	7026.62	3.51E+00

BLDG 1210
 FUEL:NATURAL GAS/OIL
 MONTHS USED: OCT-JUN
 DAYS: 274
 HRS USED: 22

N-1195-62-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	4830000	0.000001	6028	0.001	1	29.12	1.46E-02
SOX	4830000	0.000001	6028	0.001	0.6	17.47	8.73E-03
CO	4830000	0.000001	6028	0.001	20	582.30	2.91E-01
HC	4830000	0.000001	6028	0.001	5.3	154.31	7.72E-02
NOX	4830000	0.000001	6028	0.001	100	2911.52	1.46E+00

see 1991/1992 permits

BLDG 1230
 FUEL:NATURAL GAS/OIL
 MONTHS USED:NOV-MAY
 DAYS: 213
 HRS USED: 18

N-1195-48-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1120000	0.000001	3834	0.001	1	4.29	2.15E-03
SOX	1120000	0.000001	3834	0.001	0.6	2.58	1.29E-03
CO	1120000	0.000001	3834	0.001	20	85.88	4.29E-02
HC	1120000	0.000001	3834	0.001	5.3	22.76	1.14E-02
NOX	1120000	0.000001	3834	0.001	100	429.41	2.15E-01

BLDG 1230 (BACKUP)
 FUEL:NATURAL GAS/OIL
 MONTHS USED:NOV-MAY
 DAYS: 213
 HRS USED: 18

N-1195-47-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	290000	0.000001	3834	0.001	1	1.11	5.56E-04
SOX	290000	0.000001	3834	0.001	0.6	0.67	3.34E-04
CO	290000	0.000001	3834	0.001	20	22.24	1.11E-02
HC	290000	0.000001	3834	0.001	5.3	5.89	2.95E-03
NOX	290000	0.000001	3834	0.001	100	111.19	5.56E-02

Non-Permitted boiler

BLDG 1248
FUEL:NATURAL GAS/OIL
MONTHS USED:NOV-MAY
DAYS: 213
HRS USED: 16

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	700000	0.000001	3408	0.001	1	2.39	1.19E-03
SOX	700000	0.000001	3408	0.001	0.6	1.43	7.16E-04
CO	700000	0.000001	3408	0.001	20	47.71	2.39E-02
HC	700000	0.000001	3408	0.001	5.3	12.64	6.32E-03
NOX	700000	0.000001	3408	0.001	100	238.56	1.19E-01

2. BLDG 1253
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-MAY
 DAYS: 213
 HRS USED: 16

No Permit

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	4200000	0.000001	3408	0.001	1	14.31	5.00E-04
SOX	4200000	0.000001	3408	0.001	0.6	8.59	3.00E-04
CO	4200000	0.000001	3408	0.001	20	286.27	1.00E-02
HC	4200000	0.000001	3408	0.001	5.3	75.86	2.65E-03
NOX	4200000	0.000001	3408	0.001	100	1431.36	5.00E-02

BLDG 1260
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 12

N-1195-25-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2040000	0.000001	2928	0.001	1	5.97	5.00E-04
SOX	2040000	0.000001	2928	0.001	0.6	3.58	3.00E-04
CO	2040000	0.000001	2928	0.001	20	119.46	1.00E-02
HC	2040000	0.000001	2928	0.001	5.3	31.66	2.65E-03
NOX	2040000	0.000001	2928	0.001	100	597.31	5.00E-02

BLDG 1309
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 18

N-1195-49-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	360000	0.000001	4392	0.001	1	1.58	5.00E-04
SOX	360000	0.000001	4392	0.001	0.6	0.95	3.00E-04
CO	360000	0.000001	4392	0.001	20	31.62	1.00E-02
HC	360000	0.000001	4392	0.001	5.3	8.38	2.65E-03
NOX	360000	0.000001	4392	0.001	100	158.11	5.00E-02

BLDG 1310
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 18

N-1195-50-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	560000	0.000001	4392	0.001	1	2.46	5.00E-04
SOX	560000	0.000001	4392	0.001	0.6	1.48	3.00E-04
CO	560000	0.000001	4392	0.001	20	49.19	1.00E-02
HC	560000	0.000001	4392	0.001	5.3	13.04	2.65E-03
NOX	560000	0.000001	4392	0.001	100	245.95	5.00E-02

BLDG 1315
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 18

N-1195-51-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	560000	0.000001	4392	0.001	1	2.46	5.00E-04
SOX	560000	0.000001	4392	0.001	0.6	1.48	3.00E-04
CO	560000	0.000001	4392	0.001	20	49.19	1.00E-02
HC	560000	0.000001	4392	0.001	5.3	13.04	2.65E-03
NOX	560000	0.000001	4392	0.001	100	245.95	5.00E-02

BLDG 1319
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 18

~~N-1195-14-0~~ Duplication?
N-1195-26-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1200000	0.000001	4392	0.001	1	5.27	5.00E-04
SOX	1200000	0.000001	4392	0.001	0.6	3.16	3.00E-04
CO	1200000	0.000001	4392	0.001	20	105.41	1.00E-02
HC	1200000	0.000001	4392	0.001	5.3	27.93	2.65E-03
NOX	1200000	0.000001	4392	0.001	100	527.04	5.00E-02

BLDG 1320
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 18

N-1195-27-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	567000	0.000001	4392	0.001	1	2.49	5.00E-04
SOX	567000	0.000001	4392	0.001	0.6	1.49	3.00E-04
CO	567000	0.000001	4392	0.001	20	49.81	1.00E-02
HC	567000	0.000001	4392	0.001	5.3	13.20	2.65E-03
NOX	567000	0.000001	4392	0.001	100	249.03	5.00E-02

BLDG 1322
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 20

N-1195-52-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	560000	0.000001	4880	0.001	1	2.73	5.00E-04
SOX	560000	0.000001	4880	0.001	0.6	1.64	3.00E-04
CO	560000	0.000001	4880	0.001	20	54.66	1.00E-02
HC	560000	0.000001	4880	0.001	5.3	14.48	2.65E-03
NOX	560000	0.000001	4880	0.001	100	273.28	5.00E-02

BLDG 1325
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

N-1195-63-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	560000	0.000001	4880	0.001	1	2.77	5.00E-04
SOX	560000	0.000001	4880	0.001	0.6	1.66	3.00E-04
CO	560000	0.000001	4880	0.001	20	55.34	1.00E-02
HC	560000	0.000001	4880	0.001	5.3	14.66	2.65E-03
NOX	560000	0.000001	4880	0.001	100	276.70	5.00E-02

BLDG 1332
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

N-1195-64-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	395000	0.000001	4880	0.001	1	1.93	5.00E-04
SOX	395000	0.000001	4880	0.001	0.6	1.16	3.00E-04
CO	395000	0.000001	4880	0.001	20	38.55	1.00E-02
HC	395000	0.000001	4880	0.001	5.3	10.22	2.65E-03
NOX	395000	0.000001	4880	0.001	100	192.76	5.00E-02

BLDG 1333
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

N-1195-65-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	840000	0.000001	4880	0.001	1	4.10	5.00E-04
SOX	840000	0.000001	4880	0.001	0.6	2.46	3.00E-04
CO	840000	0.000001	4880	0.001	20	81.98	1.00E-02
HC	840000	0.000001	4880	0.001	5.3	21.73	2.65E-03
NOX	840000	0.000001	4880	0.001	100	409.92	5.00E-02

BLDG 1335
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

N-1195-28-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	960000	0.000001	4880	0.001	1	4.68	5.00E-04
SOX	960000	0.000001	4880	0.001	0.6	2.81	3.00E-04
CO	960000	0.000001	4880	0.001	20	93.70	1.00E-02
HC	960000	0.000001	4880	0.001	5.3	24.83	2.65E-03
NOX	960000	0.000001	4880	0.001	100	468.48	5.00E-02

see 1991/1992 PTO'S

BLDG 1335 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 20

30 3 0172402

N-1195-111-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	528000	0.000001	4880	0.001	1	2.58	5.00E-04
SOX	528000	0.000001	4880	0.001	0.6	1.55	3.00E-04
CO	528000	0.000001	4880	0.001	20	51.53	1.00E-02
HC	528000	0.000001	4880	0.001	5.3	13.66	2.65E-03
NOX	528000	0.000001	4880	0.001	100	257.66	5.00E-02

BLDG 1340
FUEL: NATURAL GAS/OIL
MONTHS USED: SEP-JUN
DAYS: 304
HRS USED: 20

N-1195-53-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	837000	0.000001	6080	0.001	1	5.09	5.00E-04
SOX	837000	0.000001	6080	0.001	0.6	3.05	3.00E-04
CO	837000	0.000001	6080	0.001	20	101.78	1.00E-02
HC	837000	0.000001	6080	0.001	5.3	26.97	2.65E-03
NOX	837000	0.000001	6080	0.001	100	508.90	5.00E-02

BLDG 1350
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 22

TO JPA

N-3489-6-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	7520000	0.000001	5368	0.001	1	40.37	5.00E-04
SOX	7520000	0.000001	5368	0.001	0.6	24.22	3.00E-04
CO	7520000	0.000001	5368	0.001	20	807.35	1.00E-02
HC	7520000	0.000001	5368	0.001	5.3	213.95	2.65E-03
NOX	7520000	0.000001	5368	0.001	100	4036.74	5.00E-02

BLDG 1350 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 22

TO JPA

N-3489-7-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	7520000	0.000001	5368	0.001	1	40.37	5.00E-04
SOX	7520000	0.000001	5368	0.001	0.6	24.22	3.00E-04
CO	7520000	0.000001	5368	0.001	20	807.35	1.00E-02
HC	7520000	0.000001	5368	0.001	5.3	213.95	2.65E-03
NOX	7520000	0.000001	5368	0.001	100	4036.74	5.00E-02

BLDG 1350 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 22

TO JPA

N-3489-8-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	7520000	0.000001	5368	0.001	1	40.37	5.00E-04
SOX	7520000	0.000001	5368	0.001	0.6	24.22	3.00E-04
CO	7520000	0.000001	5368	0.001	20	807.35	1.00E-02
HC	7520000	0.000001	5368	0.001	5.3	213.95	2.65E-03
NOX	7520000	0.000001	5368	0.001	100	4036.74	5.00E-02

BLDG 1350 (BACKUP)
FUEL: NATURAL GAS/OIL
MONTHS USED: OCT-MAY
DAYS: 244
HRS USED: 22

N-1195-67-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2070000	0.000001	5368	0.001	1	11.11	5.00E-04
SOX	2070000	0.000001	5368	0.001	0.6	6.67	3.00E-04
CO	2070000	0.000001	5368	0.001	20	222.24	1.00E-02
HC	2070000	0.000001	5368	0.001	5.3	58.89	2.65E-03
NOX	2070000	0.000001	5368	0.001	100	1111.18	5.00E-02

BLDG 1360
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

*Non Permitted
 by law*

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1900000	0.000001	4880	0.001	1	9.27	4.64E-03
SOX	1900000	0.000001	4880	0.001	0.6	5.56	2.78E-03
CO	1900000	0.000001	4880	0.001	20	185.44	9.27E-02
HC	1900000	0.000001	4880	0.001	5.3	49.14	2.46E-02
NOX	1900000	0.000001	4880	0.001	100	927.20	4.64E-01

BLDG 1360 (BACKUP)
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 20

Non Permitted

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1090000	0.000001	4880	0.001	1	5.32	2.66E-03
SOX	1090000	0.000001	4880	0.001	0.6	3.19	1.60E-03
CO	1090000	0.000001	4880	0.001	20	106.38	5.32E-02
HC	1090000	0.000001	4880	0.001	5.3	28.19	1.41E-02
NOX	1090000	0.000001	4880	0.001	100	531.92	2.66E-01

BLDG 1532
 FUEL: NATURAL GAS/OIL
 MONTHS USED: ALL YEAR
 DAYS: 365
 HRS USED: 24

N-1195-56-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	800000	0.000001	8760	0.001	1	7.01	3.50E-03
SOX	800000	0.000001	8760	0.001	0.6	4.20	2.10E-03
CO	800000	0.000001	8760	0.001	20	140.16	7.01E-02
HC	800000	0.000001	8760	0.001	5.3	37.14	1.86E-02
NOX	800000	0.000001	8760	0.001	100	700.80	3.50E-01

BLDG 1550
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 16

N-1195-34-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	2700000	0.000001	3904	0.001	1	10.54	5.27E-03
SOX	2700000	0.000001	3904	0.001	0.6	6.32	3.16E-03
CO	2700000	0.000001	3904	0.001	20	210.82	1.05E-01
HC	2700000	0.000001	3904	0.001	5.3	55.87	2.79E-02
NOX	2700000	0.000001	3904	0.001	100	1054.08	5.27E-01

see 1991/1992 permits

BLDG 1550 (BACKUP)
 FUEL: NATURAL GAS/OIL
 MONTHS USED: OCT-MAY
 DAYS: 244
 HRS USED: 16

N-1195-35-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	1000000	0.000001	3904	0.001	1	3.90	1.95E-03
SOX	1000000	0.000001	3904	0.001	0.6	2.34	1.17E-03
CO	1000000	0.000001	3904	0.001	20	78.08	3.90E-02
HC	1000000	0.000001	3904	0.001	5.3	20.69	1.03E-02
NOX	1000000	0.000001	3904	0.001	100	390.40	1.95E-01

BLDG 1582
 FUEL: NATURAL GAS/OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 2

N-1195-57-0

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	540000	0.000001	486	0.001	1	0.26	1.31E-04
SOX	540000	0.000001	486	0.001	0.6	0.16	7.87E-05
CO	540000	0.000001	486	0.001	20	5.25	2.62E-03
HC	540000	0.000001	486	0.001	5.3	1.39	6.95E-04
NOX	540000	0.000001	486	0.001	100	26.24	1.31E-02

DIESEL:

BLDG 1404
 FUEL: OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 20

Non permitted

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	227900	0.000001	4860	0.000000935	33.5	0.03	1.73E-05
SOX	227800	0.000001	4860	0.000000935	31.2	0.03	1.61E-05
CO	227800	0.000001	4860	0.000000935	102	0.11	5.28E-05
HC	227800	0.000001	4860	0.000000935	37.5	0.04	1.94E-05
NOX	227800	0.000001	4860	0.000000935	469	0.49	2.43E-04

BLDG 1405
 FUEL: OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 20

Non permitted

POLLUTANT	RATING-BTU	1/1 ⁶ FT ³	TIME	FT ³ /1000BTU	EM FACT	LB POL/YR	TON/YR
PA	140000	0.000001	4860	0.000000935	33.5	0.02	1.07E-05
SOX	140000	0.000001	4860	0.000000935	31.2	0.02	9.92E-06
CO	140000	0.000001	4860	0.000000935	102	0.06	3.24E-05
HC	140000	0.000001	4860	0.000000935	37.5	0.02	1.19E-05
NOX	140000	0.000001	4860	0.000000935	469	0.30	1.49E-04

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 BLDG 1509
 FUEL: OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 20

Non permitted

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	980000	0.000001	4860	0.000000935	33.5	0.15	7.46E-05
SOX	980000	0.000001	4860	0.000000935	31.2	0.14	6.95E-05
CO	980000	0.000001	4860	0.000000935	102	0.45	2.27E-04
HC	980000	0.000001	4860	0.000000935	37.5	0.17	8.35E-05
NOX	980000	0.000001	4860	0.000000935	469	2.09	1.04E-03

BLDG 1709
 FUEL: OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 16

N-1195-36-0

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	670000	0.000001	3888	0.000000935	33.5	0.08	4.08E-05
SOX	670000	0.000001	3888	0.000000935	31.2	0.08	3.80E-05
CO	670000	0.000001	3888	0.000000935	102	0.25	1.24E-04
HC	670000	0.000001	3888	0.000000935	37.5	0.09	4.57E-05
NOX	670000	0.000001	3888	0.000000935	469	1.14	5.71E-04

BLDG 1762
 FUEL: OIL
 MONTHS USED: NOV-MAY
 DAYS: 243
 HRS USED: 16

~~N-1195-36-0~~
Non permitted

POLLUTANT	RATING-BTU	1/1^6FT^3	TIME	FT^3/1000BTU	EM FACT	LB POL/YR	TON/YR
PA	506000	0.000001	3888	0.000000935	33.5	0.06	3.08E-05
SOX	506000	0.000001	3888	0.000000935	31.2	0.06	2.87E-05
CO	506000	0.000001	3888	0.000000935	102	0.19	9.38E-05
HC	506000	0.000001	3888	0.000000935	37.5	0.07	3.45E-05
NOX	506000	0.000001	3888	0.000000935	469	0.86	4.31E-04

NATURAL GAS:

POLLUTANT	LB POL/YR	TON/YR
PA	247.55	1.24E-01
SOX	148.51	7.43E-01
CO	4973.21	2.48E+00
HC	1312.01	6.56E-01
NOX	24841.21	1.24E+01

FUEL OIL:

POLLUTANT	LB POL/YR	TON/YR
PA	349.83	1.75E-01
SOX	347.02	1.73E-01
CO	1134.52	5.67E-01
HC	417.11	2.09E-01
NOX	5216.5	2.61E+00

REFERENCE: NATURAL GAS: AP-42, PG 1.4-3, TABLE 1.4-1, VOL 1, 1985
 DIESEL: AP-42, PG 3.3.3-1, TABLE 3.3.3-1, VOL 1, 1985

AIRCRAFT FLYING OPERATIONS:

C130:

POLLUTANT	LTO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	62.4	1.1	1.50E-03	1.03E-01
SOX	62.4	1.1	1.90E-03	1.30E-01
CO	62.4	1.1	4.70E-02	3.23E+00
HC	62.4	1.1	3.00E-02	2.06E+00
NOX	62.4	1.1	9.90E-03	6.80E-01

C-5A:

POLLUTANT	LTO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	162	1.1	4.60E-05	8.20E-03
SOX	162	1.1	2.50E-03	4.46E-01
CO	162	1.1	1.00E-01	1.78E+01
HC	162	1.1	3.60E-02	6.42E+00
NOX	162	1.1	3.00E-02	5.35E+00

POLLUTANT	TOUCH & GO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	340	1.1	1.40E-05	5.24E-03
SOX	340	1.1	6.00E-04	2.24E-01
CO	340	1.1	6.40E-03	2.39E+00
HC	340	1.1	2.10E-03	7.85E-01
NOX	340	1.1	1.30E-02	4.86E+00

T37:

POLLUTANT	LTO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	520	1.1	5.60E-05	3.20E-02
SOX	520	1.1	1.40E-04	8.01E-02
CO	520	1.1	1.50E-02	8.58E+00
HC	520	1.1	2.00E-03	1.14E+00
NOX	520	1.1	3.00E-04	1.72E-01

POLLUTANT	TOUCH & GO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	1768	1.1	3.80E-06	7.39E-03
SOX	1768	1.1	3.80E-05	7.39E-02
CO	1768	1.1	2.10E-03	4.08E+00
HC	1768	1.1	1.40E-04	2.72E-01
NOX	1768	1.1	1.10E-04	2.14E-01

T35A:

POLLUTANT	LTO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	3135	1.1	7.60E-04	2.62E+00
SOX	3135	1.1	2.60E-03	8.97E+00
CO	3135	1.1	1.30E-01	4.48E+02
HC	3135	1.1	1.00E-01	3.45E+02
NOX	3135	1.1	1.10E-02	3.79E+01

POLLUTANT	TOUCH & GO/YR	TON/METRICTON	EM FACTOR	TONS/YR
PA	9361	1.1	4.00E-04	4.12E+00
SOX	9361	1.1	6.40E-04	6.59E+00

CO	9361	1.1	8.30E-03	8.55E+01
HC	9361	1.1	3.30E-03	3.40E+01
NOX	9361	1.1	5.50E-03	5.66E+01

C141:

POLLUTANT	LTO/YR	TON/METR	EM FACTOR	TONS/YR
PA	107	1.1	6.50E-04	7.65E-02
SOX	107	1.1	1.80E-03	2.12E-01
CO	107	1.1	9.80E-02	1.15E+01
HC	107	1.1	7.90E-02	9.30E+00
NOX	107	1.1	8.60E-03	1.01E+00

POLLUTANT	TOUCH & GO/YR	TON/METR	EM FACTOR	TONS/YR
PA	283	1.1	3.60E-04	1.12E-01
SOX	283	1.1	5.50E-04	1.71E-01
CO	283	1.1	3.70E-03	1.15E+00
HC	283	1.1	9.70E-04	3.02E-01
NOX	283	1.1	4.50E-03	1.40E+00

F-4:

POLLUTANT	LTO/YR	TON/METR	EM FACTOR	TONS/YR
PA	21	1.1	7.90E-04	1.82E-02
SOX	21	1.1	9.60E-04	2.22E-02
CO	21	1.1	2.30E-02	5.31E-01
HC	21	1.1	4.40E-03	1.02E-01
NOX	21	1.1	3.90E-03	9.01E-02

NO TOUCH & GOS

T38:

POLLUTANT	LTO/YR	TON/METR	EM FACTOR	TONS/YR
PA	112	1.1	2.30E-06	2.83E-04
SOX	112	1.1	3.50E-04	4.31E-02
CO	112	1.1	4.00E-02	4.93E+00
HC	112	1.1	6.10E-03	7.52E-01
NOX	112	1.1	6.00E-04	7.39E-02

POLLUTANT	TOUCH & GOS/YR	TON/METR	EM FACTOR	TONS/YR
PA	405	1.1	1.30E-06	5.79E-04
SOX	405	1.1	1.10E-04	4.90E-02
CO	405	1.1	3.90E-03	1.74E+00
HC	405	1.1	2.10E-04	9.36E-02
NOX	405	1.1	2.50E-04	1.11E-01

F16:

POLLUTANT	LTO/YR	TON/METR	EM FACTOR	TONS/YR
PA	42	1.1	7.70E-05	3.56E-03
SOX	42	1.1	4.90E-04	2.26E-02
CO	42	1.1	9.90E-03	4.57E-01
HC	42	1.1	1.30E-03	6.01E-02
NOX	42	1.1	3.20E-03	1.48E-01

B52G:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	4160	1.1	2.30E-03	1.05E+01
SOX	4160	1.1	4.60E-03	2.10E+01
CO	4160	1.1	2.60E-01	1.19E+03
HC	4160	1.1	2.40E-01	1.10E+03
NOX	4160	1.1	3.30E-02	1.51E+02

POLLUTANT	TOUCH & GO	TON/METRIC	EM FACTOR	TON/YR
PA	11057	1.1	1.40E-03	1.70E+01
SOX	11057	1.1	1.20E-03	1.46E+01
CO	11057	1.1	1.20E-02	1.46E+02
HC	11057	1.1	4.30E-03	5.23E+01
NOX	11057	1.1	2.30E-02	2.80E+02

F15:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	520	1.1	1.50E-04	8.58E-02
SOX	520	1.1	9.70E-04	5.55E-01
CO	520	1.1	1.30E-02	7.44E+00
HC	520	1.1	1.60E-03	9.15E-01
NOX	520	1.1	4.90E-03	2.80E+00

POLLUTANT	TOUCH & GO	TON/METRIC	EM FACTOR	TON/YR
PA	1040	1.1	7.30E-05	8.35E-02
SOX	1040	1.1	3.60E-04	4.12E-01
CO	1040	1.1	1.40E-03	1.60E+00
HC	1040	1.1	1.50E-04	1.72E-01
NOX	1040	1.1	2.60E-03	2.97E+00

FB11 LIKE F111A:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	62.4	1.1	9.60E-04	6.59E-02
SOX	62.4	1.1	1.20E-03	8.24E-02
CO	62.4	1.1	4.50E-02	3.09E+00
HC	62.4	1.1	3.60E-02	2.47E+00
NOX	62.4	1.1	7.40E-03	5.08E-01

NO TOUCH & GOS

OV-1 LIKE C-7

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	53	1.1	2.73E-04	1.59E-02
SOX	53	1.1	3.50E-04	2.04E-02
CO	53	1.1	7.80E-03	4.55E-01
HC	53	1.1	4.90E-03	2.86E-01
NOX	53	1.1	1.90E-03	1.11E-01

NO TOUCH & GOS

T43 LIKE C-9A:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	10	1.1	1.10E-03	1.21E-02
SOX	10	1.1	7.00E-04	7.70E-03
CO	10	1.1	1.90E-02	2.09E-01
HC	10	1.1	3.80E-03	4.18E-02
NOX	10	1.1	2.20E-03	2.42E-02

NO TOUCH & GOS

T135R TWICE AMOUNT OF A-10:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	4506	1.1	2.40E-05	1.19E-01
SOX	4506	1.1	6.60E-04	3.27E+00
CO	4506	1.1	4.00E-02	1.98E+02
HC	4506	1.1	1.18E-02	5.85E+01
NOX	4506	1.1	3.00E-03	1.49E+01

POLLUTANT	TOUCH & GO	TON/METRIC	EM FACTOR	TON/YR
PA	4236	1.1	8.00E-06	3.73E-02
SOX	4236	1.1	2.60E-04	1.21E+00
CO	4236	1.1	1.74E-03	8.11E+00
HC	4236	1.1	1.26E-04	5.87E-01
NOX	4236	1.1	1.92E-03	8.95E+00

A-7:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	104	1.1	2.00E-04	2.29E-02
SOX	104	1.1	5.20E-04	5.95E-02
CO	104	1.1	3.00E-02	3.43E+00
HC	104	1.1	2.20E-02	2.52E+00
NOX	104	1.1	5.10E-03	5.83E-01

NO TOUCH & GOS

- P-3 LIKE C130H:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	126	1.1	7.80E-04	1.08E-01
SOX	126	1.1	1.60E-03	2.22E-01
CO	126	1.1	1.80E-02	2.49E+00
HC	126	1.1	1.40E-02	1.94E+00
NOX	126	1.1	8.90E-03	1.23E+00

POLLUTANT	TOUCH & GO	TON/METRIC	EM FACTOR	TON/YR
PA	215	1.1	1.30E-04	3.07E-02
SOX	215	1.1	2.30E-04	5.44E-02
CO	215	1.1	1.20E-03	2.84E-01
HC	215	1.1	4.40E-04	1.04E-01
NOX	215	1.1	1.70E-03	4.02E-01

A-3 LIKE A-7:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	21	1.1	2.00E-04	4.62E-03
SOX	21	1.1	5.20E-04	1.20E-02
CO	21	1.1	3.00E-02	6.93E-01
HC	21	1.1	2.20E-02	5.08E-01
NOX	21	1.1	5.10E-03	1.18E-01

NO TOUCH & GOS

2TFL LIKE T-33:

POLLUTANT	LTO	TON/METRIC	EM FACTOR	TON/YR
PA	2.6	1.1	1.50E-04	4.29E-04
SOX	2.6	1.1	3.10E-04	8.87E-04
CO	2.6	1.1	2.80E-02	8.01E-02
HC	2.6	1.1	3.60E-03	1.03E-02
NOX	2.6	1.1	6.70E-04	1.92E-03

NO TOUCH & GOS

REFERENCE: ATTACHMENT

TABLE A-26. T-37 AND T-38 LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

• T-37

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	1.71 x 10 ⁻³	2.52 x 10 ⁻⁴	1.99 x 10 ⁻⁵	7.30 x 10 ⁻⁶	1.33 x 10 ⁻⁵
TAXI OUT	4.72 x 10 ⁻³	6.96 x 10 ⁻⁴	5.49 x 10 ⁻⁵	2.01 x 10 ⁻⁵	3.66 x 10 ⁻⁵
ENGINE CHECK	2.65 x 10 ⁻⁴	4.14 x 10 ⁻⁶	2.98 x 10 ⁻⁵	1.66 x 10 ⁻⁷	8.28 x 10 ⁻⁶
RUNWAY ROLL	1.46 x 10 ⁻⁴	2.28 x 10 ⁻⁶	1.64 x 10 ⁻⁵	9.10 x 10 ⁻⁶	4.55 x 10 ⁻⁶
CLIMB 1	2.73 x 10 ⁻⁴	4.27 x 10 ⁻⁶	3.07 x 10 ⁻⁵	1.71 x 10 ⁻⁷	8.54 x 10 ⁻⁶
CLIMB 2	5.28 x 10 ⁻⁴	8.25 x 10 ⁻⁶	5.94 x 10 ⁻⁶	3.30 x 10 ⁻⁷	1.65 x 10 ⁻⁵
APPROACH 1	1.03 x 10 ⁻³	1.07 x 10 ⁻⁴	1.64 x 10 ⁻⁵	2.69 x 10 ⁻⁶	9.62 x 10 ⁻⁶
APPROACH 2	2.09 x 10 ⁻⁴	2.17 x 10 ⁻⁵	3.33 x 10 ⁻⁶	5.48 x 10 ⁻⁷	1.96 x 10 ⁻⁶
LANDING	9.77 x 10 ⁻⁴	1.44 x 10 ⁻⁴	1.14 x 10 ⁻⁵	4.17 x 10 ⁻⁶	7.58 x 10 ⁻⁶
TAXI IN	4.58 x 10 ⁻³	6.75 x 10 ⁻⁴	5.33 x 10 ⁻⁵	1.95 x 10 ⁻⁵	3.55 x 10 ⁻⁵
SHUTDOWN	2.70 x 10 ⁻⁴	3.98 x 10 ⁻⁵	3.14 x 10 ⁻⁶	1.15 x 10 ⁻⁶	2.10 x 10 ⁻⁶
TOTAL	1.5 x 10 ⁻²	2.0 x 10 ⁻³	3.0 x 10 ⁻⁴	5.6 x 10 ⁻⁵	1.4 x 10 ⁻⁴
TOUCH & GO	2.1 x 10 ⁻³	1.4 x 10 ⁻⁴	1.1 x 10 ⁻⁴	3.8 x 10 ⁻⁶	3.8 x 10 ⁻⁵

• T-38

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	6.34 x 10 ⁻³	1.07 x 10 ⁻³	4.63 x 10 ⁻⁵	1.07 x 10 ⁻⁷	3.56 x 10 ⁻⁵
TAXI OUT	1.31 x 10 ⁻²	2.20 x 10 ⁻³	9.55 x 10 ⁻⁵	2.20 x 10 ⁻⁷	7.34 x 10 ⁻⁵
ENGINE CHECK	3.46 x 10 ⁻⁴	9.54 x 10 ⁻⁶	3.10 x 10 ⁻⁵	2.15 x 10 ⁻⁷	1.19 x 10 ⁻⁵
RUNWAY ROLL	9.11 x 10 ⁻⁴	2.45 x 10 ⁻⁶	6.97 x 10 ⁻⁵	2.80 x 10 ⁻⁷	3.50 x 10 ⁻⁵
CLIMB 1	9.63 x 10 ⁻⁴	2.59 x 10 ⁻⁶	7.36 x 10 ⁻⁵	2.96 x 10 ⁻⁷	3.70 x 10 ⁻⁵
CLIMB 2	5.78 x 10 ⁻⁴	1.59 x 10 ⁻⁵	5.18 x 10 ⁻⁵	3.59 x 10 ⁻⁷	1.99 x 10 ⁻⁵
APPROACH 1	2.04 x 10 ⁻³	1.66 x 10 ⁻⁴	1.09 x 10 ⁻⁴	5.21 x 10 ⁻⁷	4.74 x 10 ⁻⁵
APPROACH 2	2.59 x 10 ⁻⁴	2.11 x 10 ⁻⁵	1.39 x 10 ⁻⁵	6.63 x 10 ⁻⁸	6.02 x 10 ⁻⁶
LANDING	1.72 x 10 ⁻³	2.90 x 10 ⁻⁴	1.26 x 10 ⁻⁵	2.90 x 10 ⁻⁸	9.66 x 10 ⁻⁶
TAXI IN	1.27 x 10 ⁻²	2.14 x 10 ⁻³	9.26 x 10 ⁻⁵	2.14 x 10 ⁻⁷	7.12 x 10 ⁻⁵
SHUTDOWN	8.53 x 10 ⁻⁴	1.44 x 10 ⁻⁴	6.23 x 10 ⁻⁶	1.44 x 10 ⁻⁸	4.79 x 10 ⁻⁶
TOTAL	4.0 x 10 ⁻²	6.1 x 10 ⁻³	6.0 x 10 ⁻⁴	2.3 x 10 ⁻⁶	3.5 x 10 ⁻⁴
TOUCH & GO	3.9 x 10 ⁻³	2.1 x 10 ⁻⁴	2.5 x 10 ⁻⁴	1.3 x 10 ⁻⁶	1.1 x 10 ⁻⁴

TABLE A-24. OV-10 LTO AND TCO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

OV-10

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	1.35 x 10 ⁻³	4.20 x 10 ⁻⁴	4.20 x 10 ⁻⁴	2.15 x 10 ⁻⁵	5.67 x 10 ⁻⁵
TAXI OUT	6.19 x 10 ⁻⁴	1.92 x 10 ⁻⁴	1.92 x 10 ⁻⁴	9.88 x 10 ⁻⁶	2.60 x 10 ⁻⁵
ENGINE CHECK	6.26 x 10 ⁻⁵	1.63 x 10 ⁻⁵	2.80 x 10 ⁻⁴	1.93 x 10 ⁻⁵	2.72 x 10 ⁻⁵
RUNWAY ROLL	4.14 x 10 ⁻⁶	1.08 x 10 ⁻⁷	1.85 x 10 ⁻⁵	1.28 x 10 ⁻⁶	1.80 x 10 ⁻⁶
CLIMB 1	1.87 x 10 ⁻⁵	4.88 x 10 ⁻⁷	8.37 x 10 ⁻⁵	5.77 x 10 ⁻⁶	8.13 x 10 ⁻⁶ ²
CLIMB 2	2.01 x 10 ⁻⁵	5.26 x 10 ⁻⁷	9.02 x 10 ⁻⁵	6.22 x 10 ⁻⁶	8.76 x 10 ⁻⁶
APPROACH 1	3.28 x 10 ⁻⁴	1.53 x 10 ⁻⁵	1.62 x 10 ⁻⁴	9.54 x 10 ⁻⁶	1.91 x 10 ⁻⁵
APPROACH 2	2.05 x 10 ⁻⁴	9.52 x 10 ⁻⁶	1.01 x 10 ⁻⁴	5.95 x 10 ⁻⁶	1.19 x 10 ⁻⁵
LANDING	2.29 x 10 ⁻⁴	7.13 x 10 ⁻⁵	7.13 x 10 ⁻⁵	3.66 x 10 ⁻⁶	9.63 x 10 ⁻⁶
TAXI IN	6.00 x 10 ⁻⁴	1.86 x 10 ⁻⁴	1.86 x 10 ⁻⁴	9.58 x 10 ⁻⁶	2.52 x 10 ⁻⁵
SHUTDOWN	1.80 x 10 ⁻⁴	5.59 x 10 ⁻⁵	5.59 x 10 ⁻⁵	2.87 x 10 ⁻⁶	7.56 x 10 ⁻⁶
TOTAL	3.6 x 10 ⁻³	9.5 x 10 ⁻⁴	1.7 x 10 ⁻³	9.6 x 10 ⁻⁵	2.0 x 10 ⁻⁴
TOUCH & GO	5.8 x 10 ⁻⁴	2.7 x 10 ⁻⁵	4.5 x 10 ⁻⁴	2.8 x 10 ⁻⁵	4.9 x 10 ⁻⁵

TABLE A-25. T-33 LTO AND TCO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

T-33

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	2.88 x 10 ⁻³	4.42 x 10 ⁻⁴	3.40 x 10 ⁻⁵	1.66 x 10 ⁻⁵	2.27 x 10 ⁻⁵
TAXI OUT	7.87 x 10 ⁻³	1.21 x 10 ⁻³	9.30 x 10 ⁻⁵	4.53 x 10 ⁻⁵	6.20 x 10 ⁻⁵
ENGINE CHECK	3.92 x 10 ⁻⁴	6.27 x 10 ⁻⁶	4.51 x 10 ⁻⁵	2.51 x 10 ⁻⁷	1.25 x 10 ⁻⁵
RUNWAY ROLL	4.99 x 10 ⁻⁴	7.98 x 10 ⁻⁶	5.74 x 10 ⁻⁵	3.19 x 10 ⁻⁷	1.60 x 10 ⁻⁵
CLIMB 1	6.60 x 10 ⁻⁴	1.05 x 10 ⁻⁵	7.59 x 10 ⁻⁵	4.22 x 10 ⁻⁷	2.11 x 10 ⁻⁵
CLIMB 2	1.30 x 10 ⁻³	2.08 x 10 ⁻⁵	1.50 x 10 ⁻⁴	8.34 x 10 ⁻⁷	4.17 x 10 ⁻⁵
APPROACH 1	2.42 x 10 ⁻³	1.86 x 10 ⁻⁴	5.44 x 10 ⁻⁵	1.63 x 10 ⁻⁵	2.86 x 10 ⁻⁵
APPROACH 2	2.01 x 10 ⁻³	1.55 x 10 ⁻⁴	4.52 x 10 ⁻⁵	1.36 x 10 ⁻⁵	2.38 x 10 ⁻⁵
LANDING	1.94 x 10 ⁻³	2.98 x 10 ⁻⁴	2.29 x 10 ⁻⁵	1.12 x 10 ⁻⁵	1.53 x 10 ⁻⁵
TAXI IN	7.64 x 10 ⁻³	1.17 x 10 ⁻³	9.02 x 10 ⁻⁵	4.39 x 10 ⁻⁵	6.01 x 10 ⁻⁵
SHUTDOWN	4.61 x 10 ⁻⁴	7.08 x 10 ⁻⁵	5.44 x 10 ⁻⁶	2.65 x 10 ⁻⁶	3.63 x 10 ⁻⁶
TOTAL	2.8 x 10 ⁻²	3.6 x 10 ⁻³	6.7 x 10 ⁻⁴	1.5 x 10 ⁻⁴	3.1 x 10 ⁻⁴
TOUCH & GO	6.5 x 10 ⁻³	3.8 x 10 ⁻⁴	3.4 x 10 ⁻⁴	3.1 x 10 ⁻⁵	1.2 x 10 ⁻⁴

TABLE A-22. F-15 AND F-16 LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

F-15

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	3.86 x 10 ⁻³	5.14 x 10 ⁻⁴	5.30 x 10 ⁻⁴	1.93 x 10 ⁻⁵	1.61 x 10 ⁻⁴
TAXI OUT	3.24 x 10 ⁻³	4.32 x 10 ⁻⁴	4.45 x 10 ⁻⁴	1.62 x 10 ⁻⁵	1.35 x 10 ⁻⁴
ENGINE CHECK	1.76 x 10 ⁻⁵	1.95 x 10 ⁻⁶	5.27 x 10 ⁻⁴	6.63 x 10 ⁻⁶	1.95 x 10 ⁻⁵
RUNWAY ROLL	5.57 x 10 ⁻⁴	1.39 x 10 ⁻⁶	4.33 x 10 ⁻⁴	2.09 x 10 ⁻⁵	1.39 x 10 ⁻⁴
CLIMB 1	9.19 x 10 ⁻⁴	2.30 x 10 ⁻⁶	7.15 x 10 ⁻⁴	3.45 x 10 ⁻⁵	2.30 x 10 ⁻⁴
CLIMB 2	4.12 x 10 ⁻⁵	4.58 x 10 ⁻⁶	1.24 x 10 ⁻³	1.56 x 10 ⁻⁵	4.58 x 10 ⁻⁵
APPROACH 1	2.79 x 10 ⁻⁴	9.15 x 10 ⁻⁵	3.23 x 10 ⁻⁴	1.30 x 10 ⁻⁵	4.82 x 10 ⁻⁵
APPROACH 2	1.62 x 10 ⁻⁴	5.30 x 10 ⁻⁵	1.87 x 10 ⁻⁴	7.54 x 10 ⁻⁶	2.79 x 10 ⁻⁵
LANDING	5.86 x 10 ⁻⁴	7.81 x 10 ⁻⁵	8.06 x 10 ⁻⁵	2.93 x 10 ⁻⁶	2.44 x 10 ⁻⁵
TAXI IN	3.14 x 10 ⁻³	4.19 x 10 ⁻⁴	4.32 x 10 ⁻⁴	1.57 x 10 ⁻⁵	1.31 x 10 ⁻⁴
SHUTDOWN	1.29 x 10 ⁻⁴	1.71 x 10 ⁻⁵	1.77 x 10 ⁻⁵	6.43 x 10 ⁻⁷	5.36 x 10 ⁻⁶
TOTAL	1.3 x 10 ⁻²	1.6 x 10 ⁻³	4.9 x 10 ⁻³	1.5 x 10 ⁻⁴	9.7 x 10 ⁻⁴
TOUCH & GO	1.4 x 10 ⁻³	1.5 x 10 ⁻⁴	2.6 x 10 ⁻³	7.3 x 10 ⁻⁵	3.6 x 10 ⁻⁴

F-16

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	4.11 x 10 ⁻³	5.48 x 10 ⁻⁴	5.66 x 10 ⁻⁴	2.06 x 10 ⁻⁵	1.71 x 10 ⁻⁴
TAXI OUT	1.08 x 10 ⁻³	1.44 x 10 ⁻⁴	1.49 x 10 ⁻⁴	5.40 x 10 ⁻⁶	4.50 x 10 ⁻⁵
ENGINE CHECK	2.32 x 10 ⁻⁵	2.58 x 10 ⁻⁶	6.95 x 10 ⁻⁴	8.76 x 10 ⁻⁶	2.58 x 10 ⁻⁵
RUNWAY ROLL	4.72 x 10 ⁻⁶	5.24 x 10 ⁻⁷	1.41 x 10 ⁻⁴	1.78 x 10 ⁻⁶	5.24 x 10 ⁻⁶
CLIMB 1	2.62 x 10 ⁻⁵	2.91 x 10 ⁻⁶	7.85 x 10 ⁻⁴	9.89 x 10 ⁻⁶	2.91 x 10 ⁻⁵
CLIMB 2	3.70 x 10 ⁻⁶	4.12 x 10 ⁻⁷	1.11 x 10 ⁻⁴	1.40 x 10 ⁻⁶	4.12 x 10 ⁻⁶
APPROACH 1	2.31 x 10 ⁻⁵	7.56 x 10 ⁻⁶	2.67 x 10 ⁻⁵	1.07 x 10 ⁻⁶	3.98 x 10 ⁻⁶
APPROACH 2	1.19 x 10 ⁻⁴	3.89 x 10 ⁻⁵	1.37 x 10 ⁻⁴	5.53 x 10 ⁻⁶	2.05 x 10 ⁻⁵
LANDING	3.46 x 10 ⁻⁴	4.62 x 10 ⁻⁵	4.76 x 10 ⁻⁵	1.73 x 10 ⁻⁶	1.44 x 10 ⁻⁵
TAXI IN	1.05 x 10 ⁻³	1.40 x 10 ⁻⁴	1.44 x 10 ⁻⁴	5.24 x 10 ⁻⁶	4.37 x 10 ⁻⁵
SHUTDOWN	3.09 x 10 ⁻³	4.11 x 10 ⁻⁴	4.24 x 10 ⁻⁴	1.54 x 10 ⁻⁵	1.29 x 10 ⁻⁴
TOTAL	9.9 x 10 ⁻³	1.3 x 10 ⁻³	3.2 x 10 ⁻³	7.7 x 10 ⁻⁵	4.9 x 10 ⁻⁴
TOUCH & GO	1.8 x 10 ⁻⁴	5.1 x 10 ⁻⁵	1.2 x 10 ⁻³	1.9 x 10 ⁻⁵	6.2 x 10 ⁻⁵

TABLE A-20. F-5 AND F-111A LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

F-5

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	6.31 x 10 ⁻³	1.06 x 10 ⁻³	4.61 x 10 ⁻⁵	1.06 x 10 ⁻⁷	3.55 x 10 ⁻⁵
TAXI OUT	1.18 x 10 ⁻²	1.99 x 10 ⁻³	8.62 x 10 ⁻⁵	1.99 x 10 ⁻⁷	6.63 x 10 ⁻⁵
ENGINE CHECK	8.31 x 10 ⁻⁴	2.29 x 10 ⁻⁵	7.45 x 10 ⁻⁵	5.16 x 10 ⁻⁷	2.87 x 10 ⁻⁵
RUNWAY ROLL	1.92 x 10 ⁻³	5.16 x 10 ⁻⁶	1.47 x 10 ⁻⁴	5.89 x 10 ⁻⁷	7.37 x 10 ⁻⁵
CLIMB 1	9.63 x 10 ⁻⁴	2.59 x 10 ⁻⁶	7.36 x 10 ⁻⁵	2.96 x 10 ⁻⁷	3.70 x 10 ⁻⁵
CLIMB 2	5.55 x 10 ⁻⁴	1.53 x 10 ⁻⁵	4.98 x 10 ⁻⁵	3.45 x 10 ⁻⁷	1.91 x 10 ⁻⁵
APPROACH 1	2.36 x 10 ⁻³	2.05 x 10 ⁻⁴	5.76 x 10 ⁻⁵	2.24 x 10 ⁻⁷	3.20 x 10 ⁻⁵
APPROACH 2	3.54 x 10 ⁻⁴	3.08 x 10 ⁻⁵	8.67 x 10 ⁻⁶	3.37 x 10 ⁻⁶	4.81 x 10 ⁻⁶
LANDING	1.77 x 10 ⁻³	2.98 x 10 ⁻⁴	1.29 x 10 ⁻⁵	2.98 x 10 ⁻⁸	9.92 x 10 ⁻⁶
TAXI IN	1.14 x 10 ⁻²	1.93 x 10 ⁻³	8.36 x 10 ⁻⁵	1.93 x 10 ⁻⁷	6.43 x 10 ⁻⁵
SHUTDOWN	8.33 x 10 ⁻⁴	1.40 x 10 ⁻⁴	6.08 x 10 ⁻⁶	1.40 x 10 ⁻⁸	4.68 x 10 ⁻⁶
TOTAL	3.9 x 10 ⁻²	5.7 x 10 ⁻³	6.5 x 10 ⁻⁴	2.5 x 10 ⁻⁶	3.8 x 10 ⁻⁴
TOUCH & GO	4.3 x 10 ⁻³	2.6 x 10 ⁻⁴	1.9 x 10 ⁻⁴	9.3 x 10 ⁻⁷	9.5 x 10 ⁻⁵

F-111A

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	5.74 x 10 ⁻³	4.94 x 10 ⁻³	1.83 x 10 ⁻⁴	4.78 x 10 ⁻⁷	7.97 x 10 ⁻⁵
TAXI OUT	1.68 x 10 ⁻²	1.44 x 10 ⁻²	5.36 x 10 ⁻⁴	1.40 x 10 ⁻⁶	2.33 x 10 ⁻⁴
ENGINE CHECK	1.04 x 10 ⁻⁴	3.90 x 10 ⁻⁶	1.56 x 10 ⁻³	5.21 x 10 ⁻⁵	1.30 x 10 ⁻⁴
RUNWAY ROLL	1.21 x 10 ⁻³	1.89 x 10 ⁻⁶	1.70 x 10 ⁻³	3.98 x 10 ⁻⁴	1.89 x 10 ⁻⁴
CLIMB 1	1.49 x 10 ⁻³	2.32 x 10 ⁻⁶	2.09 x 10 ⁻³	4.88 x 10 ⁻⁴	2.32 x 10 ⁻⁴
CLIMB 2	2.23 x 10 ⁻⁵	8.34 x 10 ⁻⁷	3.34 x 10 ⁻⁴	1.11 x 10 ⁻⁵	2.78 x 10 ⁻⁵
APPROACH 1	5.58 x 10 ⁻⁴	1.27 x 10 ⁻⁴	2.91 x 10 ⁻⁴	3.03 x 10 ⁻⁶	6.07 x 10 ⁻⁵
APPROACH 2	2.05 x 10 ⁻⁴	4.69 x 10 ⁻⁵	1.07 x 10 ⁻⁴	1.12 x 10 ⁻⁶	2.23 x 10 ⁻⁵
LANDING	1.26 x 10 ⁻³	1.09 x 10 ⁻³	4.03 x 10 ⁻⁵	1.05 x 10 ⁻⁷	1.75 x 10 ⁻⁵
TAXI IN	1.63 x 10 ⁻²	1.40 x 10 ⁻²	5.19 x 10 ⁻⁴	1.36 x 10 ⁻⁶	2.26 x 10 ⁻⁴
SHUTDOWN	1.20 x 10 ⁻³	1.04 x 10 ⁻³	3.84 x 10 ⁻⁵	1.00 x 10 ⁻⁷	1.67 x 10 ⁻⁵
TOTAL	4.5 x 10 ⁻²	3.6 x 10 ⁻²	7.4 x 10 ⁻³	9.6 x 10 ⁻⁴	1.2 x 10 ⁻³
TOUCH & GO	2.3 x 10 ⁻³	1.9 x 10 ⁻⁴	2.9 x 10 ⁻³	5.0 x 10 ⁻⁴	3.5 x 10 ⁻⁴

TABLE A-19. F-4C/F AND F-4E LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

F-4 C/F

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	6.23 x 10 ⁻³	1.31 x 10 ⁻³	2.73 x 10 ⁻⁴	5.47 x 10 ⁻⁵	1.09 x 10 ⁻⁴
TAXI OUT	6.15 x 10 ⁻³	1.30 x 10 ⁻³	2.70 x 10 ⁻⁴	5.40 x 10 ⁻⁵	1.08 x 10 ⁻⁴
ENGINE CHECK	2.38 x 10 ⁻⁴	2.16 x 10 ⁻⁵	9.61 x 10 ⁻⁴	2.38 x 10 ⁻⁴	1.08 x 10 ⁻⁴
RUNWAY ROLL	5.47 x 10 ⁻⁴	1.37 x 10 ⁻⁶	4.25 x 10 ⁻⁴	2.05 x 10 ⁻⁵	1.37 x 10 ⁻⁴
CLIMB 1	7.74 x 10 ⁻⁴	1.93 x 10 ⁻⁶	6.02 x 10 ⁻⁴	2.90 x 10 ⁻⁵	1.93 x 10 ⁻⁴
CLIMB 2	8.99 x 10 ⁻⁵	8.17 x 10 ⁻⁶	3.64 x 10 ⁻⁴	8.99 x 10 ⁻⁵	4.09 x 10 ⁻⁵
APPROACH 1	9.32 x 10 ⁻⁴	1.09 x 10 ⁻⁴	4.76 x 10 ⁻⁴	1.78 x 10 ⁻⁴	9.91 x 10 ⁻⁵
APPROACH 2	3.37 x 10 ⁻⁴	3.94 x 10 ⁻⁵	1.72 x 10 ⁻⁴	6.45 x 10 ⁻⁵	3.58 x 10 ⁻⁵
LANDING	1.11 x 10 ⁻³	2.34 x 10 ⁻⁴	4.87 x 10 ⁻⁵	9.74 x 10 ⁻⁶	1.95 x 10 ⁻⁵
TAXI IN	5.97 x 10 ⁻³	1.26 x 10 ⁻³	2.62 x 10 ⁻⁴	5.23 x 10 ⁻⁵	1.05 x 10 ⁻⁴
SHUTDOWN	3.90 x 10 ⁻⁴	8.20 x 10 ⁻⁵	1.71 x 10 ⁻⁵	3.42 x 10 ⁻⁶	6.83 x 10 ⁻⁶
TOTAL	2.3 x 10 ⁻²	4.4 x 10 ⁻³	3.9 x 10 ⁻³	7.9 x 10 ⁻⁴	9.6 x 10 ⁻⁴
TOUCH & GO	2.2 x 10 ⁻³	1.6 x 10 ⁻⁴	1.7 x 10 ⁻³	3.7 x 10 ⁻⁴	3.8 x 10 ⁻⁴

F-4E

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	4.11 x 10 ⁻³	9.23 x 10 ⁻⁴	2.77 x 10 ⁻⁴	2.36 x 10 ⁻⁵	1.03 x 10 ⁻⁴
TAXI OUT	4.06 x 10 ⁻³	9.11 x 10 ⁻⁴	2.73 x 10 ⁻⁴	2.33 x 10 ⁻⁵	1.01 x 10 ⁻⁴
ENGINE CHECK	2.14 x 10 ⁻⁴	7.13 x 10 ⁻⁷	1.76 x 10 ⁻³	2.64 x 10 ⁻⁴	1.19 x 10 ⁻⁴
RUNWAY ROLL	5.93 x 10 ⁻⁴	1.48 x 10 ⁻⁶	4.61 x 10 ⁻⁴	2.22 x 10 ⁻⁵	1.48 x 10 ⁻⁴
CLIMB 1	8.39 x 10 ⁻⁴	2.10 x 10 ⁻⁶	6.52 x 10 ⁻⁴	3.15 x 10 ⁻⁵	2.10 x 10 ⁻⁴
CLIMB 2	8.09 x 10 ⁻⁵	2.70 x 10 ⁻⁷	6.65 x 10 ⁻⁴	9.98 x 10 ⁻⁵	4.49 x 10 ⁻⁵
APPROACH 1	2.75 x 10 ⁻³	6.14 x 10 ⁻⁴	5.45 x 10 ⁻⁴	8.52 x 10 ⁻⁵	9.91 x 10 ⁻⁵
APPROACH 2	9.49 x 10 ⁻⁴	2.12 x 10 ⁻⁴	1.88 x 10 ⁻⁴	2.95 x 10 ⁻⁵	3.43 x 10 ⁻⁵
LANDING	6.76 x 10 ⁻⁴	1.52 x 10 ⁻⁴	4.55 x 10 ⁻⁵	3.88 x 10 ⁻⁶	1.69 x 10 ⁻⁵
TAXI IN	3.94 x 10 ⁻³	8.84 x 10 ⁻⁴	2.65 x 10 ⁻⁴	2.26 x 10 ⁻⁵	9.82 x 10 ⁻⁵
SHUTDOWN	2.57 x 10 ⁻⁴	5.77 x 10 ⁻⁵	1.73 x 10 ⁻⁵	1.47 x 10 ⁻⁶	6.41 x 10 ⁻⁶
TOTAL	1.8 x 10 ⁻²	3.8 x 10 ⁻³	5.1 x 10 ⁻³	6.1 x 10 ⁻⁴	9.8 x 10 ⁻⁴
TOUCH & GO	4.6 x 10 ⁻³	8.3 x 10 ⁻⁴	2.1 x 10 ⁻³	2.6 x 10 ⁻⁴	3.9 x 10 ⁻⁴

TABLE A-14. C-121 AND C-141 LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

C-121					
OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	3.61 x 10 ⁻²	9.27 x 10 ⁻³	4.85 x 10 ⁻⁵	2.91 x 10 ⁻³	2.91 x 10 ⁻³
TAXI OUT	2.08 x 10 ⁻²	5.35 x 10 ⁻³	2.80 x 10 ⁻⁵	1.68 x 10 ⁻³	1.68 x 10 ⁻³
ENGINE CHECK	9.85 x 10 ⁻²	1.73 x 10 ⁻³	9.43 x 10 ⁻⁴	1.70 x 10 ⁻³	5.09 x 10 ⁻³
RUNWAY ROLL	2.13 x 10 ⁻²	3.74 x 10 ⁻⁴	2.04 x 10 ⁻⁴	3.67 x 10 ⁻⁴	1.10 x 10 ⁻³
CLIMB 1	2.57 x 10 ⁻²	4.53 x 10 ⁻⁴	2.46 x 10 ⁻⁴	4.44 x 10 ⁻⁴	1.33 x 10 ⁻³
CLIMB 2	2.66 x 10 ⁻²	4.68 x 10 ⁻⁴	2.55 x 10 ⁻⁴	4.59 x 10 ⁻⁴	1.38 x 10 ⁻³
APPROACH 1	3.58 x 10 ⁻²	4.89 x 10 ⁻⁴	4.85 x 10 ⁻⁴	2.07 x 10 ⁻³	3.10 x 10 ⁻³
APPROACH 2	1.91 x 10 ⁻²	2.62 x 10 ⁻⁴	2.59 x 10 ⁻⁴	1.11 x 10 ⁻³	1.66 x 10 ⁻³
LANDING	4.60 x 10 ⁻³	1.18 x 10 ⁻³	6.19 x 10 ⁻⁶	3.72 x 10 ⁻⁴	3.72 x 10 ⁻⁶
TAXI IN	2.02 x 10 ⁻²	5.19 x 10 ⁻³	2.72 x 10 ⁻⁵	1.63 x 10 ⁻³	1.63 x 10 ⁻³
SHUTDOWN	4.81 x 10 ⁻³	1.24 x 10 ⁻³	6.47 x 10 ⁻⁶	3.88 x 10 ⁻⁴	3.88 x 10 ⁻⁶
TOTAL	3.1 x 10 ⁻¹	2.6 x 10 ⁻²	2.5 x 10 ⁻³	1.3 x 10 ⁻²	2.1 x 10 ⁻⁴
TOUCH & GO	1.1 x 10 ⁻¹	1.7 x 10 ⁻³	1.3 x 10 ⁻³	4.1 x 10 ⁻³	7.6 x 10 ⁻⁵

C-141					
OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	3.00 x 10 ⁻²	2.48 x 10 ⁻²	5.81 x 10 ⁻⁴	3.55 x 10 ⁻⁵	3.23 x 10 ⁻⁴
TAXI OUT	2.83 x 10 ⁻²	2.34 x 10 ⁻²	5.47 x 10 ⁻⁴	3.35 x 10 ⁻⁵	3.04 x 10 ⁻⁴
ENGINE CHECK	2.11 x 10 ⁻⁵	7.90 x 10 ⁻⁷	3.16 x 10 ⁻⁴	2.40 x 10 ⁻⁵	2.63 x 10 ⁻³
RUNWAY ROLL	1.45 x 10 ⁻⁴	5.45 x 10 ⁻⁶	2.18 x 10 ⁻³	1.65 x 10 ⁻⁴	1.82 x 10 ⁻⁴
CLIMB 1	1.11 x 10 ⁻⁴	4.15 x 10 ⁻⁶	1.66 x 10 ⁻³	1.26 x 10 ⁻⁴	1.38 x 10 ⁻⁴
CLIMB 2	1.13 x 10 ⁻⁴	4.23 x 10 ⁻⁶	1.69 x 10 ⁻³	1.28 x 10 ⁻⁴	1.41 x 10 ⁻⁴
APPROACH 1	1.96 x 10 ⁻³	5.15 x 10 ⁻⁴	5.43 x 10 ⁻⁴	5.58 x 10 ⁻⁵	1.43 x 10 ⁻⁴
APPROACH 2	1.49 x 10 ⁻³	3.91 x 10 ⁻⁴	4.13 x 10 ⁻⁴	4.24 x 10 ⁻⁵	1.09 x 10 ⁻⁴
LANDING	4.19 x 10 ⁻³	3.47 x 10 ⁻³	8.10 x 10 ⁻⁵	4.95 x 10 ⁻⁶	4.50 x 10 ⁻³
TAXI IN	2.74 x 10 ⁻²	2.27 x 10 ⁻²	5.31 x 10 ⁻⁴	3.24 x 10 ⁻⁵	2.95 x 10 ⁻⁴
SHUTDOWN	4.50 x 10 ⁻³	3.73 x 10 ⁻³	8.71 x 10 ⁻⁵	5.32 x 10 ⁻⁶	4.84 x 10 ⁻³
TOTAL	9.8 x 10 ⁻²	7.9 x 10 ⁻²	8.6 x 10 ⁻³	6.5 x 10 ⁻⁴	1.8 x 10 ⁻³
TOUCH & GO	3.7 x 10 ⁻³	9.7 x 10 ⁻⁴	4.5 x 10 ⁻³	3.6 x 10 ⁻⁴	5.5 x 10 ⁻⁴

TABLE A-13. KC-135A AND C-135B LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

KC-135A

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	2.46 x 10 ⁻²	2.00 x 10 ⁻²	9.07 x 10 ⁻⁴	4.91 x 10 ⁻⁵	3.78 x 10 ⁻⁴
TAXI OUT	4.32 x 10 ⁻²	3.51 x 10 ⁻²	1.59 x 10 ⁻³	8.64 x 10 ⁻⁵	6.64 x 10 ⁻⁴
ENGINE CHECK	2.46 x 10 ⁻²	2.00 x 10 ⁻²	9.07 x 10 ⁻⁴	4.91 x 10 ⁻⁵	3.78 x 10 ⁻⁴
RUNWAY ROLL	3.45 x 10 ⁻⁴	2.88 x 10 ⁻⁵	1.63 x 10 ⁻³	1.21 x 10 ⁻⁴	1.44 x 10 ⁻⁴
CLIMB 1	4.05 x 10 ⁻⁴	3.37 x 10 ⁻⁵	1.91 x 10 ⁻³	1.42 x 10 ⁻⁴	1.69 x 10 ⁻⁴
CLIMB 2	5.74 x 10 ⁻⁴	4.79 x 10 ⁻⁵	2.70 x 10 ⁻³	2.01 x 10 ⁻⁴	2.39 x 10 ⁻⁴
APPROACH 1	5.74 x 10 ⁻³	2.51 x 10 ⁻³	5.83 x 10 ⁻⁴	3.88 x 10 ⁻⁵	1.77 x 10 ⁻⁴
APPROACH 2	1.48 x 10 ⁻³	6.48 x 10 ⁻⁴	1.51 x 10 ⁻⁴	1.00 x 10 ⁻⁵	4.56 x 10 ⁻⁵
LANDING	2.93 x 10 ⁻³	2.39 x 10 ⁻³	1.08 x 10 ⁻⁴	5.87 x 10 ⁻⁶	4.51 x 10 ⁻⁵
TAXI IN	2.09 x 10 ⁻²	1.70 x 10 ⁻²	7.73 x 10 ⁻⁴	4.19 x 10 ⁻⁵	3.22 x 10 ⁻⁴
SHUTDOWN	5.53 x 10 ⁻³	4.50 x 10 ⁻³	2.04 x 10 ⁻⁴	1.11 x 10 ⁻⁵	8.50 x 10 ⁻⁵
TOTAL	1.3 x 10 ⁻¹	1.0 x 10 ⁻¹	1.1 x 10 ⁻²	7.6 x 10 ⁻⁴	2.6 x 10 ⁻³
TOUCH. & GO	8.3 x 10 ⁻³	3.3 x 10 ⁻³	5.5 x 10 ⁻³	4.0 x 10 ⁻⁴	6.4 x 10 ⁻⁴

C-135B

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	4.57 x 10 ⁻²	5.82 x 10 ⁻²	9.80 x 10 ⁻⁴	1.25 x 10 ⁻⁴	5.44 x 10 ⁻⁴
TAXI OUT	4.02 x 10 ⁻²	5.12 x 10 ⁻²	8.61 x 10 ⁻⁴	1.10 x 10 ⁻⁴	4.78 x 10 ⁻⁴
ENGINE CHECK	9.56 x 10 ⁻⁴	3.37 x 10 ⁻⁴	5.62 x 10 ⁻³	9.73 x 10 ⁻⁴	5.62 x 10 ⁻⁴
RUNWAY ROLL	2.30 x 10 ⁻⁴	8.12 x 10 ⁻⁵	1.35 x 10 ⁻³	2.34 x 10 ⁻⁴	1.35 x 10 ⁻⁴
CLIMB 1	2.70 x 10 ⁻⁴	9.52 x 10 ⁻⁵	1.59 x 10 ⁻³	2.75 x 10 ⁻⁴	1.59 x 10 ⁻⁴
CLIMB 2	3.83 x 10 ⁻⁴	1.35 x 10 ⁻⁴	2.25 x 10 ⁻³	3.90 x 10 ⁻⁴	2.25 x 10 ⁻⁴
APPROACH 1	2.86 x 10 ⁻³	1.32 x 10 ⁻³	1.37 x 10 ⁻³	2.23 x 10 ⁻⁴	2.86 x 10 ⁻⁴
APPROACH 2	7.40 x 10 ⁻⁴	3.40 x 10 ⁻⁴	3.55 x 10 ⁻⁴	5.77 x 10 ⁻⁵	7.40 x 10 ⁻⁵
LANDING	2.73 x 10 ⁻³	3.48 x 10 ⁻³	5.85 x 10 ⁻⁵	7.48 x 10 ⁻⁶	3.25 x 10 ⁻⁵
TAXI IN	3.90 x 10 ⁻²	4.96 x 10 ⁻²	8.35 x 10 ⁻⁴	1.07 x 10 ⁻⁴	4.64 x 10 ⁻⁴
SHUTDOWN	1.03 x 10 ⁻²	1.31 x 10 ⁻²	2.20 x 10 ⁻⁴	2.82 x 10 ⁻⁵	1.22 x 10 ⁻⁴
TOTAL	1.4 x 10 ⁻¹	1.8 x 10 ⁻¹	1.5 x 10 ⁻²	2.5 x 10 ⁻²	3.1 x 10 ⁻³
TOUCH & GO	4.3 x 10 ⁻³	1.9 x 10 ⁻³	5.7 x 10 ⁻³	9.6 x 10 ⁻⁴	7.5 x 10 ⁻⁴

TABLE A-9. C-5A AND C-5LS LTO AND TGO EMISSIONS

EMISSIONS BY AIRCRAFT TYPE
(METRIC TONS/LTO CYCLE)

C-5A

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	2.30 x 10 ⁻²	7.88 x 10 ⁻³	1.03 x 10 ⁻³	5.14 x 10 ⁻⁶	3.43 x 10 ⁻⁴
TAXI OUT	3.37 x 10 ⁻²	1.16 x 10 ⁻²	1.51 x 10 ⁻³	7.56 x 10 ⁻⁶	5.04 x 10 ⁻⁴
ENGINE CHECK	2.69 x 10 ⁻⁵	7.67 x 10 ⁻⁶	1.07 x 10 ⁻³	9.59 x 10 ⁻⁷	3.84 x 10 ⁻⁵
RUNWAY ROLL	2.98 x 10 ⁻⁴	8.51 x 10 ⁻⁵	1.19 x 10 ⁻²	1.06 x 10 ⁻⁵	4.26 x 10 ⁻⁴
CLIMB 1	1.42 x 10 ⁻⁴	4.05 x 10 ⁻⁵	5.67 x 10 ⁻³	5.06 x 10 ⁻⁶	2.02 x 10 ⁻⁴
CLIMB 2	1.55 x 10 ⁻⁴	4.42 x 10 ⁻⁵	6.19 x 10 ⁻³	5.53 x 10 ⁻⁶	2.21 x 10 ⁻⁴
APPROACH 1	3.69 x 10 ⁻³	1.24 x 10 ⁻³	3.67 x 10 ⁻⁴	1.51 x 10 ⁻⁶	9.41 x 10 ⁻⁵
APPROACH 2	2.33 x 10 ⁻³	7.83 x 10 ⁻⁴	2.31 x 10 ⁻⁴	9.49 x 10 ⁻⁷	5.93 x 10 ⁻⁵
LANDING	3.49 x 10 ⁻³	1.20 x 10 ⁻³	1.56 x 10 ⁻⁴	7.82 x 10 ⁻⁷	5.21 x 10 ⁻⁵
TAXI IN	3.27 x 10 ⁻²	1.12 x 10 ⁻²	1.47 x 10 ⁻³	7.33 x 10 ⁻⁶	4.88 x 10 ⁻⁴
SHUTDOWN	4.59 x 10 ⁻³	1.58 x 10 ⁻³	2.06 x 10 ⁻⁴	1.03 x 10 ⁻⁶	6.85 x 10 ⁻⁵
TOTAL	1.0 x 10 ⁻¹	3.6 x 10 ⁻²	3.0 x 10 ⁻²	4.6 x 10 ⁻⁵	2.5 x 10 ⁻³
TOUCH & GO	6.4 x 10 ⁻³	2.1 x 10 ⁻³	1.3 x 10 ⁻²	1.4 x 10 ⁻⁵	6.0 x 10 ⁻⁴

C-5LS

OPERATION	CO	HC	NO _x	PM	SO _x
STARTUP	5.14 x 10 ⁻³	1.54 x 10 ⁻³	3.60 x 10 ⁻⁴	4.11 x 10 ⁻⁶	1.03 x 10 ⁻⁴
TAXI OUT	2.52 x 10 ⁻²	7.56 x 10 ⁻³	1.76 x 10 ⁻³	2.02 x 10 ⁻⁵	5.04 x 10 ⁻⁴
ENGINE CHECK	1.92 x 10 ⁻⁵	3.84 x 10 ⁻⁶	1.53 x 10 ⁻³	1.53 x 10 ⁻⁶	3.84 x 10 ⁻⁵
RUNWAY ROLL	1.09 x 10 ⁻⁴	2.18 x 10 ⁻⁵	8.73 x 10 ⁻³	8.73 x 10 ⁻⁶	2.18 x 10 ⁻⁴
CLIMB 1	9.38 x 10 ⁻⁵	1.88 x 10 ⁻⁵	7.51 x 10 ⁻³	7.51 x 10 ⁻⁶	1.88 x 10 ⁻⁴
CLIMB 2	9.69 x 10 ⁻⁵	1.94 x 10 ⁻⁵	7.75 x 10 ⁻³	7.75 x 10 ⁻⁶	1.94 x 10 ⁻⁴
APPROACH 1	5.51 x 10 ⁻³	1.65 x 10 ⁻³	5.24 x 10 ⁻⁴	4.55 x 10 ⁻⁶	1.14 x 10 ⁻⁴
APPROACH 2	3.35 x 10 ⁻³	1.00 x 10 ⁻³	3.18 x 10 ⁻⁴	2.77 x 10 ⁻⁶	6.92 x 10 ⁻⁵
LANDING	2.61 x 10 ⁻³	7.82 x 10 ⁻⁴	1.83 x 10 ⁻⁴	2.09 x 10 ⁻⁶	5.21 x 10 ⁻⁵
TAXI IN	2.44 x 10 ⁻²	7.33 x 10 ⁻³	1.71 x 10 ⁻³	1.96 x 10 ⁻⁵	4.89 x 10 ⁻⁴
SHUTDOWN	3.43 x 10 ⁻³	1.03 x 10 ⁻³	2.40 x 10 ⁻⁴	2.74 x 10 ⁻⁶	6.86 x 10 ⁻⁵
TOTAL	7.0 x 10 ⁻²	2.1 x 10 ⁻²	3.1 x 10 ⁻²	8.2 x 10 ⁻⁵	2.0 x 10 ⁻³
TOUCH & GO	9.1 x 10 ⁻³	2.7 x 10 ⁻³	1.7 x 10 ⁻²	2.3 x 10 ⁻⁵	5.9 x 10 ⁻⁴

POUNDS EMITTED PER UNIT

<u>SCC PROCESS</u>	<u>PART</u>	<u>SO_x</u>	<u>NO_x</u>	<u>VOC</u>	<u>CO</u>	<u>UNITS</u>
<u>INTERNAL COMBUSTION ENGINES - ELECTRIC GENERATION - 4911</u>						
<u>Distillate Oil (Diesel)</u>						
2-01-001-01	Turbine	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-01-001-02	Reciprocating	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>Natural Gas</u>						
2-01-002-01	Turbine	14.0	0.6	413.0	12.6	115.0 10 ⁶ Cu Ft Burned
2-01-002-02	Reciprocating	10.0	0.6	3400.0	82.9	430.0 10 ⁶ Cu Ft Burned
<u>Kerosene/Naphtha (Jet Fuel)</u>						
2-01-009-01	Turbine	5.0	6.2	67.8	4.77	15.4 10 ³ Gals Burned
2-01-009-02	Reciprocating	33.5	6.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>INTERNAL COMBUSTION - INDUSTRIAL</u>						
<u>Distillate Oil (Diesel)</u>						
2-02-001-01	Turbine	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-02-001-02	Reciprocating	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
2-02-001-03	Turbine:					
	Cogeneration	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-02-001-04	Engine:					
	Cogeneration	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>Natural Gas</u>						
2-02-002-01	Turbine	14.0	0.6	300.0	6.9	120.0 10 ⁶ Cu Ft Burned
2-02-002-02	Reciprocating	10.0	0.6	3400.0	82.9	430.0 10 ⁶ Cu Ft Burned
2-02-002-03	Turbine:					
	Cogeneration	14.0	0.6	413.0	12.6	115.0 10 ³ Cu Ft Burned
2-02-002-04	Engine:					
	Cogeneration	10.0	0.6	3400.0	82.9	430.0 10 ³ Cu Ft Burned
<u>Kerosene/Naphtha (Jet Fuel)</u>						
2-02-009-01	Turbine	5.0	6.2	67.8	4.77	15.4 10 ³ Gals Burned
2-02-009-02	Reciprocating	33.5	6.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>GASOLINE</u>						
2-02-003-01	Reciprocating	6.47	5.31	102.0	147.7	3990.0 10 ³ Gals Burned
<u>Large Bore Engine</u>						
2-02-004-01	Diesel	33.5	150.0 S	500.0	13.0	130.0 10 ³ Gals Burned
2-02-004-02	Duel Fuel (Oil/Gas)	2.2	0.7	18.0	1.5	5.9 10 ³ Horsepower-Hours
<u>Residual/Crude Oil</u>						
2-02-005-01	Reciprocating	33.5	155.0 S	469.0	32.1	102.0 10 ³ Gals Burned

TABLE 1. USAF AIRCRAFT ENGINE EMISSION FACTORS

Pollutant Emission Rate (g/kg fuel or lbs/1000 lbs fuel)*

ENGINE (Aircraft)	ENGINE MODE	FUEL FLOW kg/s	1000 lbs/hr	CARBON MONOXIDE	UNBURNED HYDRO- CARBONS	OXIDES OF NITROGEN	TOTAL PARTICULATES
F-100-P-100 (F-15) (F-16)	IDLE	0.179	1.417	24.0	3.2	3.3	0.12
	APPROACH	0.378	3.000	5.8	1.9	6.7	0.27
	APPROACH	0.378	3.000	5.8	1.9	6.7	0.27
	INTERMED	0.643	5.106	1.6	0.1	9.8	0.47
	MILITARY	1.301	10.325	0.9	0.1	27.0	0.34
	AB	5.797	46.010	4.0	0.01	3.1	0.15
JT8D-17 (C-9)	IDLE	0.145	1.150	34.0	8.8	3.4	0.31
	APPROACH	0.354	2.810	7.2	0.5	6.9	0.53
	INTERMED	0.997	7.910	1.0	0.05	15.6	0.33
	MILITARY	1.257	9.980	0.7	0.05	20.3	0.37
J33-A-35 (T-33)	IDLE	0.151	1.200	127.0	19.5	1.5	0.73
	APPROACH	0.252	2.000	84.6	6.5	1.9	0.57
	INTERMED	0.598	4.750	49.1	1.3	2.7	0.02
	MILITARY	0.696	5.525	31.3	0.5	3.6	0.02
J57-P-19W (B-52 D/E)	IDLE	0.120	0.950	79.0	77.0	2.2	0.16
	APPROACH	0.425	3.375	7.9	1.4	5.8	0.93
	INTERMED	0.819	6.504	2.4	0.2	9.5	1.92
	MILITARY	0.941	7.469	1.9	0.1	11.0	1.72
	WATER AUG	1.529	12.133	21.1	2.2	2.7	1.89
J57-F-21B (F-100) (F-101) (F-102)	IDLE	0.134	1.063	72.0	60.0	2.3	0.16
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	INTERMED	0.795	6.307	3.2	0.3	8.3	2.2
	MILITARY	0.969	7.693	2.0	0.1	9.8	2.0
	AB	4.549	36.100	4.0	0.01	3.1	0.15
J57-P-43, 43WA (C-135-A, KC-135A) (B52L/F/G)	IDLE	0.124	0.986	78.0	75.0	2.2	0.14
	APPROACH	0.233	1.850	9.7	1.8	5.3	0.52
	APPROACH	0.233	1.849	24.0	9.2	3.6	0.293
	INTERMED	0.843	6.689	2.3	0.1	9.9	1.23
	MILITARY	0.980	7.779	1.5	0.1	11.0	1.74
	WATER AUG	1.529	12.133	21.1	2.2	2.7	22.5
J57-P-59W (KC 135A)	IDLE	0.157	1.250	65.0	52.9	2.4	0.13
	APPROACH	0.233	1.850	32.5	14.2	3.3	0.22
	INTERMED	0.487	3.867	8.9	1.1	6.1	0.60
	MILITARY	0.995	7.900	2.4	0.2	11.3	0.84
	WATER AUG	1.529	12.133	21.1	2.2	2.7	22.5

SURFACE COATINGS:

BUILDING	SHOP	COATING	AMT. (LB/YR)
✓ 1405	BATTERY SHOP	ENAMEL	3
		LACQUER	3
		VARNISH	8
✓ 1509	FUEL SYSTEMS REPAIR	ENAMEL	24
		LACQUER	36
✓ 1350	PNEUDRAULICS	PAINT	33
		LACQUER	1
		ENAMEL	1
✓ 1350	REPAIR RECLAMATION	-----	
✓ 1250	JEIM-FMS	VARNISH	1.5
		LACQUER	28
		ENAMEL	16
✓ 949	93 FMS TEST CELL	SHELLAC	24
✓ 1248	93 FMS FABRIC SURV EQUIP	-----	
✓ 1260	STAND. MAINTENANCE	ENAMEL	12
		LACQUER	24
✓ 1324	AGE	VARNISH	0.75
		ENAMEL	336
		PRIMER	192
		POLY	288
		LACQUER	184
		PAINT	112
		THINNER	96
✓ 1532	NDI	LACQUER	0.75
		ENAMEL	0.75
		PAINT	24
✓ 1762	93 MMS CONV. WEAPONS	LACQUER	120
		ENAMEL	96
		PAINT	36
		THINNER	12
		PRIMER	40
✓ 1550	93 MMS WEAPONS LOADING	-----	
✓ 908	93 CES WATER WASTE	-----	
✓ 908	93 CES ENTOMOLOGY	-----	
✓ 1882	93 SPS COMBAT ARMS	-----	
✓ 1560	93 MMS LOADING STAND.	-----	
✓ 1350	93 FMS STRAT. ELECTRO ENV.	LACQUER	120
		VARNISH	0.75
		PRIMER	48
		PAINT	24
		ENAMEL	60
✓ 1253	93 FMS METALS TECHNOLOGY	-----	
✓ 1253	93 FMS ACDT STRUCT. MAINT	POLY	7668
		THINNER	21025
		ENAMEL	680
		PAINT	1044
		LACQUER	968
		PRIMER	144
✓ T-51	93 BMW CASTLE AIR MUSEUM	POLY	16.5
		ENAMEL	165
		LACQUER	20

		PAINT	24
		PRIMER	32
✓1521	93 FMS WASHRACK	-----	
✓1353	93 FMS APPEARANCE & ENHANCE.	POLY	344
		THINNER	24
		LACQUER	24
✓1709	93 MMS SPECIAL WEAPONS MAINT	LACQUER	222
		ENAMEL	40
		PRIMER	160
		PAINT	8
		THINNER	94
✓1200	93 CES VERTICAL SHOP	LACQUER	72
		THINNER	80
		ENAMEL	96
		PRIMER	36
✓1550	93-MMS EQUIP MAINT	ENAMEL	24
		LACQUER	12
		PAINT	12
		VARNISH	4
		PRIMER	12
✓1335	93 AMS BOMB NAVIGATION	ENAMEL	76
		POLY	64
✓1335	93 AMS DEF FIRE CONTROL	LACQUER	3
		ENAMEL	188
✓1335	93 AMS ELEC. WARFARE SYSTEMS	PAINT	78
		VARNISH	1.5
✓532	93 FMS TMDE	ENAMEL	3
		PAINT	1
✓508	93 SUPS FUELS LAB	-----	
✓85	93 SUPS FUELS STORAGE	-----	
✓325	93 TRANS VEHICLE MAINT	-----	
✓325	93 TRANS BATTERY SHOP	PAINT	96
✓88	93 TRANS BODY SHOP	PRIMER	256
		ENAMEL	96
		PAINT	120
		LACQUER	6
		THINNER	2784
✓T-59	93 TRANS REFUEL MAINT	THINNER	6
		ENAMEL	38
		PAINT	58
✓535	93 TRANS PACKING & CRATING	ENAMEL	36
		LACQUER	36
		PAINT	12
✓344	93 CES FIRE EXTING. MAINT	ENAMEL	14
✓851	93 CES EXTERIOR ELECT.	ENAMEL	0.75
		LACQUER	0.75
✓547	93 CES LIQ. FUELS MGMT	-----	
✓851	POWER PRODUCTION	PAINT	2
		LACQUER	2
		ENAMEL	2
✓1344	93 CES FIRE DEPARTMENT	THINNER	8
		ENAMEL	300
		LACQUER	72
		PRIMER	6
		PAINT	48
✓551,4,6	93 CSG ARTS & CRAFTS	-----	

BUILDING	SHOP	COATING	AMT (LB/YR)
✓551,4,6	93 CSG ARTS & CRAFTS	-----	
✓443	93 CES ASBESTOS REMOVAL TEAM	-----	
✓508	93 SUPS FUEL DISTRIBUTION	ENAMEL	216
✓1200	93 CES ZONE 1	THINNER	8
		ENAMEL	34
		PRIMER	6

✓1200	93 CES ZONE 3	THINNER	96
✓1550	93 MMS WEAPONS RELEASE	POLY	312
		PAINT	396
		ENAMEL	384
		LACQUER	408
		VARNISH	36
		POLY	1
		VARNISH	12
		ENAMEL	24
		PAINT	24

✓1319	93 OMS BOMBER CREW	-----	
✓1319	93 OMS BOMB NAV	-----	
✓1319	93 OMS DEF. FIRE CONTROL	-----	
✓1350	93 FMS INSPECTION BRANCH	-----	
✓1350	93 FMS EGRESS SHOP	PRIMER	1
		LACQUER	2
		ENAMEL	1

LIST OF SURFACE COATINGS COULDN'T FIND AT BIO,
USED LISTING AT ENV. MGMT.

✓1200	93 CES ZONE 2	-----	
✓1319	693 OMS TANKER SPECIALIST	-----	
✓1319	93 OMS ECM	-----	
✓1319	93 OMS CONVENTIONAL SECT.	-----	
✓1319	93 OMS SPEC. JET ENGINE	-----	
1335	93 AMS COMM NAV	LACQUER	6
		ENAMEL	2

✓1200	93 CES PAVEMENTS	-----	
1344	93 TRANS FIRE TRUCK MAIN	PAINT	24
		THINNER	12

✓1350	93 FMS WHEEL & TIRE	?	
✓93	93 SUPS STORAGE & ISSUE	?	
✓93	93 SUPS WAR READINESS		

TOTAL:

ENAMEL: 2968 ✓
LACQUER: 2370 ✓
VARNISH: 64.5 ✓
PAINT: 2176 ✓
POLYUR: 8717 ✓
PRIMER: 933 ✓
THINNER: 24245 ✓

EMISSIONS FOR SURFACE COATINGS:

COATING	LB COATING/YR	TON/LB	EMISS FAC	LB POL/YR	TON/YR
ENAMEL	2968	0.0005	840	1.25E+03	6.23E-01
PAINT	2176	0.0005	1120	1.22E+03	6.09E-01
VARNISH	64.5	0.0005	1000	3.23E+01	1.61E-02
LACQUER	2370	0.0005	1540	1.82E+03	9.12E-01
PRIMER	933	0.0005	1320	6.16E+02	3.08E-01
POLY.*	8717	0.0005	1000	4.36E+03	2.18E+00
THINNER**	24245	0.0005	1750	2.12E+04	1.06E+01

* ASSUMED POLYURETHANE WAS EQUIVALENT TO SHELLAC.

** EMISSION FACTOR FROM AIR EMISSION INVENTORY PUT OUT BU A.F.

REFERENCE: AP-42 A PG. 4.2-1 TABLE 4.2-1 1985

$$\left(2968 \frac{\text{lb}}{\text{yr}} \right) \left(\frac{840 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 1247 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(2176 \frac{\text{lb}}{\text{yr}} \right) \left(\frac{1120 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 1,219 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(64.5 \frac{\text{lb coating}}{\text{yr}} \right) \left(\frac{1000 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 32.3 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(2370 \frac{\text{lb coating}}{\text{yr}} \right) \left(\frac{1540 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 1825 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(933 \frac{\text{lb coating}}{\text{yr}} \right) \left(\frac{1320 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 616 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(8717 \frac{\text{lb coating}}{\text{yr}} \right) \left(\frac{1000 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 4,359 \frac{\text{lb VOC}}{\text{yr}}$$

$$\left(24,245 \frac{\text{lb Thinner}}{\text{yr}} \right) \left(\frac{1750 \text{ lb VOC}}{2000 \text{ lb Thinner}} \right) = 21,214 \frac{\text{lb VOC}}{\text{yr}}$$

GENERATORS:

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	6	12	0.440	2.21E-03	1.40E-01	7.00E-05
SOX	2	6	12	0.370	2.21E-03	1.18E-01	5.89E-05
CO	2	6	12	279.000	2.21E-03	8.88E+01	4.44E-02
HC	2	6	12	23.200	2.21E-03	7.38E+00	3.69E-03
NOX	2	6	12	3.170	2.21E-03	1.01E+00	5.04E-04

Non-permitted
Gasoline fired
emergency generator
(7 total)

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	5	10	12	0.440	2.21E-03	5.83E-01	2.92E-04
SOX	5	10	12	0.370	2.21E-03	4.91E-01	2.45E-04
CO	5	10	12	279.000	2.21E-03	3.70E+02	1.85E-01
HC	5	10	12	23.200	2.21E-03	3.08E+01	1.54E-02
NOX	5	10	12	3.170	2.21E-03	4.20E+00	2.10E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	3	10	12	1.000	2.21E-03	7.96E-01	3.98E-04
SOX	3	10	12	0.931	2.21E-03	7.41E-01	3.70E-04
CO	3	10	12	3.030	2.21E-03	2.41E+00	1.21E-03
HC	3	10	12	1.120	2.21E-03	8.91E-01	4.46E-04
NOX	3	10	12	14.000	2.21E-03	1.11E+01	5.57E-03

These also included
40 non-permitted
engines
permitted engines
accounted for
engines currently
permitted at JPA

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	9	12	12	1.000	2.21E-03	2.86E+00	1.43E-03
SOX	9	12	12	0.931	2.21E-03	2.67E+00	1.33E-03
CO	9	12	12	3.030	2.21E-03	8.68E+00	4.34E-03
HC	9	12	12	1.120	2.21E-03	3.21E+00	1.60E-03
NOX	9	12	12	14.000	2.21E-03	4.01E+01	2.00E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	5	24	12	1.000	2.21E-03	3.18E+00	1.59E-03
SOX	5	24	12	0.931	2.21E-03	2.96E+00	1.48E-03
CO	5	24	12	3.030	2.21E-03	9.64E+00	4.82E-03
HC	5	24	12	1.120	2.21E-03	3.56E+00	1.78E-03
NOX	5	24	12	14.000	2.21E-03	4.46E+01	2.23E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	30	12	1.000	2.21E-03	7.96E-01	3.98E-04
SOX	1	30	12	0.931	2.21E-03	7.41E-01	3.70E-04
CO	1	30	12	3.030	2.21E-03	2.41E+00	1.21E-03
HC	1	30	12	1.120	2.21E-03	8.91E-01	4.46E-04
NOX	1	30	12	14.000	2.21E-03	1.11E+01	5.57E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	40	12	1.000	2.21E-03	1.06E+00	5.30E-04
SOX	1	40	12	0.931	2.21E-03	9.88E-01	4.94E-04
CO	1	40	12	3.030	2.21E-03	3.21E+00	1.61E-03
HC	1	40	12	1.120	2.21E-03	1.19E+00	5.94E-04
NOX	1	40	12	14.000	2.21E-03	1.49E+01	7.43E-03

75 engines permitted
already accounted
and 2 are still
active at JPA

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	10	60	12	1.000	2.21E-03	1.59E+01	7.96E-03
SOX	10	60	12	0.931	2.21E-03	1.48E+01	7.41E-03
CO	10	60	12	3.030	2.21E-03	4.82E+01	2.41E-02
HC	10	60	12	1.120	2.21E-03	1.78E+01	8.91E-03
NOX	10	60	12	14.000	2.21E-03	2.23E+02	1.11E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	100	12	1.000	2.21E-03	2.65E+00	1.33E-03
SOX	1	100	12	0.931	2.21E-03	2.47E+00	1.23E-03
CO	1	100	12	3.030	2.21E-03	8.04E+00	4.02E-03
HC	1	100	12	1.120	2.21E-03	2.97E+00	1.49E-03
NOX	1	100	12	14.000	2.21E-03	3.71E+01	1.86E-02

69-0

71-0

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	120	12	1.000	2.21E-03	6.36E+00	3.18E-03
SOX	2	120	12	0.931	2.21E-03	5.93E+00	2.96E-03
CO	2	120	12	3.030	2.21E-03	1.93E+01	9.64E-03
HC	2	120	12	1.120	2.21E-03	7.13E+00	3.56E-03
NOX	2	120	12	14.000	2.21E-03	8.91E+01	4.46E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	5	300	12	1.000	2.21E-03	3.98E+01	1.99E-02
SOX	5	300	12	0.931	2.21E-03	3.70E+01	1.85E-02
CO	5	300	12	3.030	2.21E-03	1.21E+02	6.03E-02
HC	5	300	12	1.120	2.21E-03	4.46E+01	2.23E-02
NOX	5	300	12	14.000	2.21E-03	5.57E+02	2.78E-01

73-0
76-76

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	310	12	1.000	2.21E-03	8.22E+00	4.11E-03
SOX	1	310	12	0.931	2.21E-03	7.65E+00	3.83E-03
CO	1	310	12	3.030	2.21E-03	2.49E+01	1.25E-02
HC	1	310	12	1.120	2.21E-03	9.21E+00	4.60E-03
NOX	1	310	12	14.000	2.21E-03	1.15E+02	5.75E-02

77-0

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	350	12	1.000	2.21E-03	9.28E+00	4.64E-03
SOX	1	350	12	0.931	2.21E-03	8.64E+00	4.32E-03
CO	1	350	12	3.030	2.21E-03	2.81E+01	1.41E-02
HC	1	350	12	1.120	2.21E-03	1.04E+01	5.20E-03
NOX	1	350	12	14.000	2.21E-03	1.30E+02	6.50E-02

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POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	11	12	1.000	2.21E-03	5.83E-01	2.92E-04
SOX	2	11	12	0.931	2.21E-03	5.43E-01	2.72E-04
CO	2	11	12	3.030	2.21E-03	1.77E+00	8.84E-04
HC	2	11	12	1.120	2.21E-03	6.53E-01	3.27E-04
NOX	2	11	12	14.000	2.21E-03	8.17E+00	4.08E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	3	12	1.000	2.21E-03	7.96E-02	3.98E-05
SOX	1	3	12	0.931	2.21E-03	7.41E-02	3.70E-05
CO	1	3	12	3.030	2.21E-03	2.41E-01	1.21E-04
HC	1	3	12	1.120	2.21E-03	8.91E-02	4.46E-05
NOX	1	3	12	14.000	2.21E-03	1.11E+00	5.57E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	6	12	1.000	2.21E-03	3.18E-01	1.59E-04
SOX	2	6	12	0.931	2.21E-03	2.96E-01	1.48E-04
CO	2	6	12	3.030	2.21E-03	9.64E-01	4.82E-04
HC	2	6	12	1.120	2.21E-03	3.56E-01	1.78E-04
NOX	2	6	12	14.000	2.21E-03	4.46E+00	2.23E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	15	12	1.000	2.21E-03	3.98E-01	1.99E-04
SOX	1	15	12	0.931	2.21E-03	3.70E-01	1.85E-04
CO	1	15	12	3.030	2.21E-03	1.21E+00	6.03E-04
HC	1	15	12	1.120	2.21E-03	4.46E-01	2.23E-04
NOX	1	15	12	14.000	2.21E-03	5.57E+00	2.78E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	75	12	1.000	2.21E-03	1.99E+00	9.95E-04
SOX	1	75	12	0.931	2.21E-03	1.85E+00	9.26E-04
CO	1	75	12	3.030	2.21E-03	6.03E+00	3.01E-03
HC	1	75	12	1.120	2.21E-03	2.23E+00	1.11E-03
NOX	1	75	12	14.000	2.21E-03	2.78E+01	1.39E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	3	400	24	1.000	2.21E-03	6.36E+01	3.18E-02
SOX	3	400	24	0.931	2.21E-03	5.93E+01	2.96E-02
CO	3	400	24	3.030	2.21E-03	1.93E+02	9.64E-02
HC	3	400	24	1.120	2.21E-03	7.13E+01	3.56E-02
NOX	3	400	24	14.000	2.21E-03	8.91E+02	4.46E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	450	24	1.000	2.21E-03	4.77E+01	2.39E-02
SOX	2	450	24	0.931	2.21E-03	4.44E+01	2.22E-02
CO	2	450	24	3.030	2.21E-03	1.45E+02	7.23E-02
HC	2	450	24	1.120	2.21E-03	5.35E+01	2.67E-02
NOX	2	450	24	14.000	2.21E-03	6.68E+02	3.34E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	900	24	1.000	2.21E-03	4.77E+01	2.39E-02
SOX	1	900	24	0.931	2.21E-03	4.44E+01	2.22E-02
CO	1	900	24	3.030	2.21E-03	1.45E+02	7.23E-02
HC	1	900	24	1.120	2.21E-03	5.35E+01	2.67E-02
NOX	1	900	24	14.000	2.21E-03	6.68E+02	3.34E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	0.75	12	1.000	2.21E-03	1.99E-02	9.95E-06
SOX	1	0.75	12	0.931	2.21E-03	1.85E-02	9.26E-06
CO	1	0.75	12	3.030	2.21E-03	6.03E-02	3.01E-05
HC	1	0.75	12	1.120	2.21E-03	2.23E-02	1.11E-05
NOX	1	0.75	12	14.000	2.21E-03	2.78E-01	1.39E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	2	8	12	1.000	2.21E-03	4.24E-01	2.12E-04
SOX	2	8	12	0.931	2.21E-03	3.95E-01	1.98E-04
CO	2	8	12	3.030	2.21E-03	1.29E+00	6.43E-04
HC	2	8	12	1.120	2.21E-03	4.75E-01	2.38E-04
NOX	2	8	12	14.000	2.21E-03	5.94E+00	2.97E-03

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POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	4	250	24	1.000	2.21E-03	5.30E+01	2.65E-02
SOX	4	250	24	0.931	2.21E-03	4.94E+01	2.47E-02
CO	4	250	24	3.030	2.21E-03	1.61E+02	8.04E-02
HC	4	250	24	1.120	2.21E-03	5.94E+01	2.97E-02
NOX	4	250	24	14.000	2.21E-03	7.43E+02	3.71E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	1	15	24	1.000	2.21E-03	7.96E-01	3.98E-04
SOX	1	15	24	0.931	2.21E-03	7.41E-01	3.70E-04
CO	1	15	24	3.030	2.21E-03	2.41E+00	1.21E-03
HC	1	15	24	1.120	2.21E-03	8.91E-01	4.46E-04
NOX	1	15	24	14.000	2.21E-03	1.11E+01	5.57E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	3	3.5	12	1.000	2.21E-03	2.78E-01	1.39E-04
SOX	3	3.5	12	0.931	2.21E-03	2.59E-01	1.30E-04
CO	3	3.5	12	3.030	2.21E-03	8.44E-01	4.22E-04
HC	3	3.5	12	1.120	2.21E-03	3.12E-01	1.56E-04
NOX	3	3.5	12	14.000	2.21E-03	3.90E+00	1.95E-03

LAWN EQUIPMENT:
ASSUMPTIONS: 3HP=400CC

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	9	0.30	130	7.100	2.21E-03	5.51E+00	2.75E-03
SOX	9	0.30	130	0.540	2.21E-03	4.19E-01	2.09E-04
CO	9	0.30	130	486.000	2.21E-03	3.77E+02	1.88E-01
HC	9	0.30	130	214.000	2.21E-03	1.66E+02	8.30E-02
NOX	9	0.30	130	1.580	2.21E-03	1.23E+00	6.13E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	8	0.23	520	7.100	2.21E-03	1.50E+01	7.51E-03
SOX	8	0.23	520	0.540	2.21E-03	1.14E+00	5.71E-04
CO	8	0.23	520	486.000	2.21E-03	1.03E+03	5.14E-01
HC	8	0.23	520	214.000	2.21E-03	4.53E+02	2.26E-01
NOX	8	0.23	520	1.580	2.21E-03	3.34E+00	1.67E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	10	0.64	520	7.100	2.21E-03	5.22E+01	2.61E-02
SOX	10	0.64	520	0.540	2.21E-03	3.97E+00	1.99E-03
CO	10	0.64	520	486.000	2.21E-03	3.57E+03	1.79E+00
HC	10	0.64	520	214.000	2.21E-03	1.57E+03	7.87E-01
NOX	10	0.64	520	1.580	2.21E-03	1.16E+01	5.81E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	9	3	520	7.100	2.21E-03	2.20E+02	1.10E-01
SOX	9	3	520	0.540	2.21E-03	1.68E+01	8.38E-03
CO	9	3	520	486.000	2.21E-03	1.51E+04	7.54E+00
HC	9	3	520	214.000	2.21E-03	6.64E+03	3.32E+00
NOX	9	3	520	1.580	2.21E-03	4.90E+01	2.45E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	3	9	1040	0.440	2.21E-03	2.73E+01	1.37E-02
SOX	3	9	1040	0.370	2.21E-03	2.30E+01	1.15E-02
CO	3	9	1040	279.000	2.21E-03	1.73E+04	8.66E+00
HC	3	9	1040	23.200	2.21E-03	1.44E+03	7.20E-01
NOX	3	9	1040	3.170	2.21E-03	1.97E+02	9.84E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	4	150	1040	0.440	2.21E-03	6.07E+02	3.03E-01
SOX	4	150	1040	0.370	2.21E-03	5.10E+02	2.55E-01
CO	4	150	1040	279.000	2.21E-03	3.85E+05	1.92E+02
HC	4	150	1040	23.200	2.21E-03	3.20E+04	1.60E+01
NOX	4	150	1040	3.170	2.21E-03	4.37E+03	2.19E+00

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	9	0.30	1040	0.440	2.21E-03	2.73E+00	1.37E-03
SOX	9	0.30	1040	0.370	2.21E-03	2.30E+00	1.15E-03
CO	9	0.30	1040	279.000	2.21E-03	1.73E+03	8.66E-01
HC	9	0.30	1040	23.200	2.21E-03	1.44E+02	7.20E-02
NOX	9	0.30	1040	3.170	2.21E-03	1.97E+01	9.84E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	8	0.23	1040	0.440	2.21E-03	1.86E+00	9.30E-04
SOX	8	0.23	1040	0.370	2.21E-03	1.56E+00	7.82E-04
CO	8	0.23	1040	279.000	2.21E-03	1.18E+03	5.90E-01
HC	8	0.23	1040	23.200	2.21E-03	9.81E+01	4.91E-02
NOX	8	0.23	1040	3.170	2.21E-03	1.34E+01	6.70E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB/YR	TON/YR
PA	10	0.64	1040	0.440	2.21E-03	6.47E+00	3.24E-03
SOX	10	0.64	1040	0.370	2.21E-03	5.44E+00	2.72E-03
CO	10	0.64	1040	279.000	2.21E-03	4.10E+03	2.05E+00
HC	10	0.64	1040	23.200	2.21E-03	3.41E+02	1.71E-01
NOX	10	0.64	1040	3.170	2.21E-03	4.66E+01	2.33E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	3	12	1040	0.44	2.21E-03	3.63E+01	1.82E-02
SOX	3	12	1040	0.37	2.21E-03	3.05E+01	1.53E-02
CO	3	12	1040	279	2.21E-03	2.30E+04	1.15E+01
HC	3	12	1040	23.2	2.21E-03	1.92E+03	9.58E-01
NOX	3	12	1040	3.17	2.21E-03	2.62E+02	1.31E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	2	11	1040	0.44	2.21E-03	2.22E+01	1.11E-02
SOX	2	11	1040	0.37	2.21E-03	1.87E+01	9.33E-03
CO	2	11	1040	279	2.21E-03	1.41E+04	7.04E+00
HC	2	11	1040	23.2	2.21E-03	1.17E+03	5.85E-01
NOX	2	11	1040	3.17	2.21E-03	1.60E+02	8.00E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	8	1040	0.44	2.21E-03	8.07E+00	4.04E-03
SOX	1	8	1040	0.37	2.21E-03	6.79E+00	3.39E-03
CO	1	8	1040	279	2.21E-03	5.12E+03	2.56E+00
HC	1	8	1040	23.2	2.21E-03	4.26E+02	2.13E-01
NOX	1	8	1040	3.17	2.21E-03	5.82E+01	2.91E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	3	0.158	520	7.1	2.21E-03	3.86E+00	1.93E-03
SOX	3	0.158	520	0.54	2.21E-03	2.93E-01	1.47E-04
CO	3	0.158	520	486	2.21E-03	2.64E+02	1.32E-01
HC	3	0.158	520	214	2.21E-03	1.16E+02	5.82E-02
NOX	3	0.158	520	1.58	2.21E-03	8.59E-01	4.29E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	4	3	1040	1	2.21E-03	2.75E+01	1.38E-02
SOX	4	3	1040	0.931	2.21E-03	2.56E+01	1.28E-02
CO	4	3	1040	3.03	2.21E-03	8.34E+01	4.17E-02
HC	4	3	1040	1.12	2.21E-03	3.08E+01	1.54E-02
NOX	4	3	1040	14	2.21E-03	3.85E+02	1.93E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	65	520	0.44	2.21E-03	3.28E+01	1.64E-02
SOX	1	65	520	0.37	2.21E-03	2.76E+01	1.38E-02
CO	1	65	520	279	2.21E-03	2.08E+04	1.04E+01
HC	1	65	520	23.2	2.21E-03	1.73E+03	8.65E-01
NOX	1	65	520	3.17	2.21E-03	2.36E+02	1.18E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	2	18	520	0.44	2.21E-03	1.82E+01	9.08E-03
SOX	2	18	520	0.37	2.21E-03	1.53E+01	7.64E-03
CO	2	18	520	279	2.21E-03	1.15E+04	5.76E+00
HC	2	18	520	23.2	2.21E-03	9.58E+02	4.79E-01
NOX	2	18	520	3.17	2.21E-03	1.31E+02	6.54E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	16	5	1040	0.44	2.21E-03	8.07E+01	4.04E-02
SOX	16	5	1040	0.37	2.21E-03	6.79E+01	3.39E-02
CO	16	5	1040	279	2.21E-03	5.12E+04	2.56E+01
HC	16	5	1040	23.2	2.21E-03	4.26E+03	2.13E+00
NOX	16	5	1040	3.17	2.21E-03	5.82E+02	2.91E-01

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	2	4	1040	0.44	2.21E-03	8.07E+00	4.04E-03
SOX	2	4	1040	0.37	2.21E-03	6.79E+00	3.39E-03
CO	2	4	1040	279	2.21E-03	5.12E+03	2.56E+00
X HC	2	4	1040	23.2	2.21E-03	4.26E+02	2.13E-01
NOX	2	4	1040	3.17	2.21E-03	5.82E+01	2.91E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	0.034	520	7.1	2.21E-03	2.77E-01	1.38E-04
SOX	1	0.034	520	0.54	2.21E-03	2.11E-02	1.05E-05
X CO	1	0.034	520	486	2.21E-03	1.89E+01	9.47E-03
HC	1	0.034	520	214	2.21E-03	8.34E+00	4.17E-03
NOX	1	0.034	520	1.58	2.21E-03	6.16E-02	3.08E-05

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	0.028	520	7.1	2.21E-03	2.28E-01	1.14E-04
SOX	1	0.028	520	0.54	2.21E-03	1.73E-02	8.67E-06
X CO	1	0.028	520	486	2.21E-03	1.56E+01	7.80E-03
HC	1	0.028	520	214	2.21E-03	6.87E+00	3.44E-03
NOX	1	0.028	520	1.58	2.21E-03	5.07E-02	2.54E-05

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	0.017	520	7.1	2.21E-03	1.38E-01	6.92E-05
SOX	1	0.017	520	0.54	2.21E-03	1.05E-02	5.26E-06
X CO	1	0.017	520	486	2.21E-03	9.47E+00	4.74E-03
HC	1	0.017	520	214	2.21E-03	4.17E+00	2.09E-03
NOX	1	0.017	520	1.58	2.21E-03	3.08E-02	1.54E-05

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	4	7	416	0.44	2.21E-03	1.13E+01	5.65E-03
SOX	4	7	416	0.37	2.21E-03	9.50E+00	4.75E-03
X CO	4	7	416	279	2.21E-03	7.17E+03	3.58E+00
HC	4	7	416	23.2	2.21E-03	5.96E+02	2.98E-01
NOX	4	7	416	3.17	2.21E-03	8.14E+01	4.07E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	36	416	0.44	2.21E-03	1.45E+01	7.26E-03
SOX	1	36	416	0.37	2.21E-03	1.22E+01	6.11E-03
X CO	1	36	416	279	2.21E-03	9.21E+03	4.61E+00
HC	1	36	416	23.2	2.21E-03	7.66E+02	3.83E-01
NOX	1	36	416	3.17	2.21E-03	1.05E+02	5.23E-02

-POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	3.5	1040	7.1	2.21E-03	5.70E+01	2.85E-02
SOX	1	3.5	1040	0.54	2.21E-03	4.33E+00	2.17E-03
X CO	1	3.5	1040	486	2.21E-03	3.90E+03	1.95E+00
HC	1	3.5	1040	214	2.21E-03	1.72E+03	8.59E-01
NOX	1	3.5	1040	1.58	2.21E-03	1.27E+01	6.34E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	0.5	520	7.1	2.21E-03	4.07E+00	2.04E-03
X SOX	1	0.5	520	0.54	2.21E-03	3.10E-01	1.55E-04
CO	1	0.5	520	486	2.21E-03	2.79E+02	1.39E-01
HC	1	0.5	520	214	2.21E-03	1.23E+02	6.13E-02
NOX	1	0.5	520	1.58	2.21E-03	9.06E-01	4.53E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	3.5	1040	0.44	2.21E-03	3.53E+00	1.77E-03
SOX	1	3.5	1040	0.37	2.21E-03	2.97E+00	1.48E-03
CO	1	3.5	1040	279	2.21E-03	2.24E+03	1.12E+00
HC	1	3.5	1040	23.2	2.21E-03	1.86E+02	9.31E-02
NOX	1	3.5	1040	3.17	2.21E-03	2.54E+01	1.27E-02

CONSTRUCTION EQUIPMENT:

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	3	0.025	520	7.1	2.21E-03	6.11E-01	3.05E-04
SOX	3	0.025	520	0.54	2.21E-03	4.64E-02	2.32E-05
CO	3	0.025	520	486	2.21E-03	4.18E+01	2.09E-02
HC	3	0.025	520	214	2.21E-03	1.84E+01	9.20E-03
NOX	3	0.025	520	1.58	2.21E-03	1.36E-01	6.79E-05

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	0.501	520	7.1	2.21E-03	4.08E+00	2.04E-03
SOX	1	0.501	520	0.54	2.21E-03	3.10E-01	1.55E-04
CO	1	0.501	520	486	2.21E-03	2.79E+02	1.40E-01
HC	1	0.501	520	214	2.21E-03	1.23E+02	6.15E-02
NOX	1	0.501	520	1.58	2.21E-03	9.08E-01	4.54E-04

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	2	0.75	520	7.1	2.21E-03	1.22E+01	6.11E-03
SOX	2	0.75	520	0.54	2.21E-03	9.29E-01	4.64E-04
CO	2	0.75	520	486	2.21E-03	8.36E+02	4.18E-01
HC	2	0.75	520	214	2.21E-03	3.68E+02	1.84E-01
NOX	2	0.75	520	1.58	2.21E-03	2.72E+00	1.36E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	12	3	520	0.44	2.21E-03	1.82E+01	9.08E-03
SOX	12	3	520	0.37	2.21E-03	1.53E+01	7.64E-03
CO	12	3	520	279	2.21E-03	1.15E+04	5.76E+00
HC	12	3	520	23.2	2.21E-03	9.58E+02	4.79E-01
NOX	12	3	520	3.17	2.21E-03	1.31E+02	6.54E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	6.5	520	7.1	2.21E-03	5.29E+01	2.65E-02
SOX	1	6.5	520	0.54	2.21E-03	4.02E+00	2.01E-03
CO	1	6.5	520	486	2.21E-03	3.62E+03	1.81E+00
HC	1	6.5	520	214	2.21E-03	1.59E+03	7.97E-01
NOX	1	6.5	520	1.58	2.21E-03	1.18E+01	5.89E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	3	520	7.1	2.21E-03	2.44E+01	1.22E-02
SOX	1	3	520	0.54	2.21E-03	1.86E+00	9.29E-04
CO	1	3	520	486	2.21E-03	1.67E+03	8.36E-01
HC	1	3	520	214	2.21E-03	7.36E+02	3.68E-01
NOX	1	3	520	1.58	2.21E-03	5.43E+00	2.72E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	3.5	520	0.44	2.21E-03	1.77E+00	8.83E-04
SOX	1	3.5	520	0.39	2.21E-03	1.57E+00	7.83E-04
CO	1	3.5	520	250	2.21E-03	1.00E+03	5.02E-01
HC	1	3.5	520	15.2	2.21E-03	6.10E+01	3.05E-02
NOX	1	3.5	520	4.97	2.21E-03	1.99E+01	9.97E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	10	520	7.1	2.21E-03	8.14E+01	4.07E-02
SOX	1	10	520	0.54	2.21E-03	6.19E+00	3.10E-03
CO	1	10	520	486	2.21E-03	5.57E+03	2.79E+00
HC	1	10	520	214	2.21E-03	2.45E+03	1.23E+00
NOX	1	10	520	1.58	2.21E-03	1.81E+01	9.06E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	3	520	0.44	2.21E-03	1.51E+00	7.57E-04
SOX	1	3	520	0.39	2.21E-03	1.34E+00	6.71E-04
CO	1	3	520	250	2.21E-03	8.60E+02	4.30E-01
HC	1	3	520	15.2	2.21E-03	5.23E+01	2.61E-02
NOX	1	3	520	4.97	2.21E-03	1.71E+01	8.55E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	16	520	0.44	2.21E-03	8.07E+00	4.04E-03
SOX	1	16	520	0.39	2.21E-03	7.15E+00	3.58E-03
CO	1	16	520	250	2.21E-03	4.59E+03	2.29E+00
HC	1	16	520	15.2	2.21E-03	2.79E+02	1.39E-01
NOX	1	16	520	4.97	2.21E-03	9.12E+01	4.56E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	4	7	520	0.44	2.21E-03	1.41E+01	7.06E-03
SOX	4	7	520	0.39	2.21E-03	1.25E+01	6.26E-03
CO	4	7	520	250	2.21E-03	8.03E+03	4.01E+00
HC	4	7	520	15.2	2.21E-03	4.88E+02	2.44E-01
NOX	4	7	520	4.97	2.21E-03	1.60E+02	7.98E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	20	520	0.44	2.21E-03	1.01E+01	5.05E-03
SOX	1	20	520	0.39	2.21E-03	8.94E+00	4.47E-03
CO	1	20	520	250	2.21E-03	5.73E+03	2.87E+00
HC	1	20	520	15.2	2.21E-03	3.49E+02	1.74E-01
NOX	1	20	520	4.97	2.21E-03	1.14E+02	5.70E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	15	520	0.44	2.21E-03	7.57E+00	3.78E-03
SOX	1	15	520	0.39	2.21E-03	6.71E+00	3.35E-03
CO	1	15	520	250	2.21E-03	4.30E+03	2.15E+00
HC	1	15	520	15.2	2.21E-03	2.61E+02	1.31E-01
NOX	1	15	520	4.97	2.21E-03	8.55E+01	4.27E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	8	520	0.44	2.21E-03	4.04E+00	2.02E-03
SOX	1	8	520	0.39	2.21E-03	3.58E+00	1.79E-03
CO	1	8	520	250	2.21E-03	2.29E+03	1.15E+00
HC	1	8	520	15.2	2.21E-03	1.39E+02	6.97E-02
NOX	1	8	520	4.97	2.21E-03	4.56E+01	2.28E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	10	520	7.1	2.21E-03	8.14E+01	4.07E-02
SOX	1	10	520	0.54	2.21E-03	6.19E+00	3.10E-03
CO	1	10	520	486	2.21E-03	5.57E+03	2.79E+00
HC	1	10	520	214	2.21E-03	2.45E+03	1.23E+00
NOX	1	10	520	1.58	2.21E-03	1.81E+01	9.06E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	5.5	520	7.1	2.21E-03	4.48E+01	2.24E-02
SOX	1	5.5	520	0.54	2.21E-03	3.41E+00	1.70E-03
CO	1	5.5	520	486	2.21E-03	3.06E+03	1.53E+00
HC	1	5.5	520	214	2.21E-03	1.35E+03	6.75E-01
NOX	1	5.5	520	1.58	2.21E-03	9.96E+00	4.98E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	2	1.5	520	7.1	2.21E-03	2.44E+01	1.22E-02
SOX	2	1.5	520	0.54	2.21E-03	1.86E+00	9.29E-04
CO	2	1.5	520	486	2.21E-03	1.67E+03	8.36E-01
HC	2	1.5	520	214	2.21E-03	7.36E+02	3.68E-01
NOX	2	1.5	520	1.58	2.21E-03	5.43E+00	2.72E-03

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	35	520	0.44	2.21E-03	1.77E+01	8.83E-03
SOX	1	35	520	0.29	2.21E-03	1.16E+01	5.82E-03
CO	1	35	520	250	2.21E-03	1.00E+04	5.02E+00
HC	1	35	520	15.2	2.21E-03	6.10E+02	3.05E-01
NOX	1	35	520	4.97	2.21E-03	1.99E+02	9.97E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	CONV FACTOR	LB POL/YR	TON/YR
PA	1	15	520	0.44	2.21E-03	7.57E+00	3.78E-03
SOX	1	15	520	0.29	2.21E-03	4.99E+00	2.49E-03
CO	1	15	520	250	2.21E-03	4.30E+03	2.15E+00
HC	1	15	520	15.2	2.21E-03	2.61E+02	1.31E-01
NOX	1	15	520	4.97	2.21E-03	8.55E+01	4.27E-02

POLLUTANT	NUM	HSPWR	HR/YR	G/HSPWR-HR	LB POL/YR	TON/YR
PA	1	11	520	0.44	2.52E+03	1.26E+00
SOX	1	11	520	0.39	2.23E+03	1.12E+00
CO	1	11	520	250	1.43E+06	7.15E+02
HC	1	11	520	15.2	8.69E+04	4.35E+01
X NOX	1	11	520	4.97	2.84E+04	1.42E+01

REFERENCE: AP-42 PG. 3.3.3-2, TABLE 3.3.3-1, VOL 1, 1985
AP-42 PG. 3.2.5-2, TABLE 3.2.5-1, VOL 1, 1985

POUNDS EMITTED PER UNIT

<u>SCC PROCESS</u>	<u>PART</u>	<u>SO_x</u>	<u>NO_x</u>	<u>VOC</u>	<u>CO</u>	<u>UNITS</u>
<u>INTERNAL COMBUSTION ENGINES - ELECTRIC GENERATION - 4911</u>						
<u>Distillate Oil (Diesel)</u>						
2-01-001-01	Turbine	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-01-001-02	Reciprocating	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>Natural Gas</u>						
2-01-002-01	Turbine	14.0	0.6	413.0	12.6	115.0 10 ⁶ Cu Ft Burned
2-01-002-02	Reciprocating	10.0	0.6	3400.0	82.9	430.0 10 ⁶ Cu Ft Burned
<u>Kerosene/Naphtha (Jet Fuel)</u>						
2-01-009-01	Turbine	5.0	6.2	67.8	4.77	15.4 10 ³ Gals Burned
2-01-009-02	Reciprocating	33.5	6.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>INTERNAL COMBUSTION - INDUSTRIAL</u>						
<u>Distillate Oil (Diesel)</u>						
2-02-001-01	Turbine	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-02-001-02	Reciprocating	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
2-02-001-03	Turbine:					
	Cogeneration	5.0	140.0 S	67.8	4.77	15.4 10 ³ Gals Burned
2-02-001-04	Engine:					
	Cogeneration	33.5	31.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>Natural Gas</u>						
2-02-002-01	Turbine	14.0	0.6	300.0	6.9	120.0 10 ⁶ Cu Ft Burned
2-02-002-02	Reciprocating	10.0	0.6	3400.0	82.9	430.0 10 ⁶ Cu Ft Burned
2-02-002-03	Turbine:					
	Cogeneration	14.0	0.6	413.0	12.6	115.0 10 ³ Cu Ft Burned
2-02-002-04	Engine:					
	Cogeneration	10.0	0.6	3400.0	82.9	430.0 10 ³ Cu Ft Burned
<u>Kerosene/Naphtha (Jet Fuel)</u>						
2-02-009-01	Turbine	5.0	6.2	67.8	4.77	15.4 10 ³ Gals Burned
2-02-009-02	Reciprocating	33.5	6.2	469.0	32.1	102.0 10 ³ Gals Burned
<u>GASOLINE</u>						
2-02-003-01	Reciprocating	6.47	5.31	102.0	147.7	3990.0 10 ³ Gals Burned
<u>Large Bore Engine</u>						
2-02-004-01	Diesel	33.5	150.0 S	500.0	13.0	130.0 10 ³ Gals Burned
2-02-004-02	Duel Fuel (Oil/Gas)	2.2	0.7	18.0	1.5	5.9 10 ³ Horsepower-Hours
<u>Residual/Crude Oil</u>						
2-02-005-01	Reciprocating	33.5	155.0 S	469.0	32.1	102.0 10 ³ Gals Burned

AEROSPACE GROUND EQUIPMENT

JP-4 FUEL:

POLLUTANT	10 ³ GAL J	EM FACTOR	LB POL/YR	TON/YR
PA	102.4	33.5	3.43E+03	1.72E+00
SOX	102.4	6.2	6.35E+02	3.17E-01
CO	102.4	102	1.04E+04	5.22E+00
HC	102.4	32.1	3.29E+03	1.64E+00
NOX	102.4	469	4.80E+04	2.40E+01

MOGAS FUEL:

POLLUTANT	10 ³ GAL J	EM FACTOR	LB POL/YR	TON/YR
PA	12.8	6.47	8.28E+01	4.14E-02
SOX	12.8	5.31	6.80E+01	3.40E-02
CO	12.8	3990	5.11E+04	2.55E+01
HC	12.8	147.7	1.89E+03	9.45E-01
NOX	12.8	102	1.31E+03	6.53E-01

DIESEL:

POLLUTANT	10 ³ GAL J	EM FACTOR	LB POL/YR	TON/YR
PA	216.1	33.5	7.24E+03	3.62E+00
SOX	216.1	31.2	6.74E+03	3.37E+00
CO	216.1	102	2.20E+04	1.10E+01
HC	216.1	32.1	6.94E+03	3.47E+00
NOX	216.1	469	1.01E+05	5.07E+01

REFERENCE: MOGAS, DIESEL, NATURAL GAS, JP-4, AERO'S MANUAL,
PG. 3.7.0-19, VOL 5.

FUEL EVAPORATION LOSSES

*ASSUMED FIXED ROOF TANKS

*TANK SIZES ARE ESTIMATES

JP-4:

Emissions taken from JP-4 Vapor Control: Technical Evaluation of Alternative Vapor Control Strategies for California Air Force Bases, October 1981.

The report was used since the fuel throughput was the same for 1981 and 1990.

1981: 106,700,000

1990: 104,518,929

Emission: 3.598E5 lb/yr
92.9 tons/yr (reduced by 87 tons with JP-4 project)

GAS & DIESEL

BREATHING LOSSES

$$LB = (2.26E-2)(Mv)(P/(PA-P))^{0.68} (D^{1.73})(H^{0.51})(T^{0.5})(FP)(C)(KC)$$

Mv= MOLECULAR WEIGHT

P=TRUE VAPOR PRESSURE

PA=ATM PEASURE (14.7)

D=DIAMETER OF TANK

H=0.5 HEIGHT OF TANK

T=AVE AMBIENT DIURNAL TEMPERATURE CHANGE (20 F)

Fp=PAINT FACTOR, ASSUMED MEDIUM GRAY - 1.40

C=0.2 FOR 8 FOOT DIAMETER

KC=1

4 10,000 GAL UST OF GAS

$$LB = (2.26E-2)(66)(5.2/(14.7-5.2))^{0.68}(8)^{1.73}(16)^{0.51}(20)^{0.5}(1.4)(0.42)$$

LB=3.91E2 LB/YR * 4 10,000 GAL TANKS = 1.562E3 LB/YR

LB=0.791 TON/YR

2 12,000 GAL UST OF GAS

$$LB = (2.26E-2)(66)(5.2/14.7-5.2)^{0.68}(8)^{1.73}(16)^{0.51}(20)^{0.5}(1.4)(0.42)(1)$$

LB=3.905E2 LB/YR * 2 TANKS = 781 LB/YR

LB= 0.391 TON/YR

2 12,000 GAL UST OF DIESEL

$$LB = (2.26E-2)(130)(.0074/14.7-.0074)^{0.68}(8)^{1.73}(16)^{0.51}(20)^{0.5}(1.4)(0.42)(1)$$

LB=6.635 LB/YR * 2 TANKS = 13.27 LB/YR

LB= 6.635E-3 TON/YR

1 8000 GAL UST OF GAS

$$LB = (2.26E-2)(66)(5.2/14.7-5.2)^{.68}(8)^{1.73}(14)^{.51}(20)^{.5}(1.4)(0.42)(1)$$

LB=364.86 LB/YR
LB=0.0869 TON/YR

1 5000 GAL UST GAS

$$LB = (2.26E-2)(66)(5.2/14.7-5.2)^{.68}(8)^{1.73}(7.5)^{.51}(20)^{.5}(1.4)(0.42)(1)$$

LB=26.55 LB/YR
LB = .1327 TON/YR

1 4000 GAL UST DIESEL

$$LB = (2.26E-2)(130)(.0074/14.7-.0074)^{.68}(8)^{1.73}(7)^{.51}(20)^{.5}(1.4)(0.42)(1)$$

LB=0.3830 LB/YR
LB= 1.915E-4 TON/YR

WORKING LOSSES:

$$LW = (2.4E-5)(Mv)(P)(V)(N)(Kn)(Kc)$$

Mv=MOLECULAR WEIGHT
P=TRUE VAPOR PRESSURE
V=TANK CAPACITY
N=# TURNOVERS
Kn=TURNOVER FACTOR
Kc=PRODUCT FACTOR (1)

Kn GAS=3.59 GAL/ GAL CAPACITY
Kn DIESEL=14.17 GAL/ GAL CAPACITY

GAS:

$$LW = (2.4E-5)(66)(5.2)(47948)(3.52)(1)(1)$$

LW=1390.2 LB/YR
LW=0.6951 TON/YR

DIESEL:

$$LW = (2.4E-5)(130)(0.0074)(14.17)(1)(1)$$

LW=0.000327 LB/YR
LW=0 TONS/YR

TRANSFER OF FUEL

L=12.46 SPM/T(1-EFF/100)
S=SATURATION FACTOR (1)
P=TRUE VAPOR PRESSURE
M=MOLECULAR WEIGHT
T=TEMPERATURE (DEGREE RANKINE)
EFF=EFFICIENCY (95%)

MOTOR POOL:

$$L = ((12.46)(1)(5.2)(66)(1 - (95/100))) / 540$$

$$L = 0.3960 \text{ LB}/10^3\text{GAL} * 172.335 \text{ GAL/YR}$$

$$L = 68.24 \text{ LB POL/YR}$$

$$L = 0.03412 \text{ TON/YR}$$

BX GAS STATION:

$$L = ((12.46)(1)(5.2)(66)(1 - 95/100)) / 540$$

$$L = 0.41118 \text{ LB}/10^3\text{GAL} * 1977.84 \text{ } 10^3\text{GAL/YR} * \text{FUEL AMOUNT FROM 1987 EMISSION REPORT}$$

$$L = 783.2 \text{ LB POL/YR}$$

$$L = 0.3916 \text{ TON/YR}$$

REFERENCE: AP-42 PG. 4.3-5-4.3-12, 4.4-1-4.4-6, VOL I, 1985

AIRCRAFT GROUND OPERATIONS:

ENGINE TYPE: J57-59W

MINUTES AT IDLE PER CHECK: 20 MIN/DAY

MINUTES AT MILITARY PER CHECK: 40 MIN/DAY

MINUTES AT AFTERBURN PER CHECK: NONE

NUMBER OF TRIMS/POWERCHECKS: 107/YR

POWER SET AT IDLE:

POLLUTANT	CHECKS/YR	HR/CHECK	10 ³ LB/HR	EM FACTOR	LB POL/YR	TON/YR
PA	107	0.33	1.25	0.13	5.80E+00	2.90E-03
SOX	107	0.33	1.25	1	4.46E+01	2.23E-02
CO	107	0.33	1.25	65	2.90E+03	1.45E+00
HC	107	0.33	1.25	52.9	2.36E+03	1.18E+00
NOX	107	0.33	1.25	2.4	1.07E+02	5.35E-02

POWER SET AT MILITARY:

POLLUTANT	CHECKS/YR	HR/CHECK	10 ³ LB/HR	EM FACTOR	LB POL/YR	TON/YR
PA	107	0.66	7.9	0.84	4.69E+02	2.34E-01
SOX	107	0.66	7.9	1	5.58E+02	2.79E-01
CO	107	0.66	7.9	2.4	1.34E+03	6.69E-01
HC	107	0.66	7.9	0.2	1.12E+02	5.58E-02
NOX	107	0.66	7.9	11.3	6.30E+03	3.15E+00

ENGINE TYPE: J57-43WB

MINUTES AT IDLE PER CHECK: 20 MIN/DAY

MINUTES AT MILITARY PER CHECK: 40 MIN/DAY

MINUTES AT AFTERBURN PER CHECK: NONE

NUMBER OF TRIMS/POWER CHECKS: 241/YR

POWER SETTING AT IDLE:

POLLUTANT	CHECKS/YR	HR/CHECK	10 ³ LB/HR	EM FACTOR	LB POL/YR	TON/YR
PA	241	0.33	0.986	0.14	1.10E+01	5.49E-03
SOX	241	0.33	0.986	1	7.84E+01	3.92E-02
CO	241	0.33	0.986	78	6.12E+03	3.06E+00
HC	241	0.33	0.986	75	5.88E+03	2.94E+00
NOX	241	0.33	0.986	2.2	1.73E+02	8.63E-02

POWER SETTING AT MILITARY:

POLLUTANT	CHECKS/YR	HR/CHECK	10 ³ LB/HR	EM FACTOR	LB POL/YR	TON/YR
PA	241	0.66	7.78	1.74	2.15E+03	1.08E+00
SOX	241	0.66	7.78	1	1.24E+03	6.19E-01
CO	241	0.66	7.78	1.5	1.86E+03	9.28E-01
HC	241	0.66	7.78	0.1	1.24E+02	6.19E-02
NOX	241	0.66	7.78	11	1.36E+04	6.81E+00

REFERENCE: ATTACHMENT

TABLE 1. USAF AIRCRAFT ENGINE EMISSION FACTORS

Pollutant Emission Rate (g/kg fuel or lbs/1000 lbs fuel)*

ENGINE (Aircraft)	ENGINE MODE	FUEL FLOW kg/s	1000 lbs/hr	CARBON MONOXIDE	UNBURNED HYDRO- CARBONS	OXIDES OF NITROGEN	TOTAL PARTICULATES
F-100-P-100 (F-15) (F-16)	IDLE	0.179	1.417	24.0	3.2	3.3	0.12
	APPROACH	0.378	3.000	5.8	1.9	6.7	0.27
	APPROACH	0.378	3.000	5.8	1.9	6.7	0.27
	INTERMED	0.643	5.106	1.6	0.1	9.8	0.47
	MILITARY	1.301	10.325	0.9	0.1	27.0	0.34
	AB	5.797	46.010	4.0	0.01	3.1	0.15
JT8D-17 (C-9)	IDLE	0.145	1.150	34.0	8.8	3.4	0.31
	APPROACH	0.354	2.810	7.2	0.5	6.9	0.53
	INTERMED	0.997	7.910	1.0	0.05	15.6	0.33
	MILITARY	1.257	9.980	0.7	0.05	20.3	0.37
J33-A-35 (T-33)	IDLE	0.151	1.200	127.0	19.5	1.5	0.73
	APPROACH	0.252	2.000	84.6	6.5	1.9	0.57
	INTERMED	0.598	4.750	49.1	1.3	2.7	0.02
	MILITARY	0.696	5.525	31.3	0.5	3.6	0.02
J57-P-19W (B-52 D/E)	IDLE	0.120	0.950	79.0	77.0	2.2	0.16
	APPROACH	0.425	3.375	7.9	1.4	5.8	0.93
	INTERMED	0.819	6.504	2.4	0.2	9.5	1.92
	MILITARY	0.941	7.469	1.9	0.1	11.0	1.72
	WATER AUG	1.529	12.133	21.1	2.2	2.7	1.89
J57-F-21B (F-100) (F-101) (F-102)	IDLE	0.134	1.063	72.0	60.0	2.3	0.16
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	APPROACH	0.315	2.500	15.7	4.2	4.3	0.72
	INTERMED	0.795	6.307	3.2	0.3	8.3	2.2
	MILITARY	0.969	7.693	2.0	0.1	9.8	2.0
	AB	4.549	36.100	4.0	0.01	3.1	0.15
J57-P-43, 43WA (C-135-A, KC-135A) (B52L/F/G)	IDLE	0.124	0.986	78.0	75.0	2.2	0.14
	APPROACH	0.233	1.850	9.7	1.8	5.3	0.52
	APPROACH	0.233	1.849	24.0	9.2	3.6	0.293
	INTERMED	0.843	6.689	2.3	0.1	9.9	1.23
	MILITARY	0.980	7.779	1.5	0.1	11.0	1.74
	WATER AUG	1.529	12.133	21.1	2.2	2.7	22.5
J57-P-59W (KC 135A)	IDLE	0.157	1.250	65.0	52.9	2.4	0.13
	APPROACH	0.233	1.850	32.5	14.2	3.3	0.22
	INTERMED	0.487	3.867	8.9	1.1	6.1	0.60
	MILITARY	0.995	7.900	2.4	0.2	11.3	0.84
	WATER AUG	1.529	12.133	21.1	2.2	2.7	22.5

MOTOR VEHICLES:

472 GOVERNMENT VEHICLES:

POLLUTANT	MILES/YR	EM FACTOR	LB POL/YR	TON/YR
PA	2.54E+06	8.81E-04	2.24E+03	1.12E+00
SOX	2.54E+06	4.18E-04	1.06E+03	5.31E-01
CO	2.54E+06	2.49E-02	6.33E+04	3.16E+01
HC	2.54E+06	4.18E-03	1.06E+04	5.31E+00
NOX	2.54E+06	4.40E-03	1.12E+04	5.59E+00

15800 PRIVATLEY OWNED CARS A DAY

POLLUTANT	MILES/YR	EM FACTOR	LB POL/YR	TON/YR
PA	2.05E+07	8.81E-04	1.81E+04	9.05E+00
SOX	2.05E+07	4.18E-04	8.59E+03	4.29E+00
CO	2.05E+07	2.49E-02	5.11E+05	2.56E+02
HC	2.05E+07	4.18E-03	8.59E+04	4.29E+01
NOX	2.05E+07	4.40E-03	9.04E+04	4.52E+01

REFERENCE: AP-42B, APPENDIX D, TABLE D.7.1, PG 7-1.

MISCELLANEOUS

PERMIT #	SOURCE	HC TON/YR
8100010203	LOX CART CLEANING STATION	0.2
8100010301	AIRCRAFT WASHRACK	24.3
8110010101	FIBERGLASS REPAIR BBLDG 1253	0.6
8100010201	WHEEL & TIRE SHOP DEGREASER	0.5
8100010202	HYDRAULIC SHOP DEGREASER	0.5
8020060101	FMS PAINT BOOTH 1253	12.6
8020060201	BLDG 325 PAINT BOOTH	0.3

Castle Air Force Base Tank Emission Estimation for 1990

PERMIT	FUEL	STANDING LOSS LB.	WORKING LOSS LB.	RIM LOSS LB.	DECK LOSS LB.	ROOF LOSS LB.	TOTAL LOSS POUNDS VOC	TANK TYPE	DIAMETER	HEIGHT	HEIGHT_L	VOLUME	RF_TYPE	NET GAL.	TURN-OVER
N-1195-4-0	Jet naphtha (JP-4)		401				401	Horizontal Fixed Roof	10	17		10000		150000	15
N-1195-118	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	8	10.5		4000		184200	46
N-1195-123	Distillate fuel oil no. 2		5				5	Horizontal Fixed Roof	10	17		10000		213000	21.3
BLDG. 502A	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
BLDG. 502B	Distillate fuel oil no. 2		4				4	Horizontal Fixed Roof	10	20.5		12000		166800	13.9
✓ N-1195-5-0	Jet naphtha (JP-4)		70	937	764.3956		1,772	Internal Floating Roof	80.5			1370000		30825000	22.5
✓ N-1195-6-0	Jet naphtha (JP-4)		35	2,322		2,661	5,018	External Floating Roof	57.5			500000	Pontoon	11150000	22.3
✓ N-1195-7-0	Jet naphtha (JP-4)		39	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14300000	22
✓ N-1195-8-0	Jet naphtha (JP-4)		40	2,665		2,695	5,399	External Floating Roof	66			650000	Pontoon	14495000	22.3
✓ N-1195-9-0	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
✓ N-1195-10-0	Jet naphtha (JP-4)	150	11				161	Vertical Fixed Roof	10	8	8	4701	Cone	4231	0.9
✓ N-1195-124	Jet naphtha (JP-4)	181	997				1,178	Vertical Fixed Roof	9.5	10	7.7	4083	Cone	1502544	368
✓ N-1195-125	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3
✓ N-1195-126	Jet naphtha (JP-4)		46	617	621.6736		1,284	Internal Floating Roof	53			420000		13146000	31.3

2,1656

DOD Hazardous Materials Information System
DoD 6050.5-LH
AS OF January 1995
Proprietary Version - For U.S. Government Use Only

FSC: 6850
NIIIN: 002649038
Manufacturer's CAGE: 5K954
Part No. Indicator: A
Part Number/Trade Name: P D 680 TYPE 1

=====
General Information
=====

Item Name: DRY CLEANING SOLVENT
Manufacturer's Name: PETROSOLVE CORP LTD, DBA CROWN CHEMICAL CORP
Manufacturer's Street: 1888 NIRVANA AVE
Manufacturer's P. U. Box:
Manufacturer's City: CHULA VISTA
Manufacturer's State: CA
Manufacturer's Country: US
Manufacturer's Zip Code: 92011-6118
Manufacturer's Emerg Ph #: 619-421-6601
Manufacturer's Info Ph #: 619-421-6601
Distributor/Vendor # 1:
Distributor/Vendor # 1 CAGE:
Distributor/Vendor # 2:
Distributor/Vendor # 2 CAGE:
Distributor/Vendor # 3:
Distributor/Vendor # 3 CAGE:
Distributor/Vendor # 4:
Distributor/Vendor # 4 CAGE:
Safety Data Action Code:
Safety Focal Point: D
Record No. For Safety Entry: 012
Tot Safety Entries This Stk#: 027
Status: SE
Date MSDS Prepared: 03JAN90
Safety Data Review Date: 17MAY93
Supply Item Manager: UX
MSDS Preparer's Name:
Preparer's Company:
Preparer's St Or P. U. Box:
Preparer's City:
Preparer's State:
Preparer's Zip Code:
Other MSDS Number:
MSDS Serial Number: B00LL
Specification Number: FED SPEC P-D-680
Spec Type, Grade, Class: TYPE 1
Hazard Characteristic Code: F4
Unit Of Issue: CN
Unit Of Issue Container Qty: 5 GAL CAN
Type Of Container: 5 GAL CAN
Net Unit Weight: 32.9 LBS
NRC/State License Number: N/R
Net Explosive Weight:
Net Propellant Weight-Ammo: N/R
Coast Guard Ammunition Code:

Report for N11N: 002649038

=====
Ingredients/Identity Information
=====

Proprietary: NU
Ingredient: LIGHT PETROLEUM DISTILLATES (PARAFINS AND NAPHTHA) ?
Ingredient Sequence Number: 01
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RIECS) Number: 1002846HL
CAS Number: 64742-4/-8
OSHA PEL: 100 PPM
ACGIH TLV: 100 PPM
Other Recommended Limit: 125 PPM (CHEVRON)

Proprietary: NU (2)
Ingredient: AROMATICS
Ingredient Sequence Number: 02
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RIECS) Number: 1008667AM
CAS Number: UNKNOWN
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NU
Ingredient: BENZENE (SARA 111) 1
Ingredient Sequence Number: 03
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RIECS) Number: CY1400000
CAS Number: 71-43-2
OSHA PEL: 1PPM/551EL; 1410.102H
ACGIH TLV: 10 PPM; A2; 9293
Other Recommended Limit: NONE RECOMMENDED

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: WATER WHITE WITH PAINT THINNER ODOR.
Boiling Point: 168F, 76C
Melting Point: N/K
Vapor Pressure (MM Hg/70 F): <5
Vapor Density (AIR=1): 4.9 (AIR=)
Specific Gravity: 0.79
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: <0.1 (BUTYL ACETATE =1)
Solubility In Water: NEGLIGIBLE
Percent Volatiles By Volume: N/K
Viscosity:
pH: N/K
Radioactivity:
Form (Radioactive Matl):
Magnetism (Milligauss):
Corrosion Rate (IPY): UNKNOWN

Report for NIIN: 002649038

Autoignition Temperature:

=====
Fire and Explosion Hazard Data
=====

Flash Point: 105F, 41C

Flash Point Method: ICC

Lower Explosive Limit: 1

Upper Explosive Limit: 6

Extinguishing Media: USE WATER FOG, FOAM, DRY CHEMICAL, OR CARBON DIOXIDE.
DO NOT USE A DIRECT STREAM OF WATER.

Special Fire Fighting Proc: COOL FIRE EXPOSED CONTAINERS. DO NOT USE
DIRECT STREAM OF WATER. PRODUCT WILL FLOAT AND CAN REIGNITE. DO NOT ENTER
CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR.

Unusual Fire And Expl Hazrds: COOL CONTAINERS EXPOSED TO FIRE WITH WATER
TO PREVENT RUPTURE FROM PRESSURE BUILDUP. COOL CONTAINER AREA WITH WATER TO
PREVENT WEAKENING OF CONTAINERS.

=====
Reactivity Data
=====

Stability: YES

Cond to Avoid (Stability): AVOID HEAT, SPARKS, FLAME, AND OTHER SOURCES OF
IGNITION.

Materials to Avoid: AVOID CONTACT WITH STRONG OXIDIZING AGENTS.

Hazardous Decomp Products: CARBON MONOXIDE AND UNIDENTIFIED ORGANIC
COMPOUNDS MAY BE FORMED DURING COMBUSTION.

Hazardous Poly Occur: NO

Conditions to Avoid (Poly): WILL NOT OCCUR.

=====
Health Hazard Data
=====

LDS0-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: YES

Route Of Entry - Ingestion: YES

Health Haz Acute And Chronic: EYES: IRRITATION, PAIN, TEARING, AND
INFLAMMATION. SKIN: MILDLY IRRITATION. PROLONGED OR REPEATED CONTACT CAN
RESULT IN DEFATTING, DRYING, DERMATITIS. INHALATION: IRRITATING TO NOSE,
THROAT, RESPIRATORY TRACT. MAY CAUSE CNS DEPRESSION. INGESTION: MAY CAUSE
VOMITING. ASPIRATION OF VOMITUS INTO LUNGS SHOULD BE AVOIDED.

Carcinogenicity - NIP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity:

Signs/Symptoms Of Overexp: EYES: IRRITATION, PAIN, TEARING, INFLAMMATION.
SKIN: IRRITATION, DEFATTING, DRYING, DERMATITIS. INHALATION: IRRITATION OF
NOSE, THROAT, RESPIRATORY TRACT. CNS DEPRESSION MAY BE EVIDENCED BY
DIZZINESS, HEADACHE, DIZZINESS, NAUSEA; IN EXTREME CASES UNCONSCIOUSNESS
AND DEATH MAY OCCUR. INGESTION: VOMITING.

Med Cond Aggravated by Exp: PRE-EXISTING EYE, AND RESPIRATORY DISORDERS
MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

Emergency/First Aid Proc: EYES: FLUSH WITH LARGE AMOUNTS OF WATER. IF
IRRITATION PERSISTS GET MEDICAL ATTENTION. SKIN: REMOVE CONTAMINATED
CLOTHING. FLUSH AREA WITH WATER THEN WASH WITH SOAP AND WATER. IF
IRRITATION OCCURS GET MEDICAL ATTENTION. INHALATION: MOVE TO FRESH AIR. IF
NOT BREATHING GIVE CPR. IF BREATHING DIFFICULT GIVE OXYGEN. GET MEDICAL
ATTENTION. INGESTION: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

=====
Precautions for Safe Handling and Use
=====

Steps if Matl Released/Spill: ELIMINATE IGNITION SOURCES. HANDLING EQUIPMENT MUST BE GROUNDED. DIKE AND CONTAIN LEAK. PREVENT DISCHARGE TO SEWERS AND WATERWAYS. REMOVE LIQUID WITH VACUUM TRUCK OR PUMP TO STORAGE. SOAK UP RESIDUE WITH ABSORBENT. COLLECT WASTE IN CONTAINERS.

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: DISPOSE OF WASTE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. REPORT SPILLS TO NATIONAL RESPONSE CENTER AND OTHER AGENCIES AS DICTATED BY REGULATIONS.

Precautions-Handling/Storing: STORE IN WELL VENTILATED AREA IN CLOSED CONTAINERS AND AWAY FROM HEAT, SPARKS, FLAME, OTHER SOURCES OF IGNITION, AND STRONG OXIDIZING AGENTS.

Other Precautions: PROTECT CONTAINERS FROM PHYSICAL DAMAGE.
=====

Control Measures
=====

Respiratory Protection: AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. USE A NIOSH APPROVED RESPIRATOR TO AVOID OVER EXPOSURE, IF EXPOSURE MAY EXCEED RECOMMENDED LIMITS. USE AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

Ventilation: USE EXPLOSION-PROOF VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS.

Protective Gloves: WEAR CHEMICAL RESISTANT GLOVES.

Eye Protection: SAFETY GLASSES OR GOGGLES AS APPROPRIATE.

Other Protective Equipment: WEAR CHEMICAL-RESISTANT CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

Work Hygienic Practices: WASH AFTER HANDLING AND BEFORE EATING, DRINKING, OR SMOKING. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

Suppl. Safety & Health Data: AIR-DRY CONTAMINATED CLOTHING IN A WELL VENTILATED AREA BEFORE LAUNDERING. INTENTIONAL ABUSE, MISUSE, OR MASSIVE EXPOSURE MAY CAUSE MULTIPLE ORGAN DAMAGE AND/OR DEATH.
=====

Transportation Data
=====

Transportation Action Code:

Transportation Focal Point: D

Trans Data Review Date: 93137

DOT PSN Code: JZF

DOT Symbol:

DOT Proper Shipping Name: NAPHTHA,

DOT Class: 3

DOT ID Number: UN1256

DOT Pack Group: 111

DOT Label: FLAMMABLE LIQUID

DOT/DoD Exemption Number:

IMO PSN Code: KJB

IMO Proper Shipping Name: NAPHTHA, PETROLEUM

IMO Regulations Page Number: 3271

IMO UN Number: 1255

IMO UN Class: 3.2

IMO Subsidiary Risk Label: -

IATA PSN Code: KND

IATA UN ID Number: 1255

IATA Proper Shipping Name: NAPHTHA

IATA UN Class: 3

Report for NIIN: 002649038

IATA Subsidiary Risk Class:
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: RNU
AFI Symbols:
AFI Prop. Shipping Name: NAPHHA
AFI Class: 3
AFI ID Number: UN1255
AFI Pack Group: III
AFI Label: FLAMMABLE LIQUID
AFI Special Prov:
AFI Basic Pac Ret: /-/
MMAC Code:
N.U.S. Shipping Name:
Additional Trans Data:

=====
Disposal Data
=====

Disposal Data Action Code:
Disposal Data Focal Point:
Disposal Data Review Date:
Rec # For This Disp Entry:
Tot Disp Entries Per NSN:
Landfill Ban Item:
Disposal Supplemental Data:
1st EPA Haz Wst Code New:
1st EPA Haz Wst Name New:
1st EPA Haz Wst Lchar New:
1st EPA Acute Hazard New:
2nd EPA Haz Wst Code New:
2nd EPA Haz Wst Name New:
2nd EPA Haz Wst Lchar New:
2nd EPA Acute Hazard New:
3rd EPA Haz Wst Code New:
3rd EPA Haz Wst Name New:
3rd EPA Haz Wst Lchar New:
3rd EPA Acute Hazard New:

=====
Label Data
=====

Label Required: YES
Technical Review Date: 1/MAY93
Label Date: UNDATED
MFR Label Number: N/R
Label Status: D
Common Name: P D 680 TYPE 1
Chronic Hazard: YES
Signal Word: DANGER!
Acute Health Hazard-None:
Acute Health Hazard-Slight:
Acute Health Hazard-Moderate:
Acute Health Hazard-Severe: X
Contact Hazard-None:
Contact Hazard-Slight: X
Contact Hazard-Moderate:
Contact Hazard-Severe:
Fire Hazard-None:
Fire Hazard-Slight:

Report for NIIN: 002649038

Fire Hazard-Moderate: X

Fire Hazard-Severe:

Reactivity Hazard-None: X

Reactivity Hazard-Slight:

Reactivity Hazard-Moderate:

Reactivity Hazard-Severe:

Special Hazard Precautions: EYES: IRRITATION, PAIN, TEARING, INFLAMMATION.

SKIN: IRRITATION. PROLONGED CONTACT CAN RESULT IN DEBATTING, DRYING, DERMATITIS. INHALATION: IRRITATING TO NOSE, THROAT, RESPIRATORY TRACT. MAY CAUSE CNS DEPRESSION. INGESTION: MAY CAUSE VOMITING. FIRST AID: EYES: FLUSH WITH LARGE AMOUNTS OF WATER. IF IRRITATION PERSISTS GET MEDICAL ATTENTION. SKIN: REMOVE CONTAMINATED CLOTHING. FLUSH AREA WITH WATER THEN WASH WITH SOAP AND WATER. IF IRRITATION OCCURS GET MEDICAL ATTENTION. INHALATION: MOVE TO FRESH AIR. IF NOT BREATHING GIVE CPR. IF BREATHING DIFFICULT GIVE OXYGEN. GET MEDICAL ATTENTION. INGESTION: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

Protect Eye: X

Protect Skin: X

Protect Respiratory: X

Label Name: PETROSOLVE CORP LTD, DBA CROWN CHEMICAL CORP

Label Street: 1888 NIRVANA AVE

Label P.O. Box:

Label City: CHULA VISTA

Label State: CA

Label Zip Code: 92011-6118

Label Country: US

Label Emergency Number: 619-421-6601

Year Procured:

DOD Hazardous Materials Information System

DOD 6050.5-LR

AS OF January 1995

Proprietary Version - For U.S. Government Use Only

FSC: 8010

NIIN: 00F005596

Manufacturer's CAGE: 30530

Part No. Indicator: A

Part Number/Trade Name: SAFETY-KLEEN HEAVY DUTY LACQUER THINNER 6/B2

=====
General Information
=====

Item Name: THINNER,LACQUER

Manufacturer's Name: SAFETY-KLEEN CORP

Manufacturer's Street: 777 BIG TIMBER ROAD

Manufacturer's P. O. Box:

Manufacturer's City: ELGIN

Manufacturer's State: IL

Manufacturer's Country: US

Manufacturer's Zip Code: 60123

Manufacturer's Emerg Ph #: 800-942-5969 800-424-9300 (CHEMTREC)

Manufacturer's Info Ph #: 708-647-8460

Distributor/Vendor # 1:

Distributor/Vendor # 1 CAGE:

Distributor/Vendor # 2:

Distributor/Vendor # 2 CAGE:

Distributor/Vendor # 3:

Distributor/Vendor # 3 CAGE:

Distributor/Vendor # 4:

Distributor/Vendor # 4 CAGE:

Safety Data Action Code:

Safety Focal Point: D

Record No. For Safety Entry: 001

Total Safety Entries This Stk#: 001

Status: SE

Date MSDS Prepared: 01DEC89

Safety Data Review Date: 06JUN94

Supply Item Manager: CX

MSDS Preparer's Name: SK PROD.REVIEW COMMITTEE

Preparer's Company:

Preparer's St Or P. O. Box:

Preparer's City:

Preparer's State:

Preparer's Zip Code:

Other MSDS Number:

MSDS Serial Number: BTJWS

Specification Number: NONE

Spec Type, Grade, Class: NONE

Hazard Characteristic Code: F3

Unit Of Issue: NK

Unit Of Issue Container Qty: UNKNOWN

Type Of Container: UNKNOWN

Net Unit Weight: UNKNOWN

NRC/State License Number: N/R

Net Explosive Weight: N/R

Net Propellant Weight-Ammor: N/R

Coast Guard Ammunition Code: N/R

Report for NIIN: 00F005596

=====
Ingredients/Identity Information
=====

Proprietary: NU
Ingredient: TOLUENE (SARA 111)
Ingredient Sequence Number: 01
Percent: 5-60
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: X55250000
CAS Number: 108-88-3
OSHA PEL: 200 PPM; 2-2
ACGIH TLV: S, 50 PPM; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NU
Ingredient: XYLENES (O-,M-,P- ISOMERS) (SARA 111)
Ingredient Sequence Number: 02
Percent: 5-20
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: ZL2100000
CAS Number: 1330-20-7
OSHA PEL: 100 PPM
ACGIH TLV: 100 PPM/1500STEL; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NU
Ingredient: N-HEPTANE
Ingredient Sequence Number: 03
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: M17/00000
CAS Number: 142-82-5
OSHA PEL: 500 PPM
ACGIH TLV: 400 PPM/500STEL; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NU
Ingredient: METHYL ETHYL KETONE (2-BUTANONE) (MEK) (SARA 111)
Ingredient Sequence Number: 04
Percent: 5-40
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: EL64/5000
CAS Number: 78-93-3
OSHA PEL: 200 PPM
ACGIH TLV: 200 PPM/300STEL 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NU
Ingredient: METHYL ISOBUTYL KETONE (SARA 111)
Ingredient Sequence Number: 05
Percent: 0.1-10
Ingredient Action Code:
Ingredient Focal Point: D

Report for NIIN: 00F005596

NIOSH (RTECS) Number: SA9275000
CAS Number: 108-10-1
OSHA PEL: 100 PPM
ACGIH TLV: 50 PPM/75 STEL; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: METHYLCYCLOHEXANE
Ingredient Sequence Number: 06
Percent: 0.1-40
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: GV6125000
CAS Number: 108-87-2
OSHA PEL: 500 PPM
ACGIH TLV: 400 PPM; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: ACETONE (SARA 111)
Ingredient Sequence Number: 07
Percent: 2-20
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: AL3150000
CAS Number: 67-64-1
OSHA PEL: 1000PPM
ACGIH TLV: 750PPM/1000STEL;9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: CYCLOHEXANE (SARA 111)
Ingredient Sequence Number: 08
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: GU6300000
CAS Number: 110-82-7
OSHA PEL: 300 PPM
ACGIH TLV: 300 PPM, 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: ISOPROPYL ALCOHOL (SARA 111)
Ingredient Sequence Number: 09
Percent: 0.1-20
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: N18050000
CAS Number: 67-63-0
OSHA PEL: 400 PPM
ACGIH TLV: 400 PPM/500STEL;9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: METHYL ALCOHOL (METHANOL) (SARA 111)
Ingredient Sequence Number: 10

Report for NINE: 00-005576

Percent: 2-10

Ingredient Action Code:

Ingredient Focal Point: D

NIOSH (RTECS) Number: PC1400000

CAS Number: 67-56-1

OSHA PEL: S, 200 PPM

ACGIH TLV: S, 200PPM/250STEL; 94

Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO

Ingredient: VMP NAPHTHA;LACTOL SPIRITS

Ingredient Sequence Number: 11

Percent: 0.1-20

Ingredient Action Code:

Ingredient Focal Point: D

NIOSH (RTECS) Number: D16180000

CAS Number: 8030-30-6

OSHA PEL: 100 PPM

ACGIH TLV: 300 PPM

Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO

Ingredient: ETHYL ALCOHOL (ETHANOL)

Ingredient Sequence Number: 12

Percent: 0.1-10

Ingredient Action Code:

Ingredient Focal Point: D

NIOSH (RTECS) Number: K06300000

CAS Number: 64-17-5

OSHA PEL: 1000 PPM

ACGIH TLV: 1000 PPM; 9394

Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO

Ingredient: N-BUTYL ACETATE (SARA 111)

Ingredient Sequence Number: 13

Percent: 0.1-15

Ingredient Action Code:

Ingredient Focal Point: D

NIOSH (RTECS) Number: AF7350000

CAS Number: 123-86-4

OSHA PEL: 150 PPM

ACGIH TLV: 150 PPM/200STEL; 9394

Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO

Ingredient: ISOBUTYL ACETATE (SARA 111)

Ingredient Sequence Number: 14

Percent: 0.1-15

Ingredient Action Code:

Ingredient Focal Point: D

NIOSH (RTECS) Number: A14020000

CAS Number: 110-19-0

OSHA PEL: 150 PPM

ACGIH TLV: 150 PPM; 9394

Other Recommended Limit: NONE RECOMMENDED

Report for NIIN: 00F005596

Proprietary: NO
Ingredient: ETHYL-3-ETHOXYPROPIONATE
Ingredient Sequence Number: 15
Percent: UNKNOWN
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: UF3325000
CAS Number: 763-69-9
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: VOLATILE ORGANIC COMPOUNDS
Ingredient Sequence Number: 16
Percent: 88.94
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: 9999999V0
CAS Number:
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE
Other Recommended Limit: NONE RECOMMENDED

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: LIQUID; CLEAR, COLORLESS; CHARACTERISTIC SOLVENT ODOR.
Boiling Point: 131F-1347F
Melting Point: N/K
Vapor Pressure (MM Hg/70 F): 94.7
Vapor Density (Air=1): 3.02
Specific Gravity: 0.902
Decomposition Temperature: N/K
Evaporation Rate And Ref: 3.68 NBUAD=1
Solubility In Water: APPRECIABLE
Percent Volatiles By Volume: N/K
Viscosity: N/K
pH: N/K
Radioactivity: N/K
Form (Radioactive Matl): N/K
Magnetism (Milligauss): N/K
Corrosion Rate (IPY): N/K
Autoignition Temperature: N/K

=====
Fire and Explosion Hazard Data
=====

Flash Point: <20F, <-7C
Flash Point Method: TCC
Lower Explosive Limit: 1.0
Upper Explosive Limit: 13.2
Extinguishing Media: CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER MIST.
Special Fire Fighting Proc: NFPA 704 RATING 2-3-0. USE A SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE EQUIPMENT. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.
Unusual Fire And Expl Hazards: WATER MAY CAUSE PRODUCT TO FLOAT AND SPREAD FIRE. FIRE CONDITIONS MAY PRODUCE TOXIC FUMES.

=====
Reactivity Data
=====

Stability: YES
Cond To Avoid (Stability): HEAT, SPARKS, FLAMES.
Materials To Avoid: STRONG OXIDIZERS.
Hazardous Decomp Products: CARBON DIOXIDE, CARBON MONOXIDE
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): N/R

=====
Health Hazard Data
=====

LD50-LC50 Mixture: LD50 FOR THIS PRODUCT IS NOT ESTABLISHED
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: SKIN: MAY CAUSE IRRITATION, DRYING. THIS ITEM IS ABSORBED THROUGH THE SKIN. EYES: MAY CAUSE SEVERE IRRITATION AND TEMPORARY CORNEAL DAMAGE. VAPORS MAY CAUSE IRRITATION. INHAL: MAY CAUSE RESPIRATORY IRRITATION AND CNS EFFECTS. INGEST: MAY CAUSE GI TRACT IRRITATION, CNS EFFECTS. POSSIBLE LUNG DAMAGE IF VOMITED AFTER SWALLOWING.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - USHA: NO
Explanation Carcinogenicity: THERE ARE NO INGREDIENTS ABOVE 0.1% WHICH ARE IDENTIFIED AS CARCINOGENS BY NTP, IARC OR USHA.
Signs/Symptoms Of Overexp: SKIN: DRYNESS, CRACKING. EYES: REDNESS, TEARING, PAIN, CONJUNCTIVITIS. INHAL: HEADACHE, NAUSEA, DIZZINESS, CONFUSION, VOMITING, POSSIBLE UNCONSCIOUSNESS. INGEST: BURNING OF THE MOUTH, THROAT AND ABDOMEN, NAUSEA, VOMITING, DIARRHEA, WEAKNESS, DIZZINESS, SHALLOW BREATHING, UNCONSCIOUSNESS, CONVULSIONS.
Med Cond Aggravated By Exp: PERSONS WITH PRE-EXISTING RESPIRATORY, KIDNEY, SPLEEN, NERVOUS OR LIVER AILMENTS MAY BE AT INCREASED RISK FROM EXPOSURE.
Emergency/First Aid Proc: SKIN: REMOVE CONTAMINATED CLOTHING; WASH WITH WATER. EYES: FLUSH WITH WATER FOR 15 MINUTES. INHAL: REMOVE TO FRESH AIR. GIVE OXYGEN OR ARTIFICIAL RESPIRATION IF NEEDED. INGEST: DO NOT INDUCE VOMITING. GET PROMPT QUALIFIED MEDICAL ATTENTION.

=====
Precautions for Safe Handling and Use
=====

Steps If Matl Released/Spill: ELIMINATE SOURCES OF IGNITION. USE PROPER RESPIRATORY AND PROTECTIVE EQUIPMENT. SHUT OFF LEAK IF SAFE. DIKE. SOAK UP WITH A NON-COMBUSTIBLE INERT ABSORBANT (CLAY, SAND); PLACE IN PROPER CONTAINER FOR DISPOSAL. DO NOT ALLOW RUNOFF INTO SEWER.
Neutralizing Agent: NONE
Waste Disposal Method: DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. CONTACT SAFETY-KLEEN REGARDING RECYCLING.
Precautions-Handling/Storing: KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE. DO NOT GET ON SKIN, IN EYES, ON CLOTHING. AVOID BREATHING VAPORS. DO NOT SMOKE.
Other Precautions: EMPTY CONTAINERS MAY CONTAIN RESIDUE. DO NOT CUT, PRESSURIZE, HEAT, WELD, GRIND OR EXPOSE CONTAINERS TO AN IGNITION SOURCE.

=====
Control Measures
=====

Respiratory Protection: WHERE ENVIRONMENTAL CONTROLS ARE LACKING OR IN ENCLOSED SPACES USE EITHER A SELF-CONTAINED BREATHING APPARATUS OR A RESPIRATOR DEPENDING ON THE AIRBURN CONCENTRATION.
Ventilation: LOCAL VENTILATION AT THE WORKSITE; MECHANICAL (GENERAL) VENTILATION TO MAINTAIN TLV/PEL.
Protective Gloves: NITRILE
Eye Protection: CHEMICAL GOGGLES.
Other Protective Equipment: USE A RUBBER APRON, PROVIDE A LOCAL EYE WASH STATION AND SAFETY SHOWER.
Work Hygienic Practices: WASH HANDS, SEPERATE WORK CLOTHES FROM STREET CLOTHES, LAUNDRY WORK CLOTHES BEFORE REUSE, KEEP FOOD OUT OF THE WORK AREA.
Suppl. Safety & Health Data: NONE

=====
Transportation Data
=====

Transportation Action Code:
Transportation Focal Point: D
Trans Data Review Date: 7415/
DOT PSN Code: LFD
DOT Symbol:
DOT Proper Shipping Name: PAINT
DOT Class: 3
DOT ID Number: UN1263
DOT Pack Group: 11
DOT Label: FLAMMABLE LIQUID
DOT/DOD Exemption Number: N/R
IMD PSN Code: LCP
IMD Proper Shipping Name: PAINT OR PAINT RELATED MATERIAL
IMD Regulations Page Number: 3268
IMD UN Number: 1263
IMD UN Class: 3.2
IMD Subsidiary Risk Label: -
IATA PSN Code: SX1
IATA UN ID Number: 1263
IATA Proper Shipping Name: PAINT
IATA UN Class: 3
IATA Subsidiary Risk Class:
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: SX1
AFI Symbols:
AFI Prop. Shipping Name: PAINT OR PAINT RELATED MATERIAL
AFI Class: 3
AFI ID Number: UN1263
AFI Pack Group: 11
AFI Label: FLAMMABLE LIQUID
AFI Special Prov:
AFI Basic Pac Ref: 7-8
MMAC Code: NR
N.O.S. Shipping Name:
Additional Trans Data: NONE

Report for N11N: 00F005596

=====
Disposal Data
=====

Disposal Data Action Code:
Disposal Data Focal Point:
Disposal Data Review Date:
Rec # For this Disp Entry:
Tot Disp Entries Per NSN:
Landfill Ban Items:
Disposal Supplemental Data:
1st EPA Haz Wst Code New:
1st EPA Haz Wst Name New:
1st EPA Haz Wst Char New:
1st EPA Acute Hazard New:
2nd EPA Haz Wst Code New:
2nd EPA Haz Wst Name New:
2nd EPA Haz Wst Char New:
2nd EPA Acute Hazard New:
3rd EPA Haz Wst Code New:
3rd EPA Haz Wst Name New:
3rd EPA Haz Wst Char New:
3rd EPA Acute Hazard New:

=====
Label Data
=====

Label Required: YES
Technical Review Date: 06JUN94
Label Date: UNDATED
MFR Label Number: UNKNOWDN
Label Status: D
Common Name: SAFETY-KLEEN HEAVY DUTY LACQUER THINNER 6/82
Chronic Hazard:
Signal Word: WARNING!
Acute Health Hazard-None:
Acute Health Hazard-Slight: X
Acute Health Hazard-Moderate:
Acute Health Hazard-Severe:
Contact Hazard-None:
Contact Hazard-Slight: X
Contact Hazard-Moderate:
Contact Hazard-Severe:
Fire Hazard-None:
Fire Hazard-Slight:
Fire Hazard-Moderate: X
Fire Hazard-Severe:
Reactivity Hazard-None: X
Reactivity Hazard-Slight:
Reactivity Hazard-Moderate:
Reactivity Hazard-Severe:
Special Hazard Precautions: SKIN:MAY CAUSE IRRITATION, DRYING. THIS ITEM IS
ABSORBED THROUGHOUT THE SKIN. EYES:MAY CAUSE SEVERE IRRITATION AND TEMPORARY
CORNEAL DAMAGE. VAPORS MAY CAUSE IRRITATION. INHAL:MAY CAUSE RESPIRATORY
IRRITATION AND CNS EFFECTS. INGEST:MAY CAUSE GI TRACT IRRITATION, CNS
EFFECTS. POSSIBLE LUNG DAMAGE IF VOMITED AFTER SWALLOWING. FIRST AID: SKIN:
REMOVE CONTAMINATED CLOTHING; WASH WITH WATER. EYES: FLUSH WITH WATER FOR 15
MINUTES. INHAL: REMOVE TO FRESH AIR. GIVE OXYGEN OR ARTIFICIAL RESPIRATION IF
NEEDED. INGEST: DO NOT INDUCE VOMITING. GET PROMPT QUALIFIED MEDICAL

Report for NIIN: 00-005596

ATTENTION.

Protect Eye: X

Protect Skin: X

Protect Respiratory:

Label Name: SAFETY-KLEEN CORP

Label Street: 777 BIG TIMBER ROAD

Label P.O. Box:

Label City: ELGIN

Label State: IL

Label Zip Code: 60123

Label Country: US

Label Emergency Number: 800-942-5969 800-424-9300 (CHEMTREC)

Year Procured: N/K

DOD Hazardous Materials Information System
DoD 6050.5-LR
AS OF January 1995
Proprietary Version - For U.S. Government Use Only

FSC: 6810
NIIIN: 00B190051
Manufacturer's CAGE: 30530
Part No. Indicator: A
Part Number/Trade Name: SAFETY-KLEEN 105 SOLVENT-MS

=====
General Information
=====

Item Name: N/K
Manufacturer's Name: SAFETY-KLEEN CORP.
Manufacturer's Street: 777 BIG TIMBER ROAD
Manufacturer's P. O. Box:
Manufacturer's City: ELGIN
Manufacturer's State: IL
Manufacturer's Country: US
Manufacturer's Zip Code: 60123
Manufacturer's Emerg Ph #: 312697-8460
Manufacturer's Info Ph #: SAME
Distributor/Vendor # 1: N/K
Distributor/Vendor # 1 CAGE:
Distributor/Vendor # 2:
Distributor/Vendor # 2 CAGE:
Distributor/Vendor # 3:
Distributor/Vendor # 3 CAGE:
Distributor/Vendor # 4:
Distributor/Vendor # 4 CAGE:
Safety Data Action Code:
Safety Focal Point: B
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status:
Date MSDS Prepared: 29SEP87
Safety Data Review Date: 29JAN89
Supply Item Manager:
MSDS Preparer's Name: N/K
Preparer's Company: N/K
Preparer's St Or P. O. Box: N/K
Preparer's City: N/K
Preparer's State:
Preparer's Zip Code:
Other MSDS Number:
MSDS Serial Number: BBBWW
Specification Number:
Spec type, Grade, Class:
Hazard Characteristic Code:
Unit Of Issue:
Unit Of Issue Container Qty:
Type Of Container:
Net Unit Weight:
NRC/State License Number:
Net Explosive Weight:
Net Propellant Weight-Ammo:
Coast Guard Ammunition Code:

Report for N11N: 008190051

=====
Ingredients/Identity Information
=====

Proprietary: NU
Ingredient: MINERAL SPIRITS
Ingredient Sequence Number: 01
Percent: 99.94
Ingredient Action Code:
Ingredient Focal Point: B
NIOSH (RTECS) Number: 1004168MS
CAS Number: 8032-32-4
OSHA PEL: 500 PPM
ACGIH TLV: 100 PPM
Other Recommended Limit: N/K

Proprietary: NU
Ingredient: DYE (PROPRIETARY)
Ingredient Sequence Number: 02
Percent: 0.003
Ingredient Action Code:
Ingredient Focal Point: B
NIOSH (RTECS) Number: 1004037DY
CAS Number: N/K
OSHA PEL: N/K
ACGIH TLV: N/K
Other Recommended Limit: N/K

Proprietary: NU
Ingredient: ANTI-STATIC AGENT
Ingredient Sequence Number: 03
Percent: 1 PPM
Ingredient Action Code:
Ingredient Focal Point: B
NIOSH (RTECS) Number: 1000541AM
CAS Number: N/K
OSHA PEL: N/K
ACGIH TLV: N/K
Other Recommended Limit: N/K

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: CLEAR GREEN LIQUID WITH CHARACTERISTIC HYDROCARBON
ODOR.
Boiling Point: 310-400F
Melting Point: N/R
Vapor Pressure (MM Hg/70 F): 2
Vapor Density (Air=1): 4.4
Specific Gravity: 0.775-0.795
Decomposition Temperature: N/K
Evaporation Rate And Ref: 0.2
Solubility In Water: NEGLIGIBLE
Percent Volatiles By Volume: N/K
Viscosity:
pH: N/K
Radioactivity:
Form (Radioactive Matl):
Magnetism (Milligauss):

Report for NIIN: 006190051

Corrosion Rate (IPY): N/K

Autoignition Temperature:

=====
Fire and Explosion Hazard Data
=====

Flash Point: 105F

Flash Point Method: ICC

Lower Explosive Limit: 0.7

Upper Explosive Limit: 6.0

Extinguishing Media: CO2,FOAM,DRY CHEMICAL,WATER (MIST ONLY)

Special Fire Fighting Proc: NONE

Unusual Fire And Expl Hazrds: NONE
=====

Reactivity Data
=====

Stability: YES

Cond to Avoid (Stability): N/K

Materials to Avoid: STRONG OXIDIZING AGENTS

Hazardous Decomp Products: NORMALLY NONE;HOWEVER,INCOMPLETE BURNING MAY YIELD CARBON MONOXIDE.

Hazardous Poly Occur: NO

Conditions to Avoid (Poly): N/K
=====

Health Hazard Data
=====

LD50-LC50 Mixture: N/K

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: YES

Route Of Entry - Ingestion: YES

Health Haz Acute And Chronic: SKIN:CAN CAUSE DRYING OF SKIN.EYES:SEVERE IRRITANT.INHALATION:EXCESSIVE INHALATION CAN CAUSE HEADACHE,DIZZINESS AND NAUSEA.INGESTION:HARMFUL OR FATAL IF SWALLOWED.

Carcinogenicity - NTP: NOT LISTED

Carcinogenicity - IARC: NOT LISTED

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: NOT A KNOWN OR SUSPECTED CARCINOGEN.

Signs/Symptoms Of Overexp: DRYING OF SKIN,EYE IRRITATION,HEADACHE, DIZZINESS,NAUSEA.

Med Cond Aggravated By Exp: UNKNOWN

Emergency/First Aid Proc: SKIN-WASH WITH SOAP AND WATER.EYES-IRRIGATE WITH WATER.INHALATION-REMOVE TO FRESH AIR SOURCE AND CALL A PHYSICIAN.

INGESTION-DU NOT INDUCE VOMITING.CALL A PHYSICIAN.
=====

Precautions for Safe Handling and Use
=====

Steps if Matl Released/Spill: CATCH AND COLLECT FOR RECOVERY AS SOON AS POSSIBLE.AVOID EXPOSURE TO SPARKS,FIRE,FLAME,HOT SURFACES.

Neutralizing Agent: N/K

Waste Disposal Method: DISPOSE IN ACCORDANCE WITH COMPANY,LOCAL,STATE AND FEDERAL REGULATIONS.

Precautions-Handling/Storing: COMBUSTIBLE.KEEP AWAY FROM HEAT,SPARKS, FLAME.USE WITH ADEQUATE VENTILATION.AVOID LUNG AND REPEATED CONTACT WITH SKIN.

Other Precautions: IF CLOTHES ARE INADVERTENTLY SATURATED WITH SOLVENT-DO NOT SMOKE.REMOVE THE SOLVENT SATURATED CLOTHES IMMEDIATELY TO AVOID SKIN RASH.KEEP AWAY FROM IGNITION SOURCES.KEEP OUT OF REACH OF CHILDREN.

Report for NIIN: 000190001

=====
Control Measures
=====

Respiratory Protection: SELF-CONTAINED BREATHING APPARATUS FOR
CONCENTRATIONS ABOVE TLV LIMITS.
Ventilation: NORMAL ROOM VENTILATION.
Protective Gloves: RUBBER GLOVES
Eye Protection: EYE GLASSES, SAFETY GLASSES
Other Protective Equipment: N/K
Work Hygienic Practices: DO NOT SMOKE WHILE USING THIS SOLVENT.
Suppl. Safety & Health Data: N/K
=====

=====
Transportation Data
=====

Transportation Action Code:
Transportation Focal Point:
Trans Data Review Date:
DOT PSN Code:
DOT Symbol:
DOT Proper Shipping Name:
DOT Class:
DOT ID Number:
DOT Pack Group:
DOT Label:
DOT/DoD Exemption Number:
IMD PSN Code:
IMD Proper Shipping Name:
IMD Regulations Page Number:
IMD UN Number:
IMD UN Class:
IMD Subsidiary Risk Label:
IATA PSN Code:
IATA UN ID Number:
IATA Proper Shipping Name:
IATA UN Class:
IATA Subsidiary Risk Class:
IATA Label:
AFI PSN Code:
AFI Symbols:
AFI Prop. Shipping Name:
AFI Class:
AFI ID Number:
AFI Pack Group:
AFI Label:
AFI Special Prov:
AFI Basic Pac Net:
MMAC Code:
N.U.S. Shipping Name:
Additional Trans Data:
=====

=====
Disposal Data
=====

Disposal Data Action Code:
Disposal Data Focal Point:
Disposal Data Review Date:
Rec # For This Disp Entry:
Tot Disp Entries Per NSN:
=====

Report for NIIN: 00B190051

Landfill Ban Item:
Disposal Supplemental Data:
1st EPA Haz Wst Code New:
1st EPA Haz Wst Name New:
1st EPA Haz Wst Char New:
1st EPA Acute Hazard New:
2nd EPA Haz Wst Code New:
2nd EPA Haz Wst Name New:
2nd EPA Haz Wst Char New:
2nd EPA Acute Hazard New:
3rd EPA Haz Wst Code New:
3rd EPA Haz Wst Name New:
3rd EPA Haz Wst Char New:
3rd EPA Acute Hazard New:

=====
Label Data
=====

Label Required: YES
Technical Review Date:
Label Date:
MFR Label Number:
Label Status: G
Common Name: SAFETY-KLEEN 105 SOLVENT-MS
Chronic Hazard:
Signal Word:
Acute Health Hazard-None:
Acute Health Hazard-Slight:
Acute Health Hazard-Moderate:
Acute Health Hazard-Severe:
Contact Hazard-None:
Contact Hazard-Slight:
Contact Hazard-Moderate:
Contact Hazard-Severe:
Fire Hazard-None:
Fire Hazard-Slight:
Fire Hazard-Moderate:
Fire Hazard-Severe:
Reactivity Hazard-None:
Reactivity Hazard-Slight:
Reactivity Hazard-Moderate:
Reactivity Hazard-Severe:
Special Hazard Precautions: SKIN: CAN CAUSE DRYING OF SKIN, EYES: SEVERE IRRITANT. INHALATION: EXCESSIVE INHALATION CAN CAUSE HEADACHE, DIZZINESS AND NAUSEA. INGESTION: HARMFUL OR FATAL IF SWALLOWED. DRYING OF SKIN, EYE IRRITATION, HEADACHE, DIZZINESS, NAUSEA.
Protect Eye:
Protect Skin:
Protect Respiratory:
Label Name: SAFETY-KLEEN CORP.
Label Street: 777 BIG TIMBER ROAD
Label P.O. Box:
Label City: ELGIN
Label State: IL
Label Zip Code: 60123
Label Country: US
Label Emergency Number: 312697-8460
Year Procured:

CASTLE JOINT POWERS AUTHORITY

002219

Application fee for
transfer of permits to operate

931-2401-572.17-00

\$20.00

Application fee for emmission
reduction credit

931-2401-572.17-00

\$650.00

RECEIVED
MAY 24 1995

SAN JOAQUIN VALLEY
UNIFIED A.P.C.D.
NO. REGION

Total

\$670.00

P.M. 5-23-95

CASTLE JOINT POWERS AUTHORITY
2721 WINTON WAY • P.O. BOX 547
ATWATER, CA 95301-0547
(209) 357-3370

BANK OF AMERICA
Merced Branch 0024
710 West Main Street
Merced, CA 95340
(209) 384-1346

VOID AFTER SIX MONTHS

11-35
1210

002219

CHECK NO.

DATE

002219

05-23-95

Six Hundred Seventy and no/00***

DOLLARS	CENTS
*****	*****\$670.00

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

PAY
TO
THE
ORDER
OF

⑈002219⑈ ⑆121000358⑆ 00241⑈80059⑈

EMISSION STATEMENT - CALENDAR YEAR 1992 EMISSIONS

Facility Name Castle Air Force Base
 FACID 1195
 TAD 24-20 Initials: TLS date: _____
 COMPNO CAS000CA

Please sign and return to:

San Joaquin Valley Unified APCD
 4230 Kiernan Avenue, Suite 130
 Modesto, CA 95356

dev. ID	permit #	equipment type	fuel/proc. amount	max p.r.	wks/yr	%S	API	heat cont. ppm S	control device(s)	emission factors: lb/fuel or process unit emissions: tons/year									
										unctrl PM	ctrl PM	CO	SOx	unctrl NOx	ctrl NOx	unctrl TOG	ctrl TOG	fraction ROG	ROG
1	various	Boilers <0.3 MM natural gas	3.2 MMft3					1000		11.18		40.00	0.60	94.00		121.00			
										0.0		0.1	0.0	0.2		0.2		0.6600	0.1
1	various	Boilers 0.3-10 M natural gas	537.9 MMft3					1000		13.70		21.00	0.60	100.00		5.80			
										3.7		5.6	0.2	26.9		1.6		0.6600	1.0
22	60,61	Boilers 13.5 MM natural gas	216.2 MMft3					1000		13.70		35.00	0.60	140.00		5.80			
			49.9							1.5		3.8	0.1	15.1		0.6		0.4800	0.3
2	4,9,10	Underground tan JP-4	126.3 Mgal/yr							0.0				0.0			0.13		
																	0.0	1.0000	0.0
5	6,7, 125,126	Int float roof tank JP-4	226209.7 Mgal/yr							0.0				0.0			0.01		
																	0.8	1.0000	0.8
21	5,8	Ext float roof tank JP-4	123848.5 Mgal/yr							0.0				0.0			0.12		
																	7.1	1.0000	7.1
25	18	T-9 noise suppre JP-4	257.2 Mgal/yr			0				19.80		103.50	8.00	172.70		69.50			
										2.5		13.3	1.0	22.2		8.9		1.0000	8.9
26	1-3, 119-122	Underground tan mogas/unleaded	2456.3 Mgal/yr							0.0				0.0			12.13		
																	14.9	1.0000	14.9
6	16,17, 97-99	Degreasers solvent	4.9 ton/yr							0.0				0.0		2000.00			
																4.9		1.0000	4.9
7	14,15,116	Paint booths coating/solvent	3.0 ton/yr							0.0				0.0		2000.00			
																3.0		1.0000	3.0
Total of uncontrolled and controlled emissions										PM = 7.7		22.8	1.3	NOx = 64.4		TOG = 42.0		ROG = 41.1	
												CO	SOx						

Company U.S. AIR FORCE
 Address 93 CESS CEE
 City, State, Zip CASTLE AFB, CA 95342
 Telephone 209/726-4751
 Location of facility if SAME - ATWATER, CA
 different from above _____

Name/title of responsible official CAPT BRIAN K. GEORGE
CHIEF, ENGINEERING FLIGHT

I certify that the information contained in this Emission Statement is accurate to the best of my knowledge.

Brian K. George 30 JUN 93
 signature of responsible official date

Anthony -

This summary shows devices included in the point source inventory - If you're giving credits for other devices let me know - I'll verify that any other units were included in area source inventories.

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Aerospace Ground Equipment was located and operated on Castle AFB's Flightline.

2. Equipment Description: MAKE: Aerospace Ground Equipment
MODEL: Various
SIZE: Various
TYPE: See Below
SERIAL NUMBER:

3. Description of Emission Reduction: The Aerospace Ground Equipment was shipped off of Castle AFB from January 1995 - March 1995.

4. Baseline Period: The data presented is based upon AGE Fuel Usage for the year 1990, provided by the 93d Maintenance Squadron at Castle AFB. The data was compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

TYPES OF AEROSPACE GROUND EQUIPMENT: FUEL TYPE: HORSEPOWER RATING:

TYPES OF AEROSPACE GROUND EQUIPMENT:	FUEL TYPE:	HORSEPOWER RATING:
MEP025A Generator Set	Unleaded	3
NF-2 Light Carts	Unleaded	10.3
A-1 Blower	Unleaded	5
MHU-83 Bomblift	Unleaded	27.5
6MC-2A Air Compressor	Unleaded	9.6
MC-2A Air Compressor	Unleaded	8.7
A/M32A-86 Generator	Diesel	14.8
MJ-1NB Bomblift	Diesel	25.2
Steam Cleaner	Diesel	11
MA-3D Air Conditioner	Diesel	15
H-1 Heater	Diesel	6.5
1H-1 Heater	Diesel	3.6
MC-7 Air Compressor	Diesel	10
MC1A Air Compressor	Diesel	18.4
NF-2D Light Carts	Diesel	10
MHU-83C/E Bomblift	Diesel	27.2
MJ-1-1 Hydraulic Test Stand	Diesel	25.2
AFM27M-1 Jacking Manifold	Diesel	24
-60 Aircraft Power Generator	JP-4	75

POLLUTANT: 1000 GALS/YR: EMSNS FACTOR: LBS/YR: LBS/QTR:

JP-4-Fueled Equipment:

POLLUTANT:	1000 GALS/YR:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	102.4	33.5	3430	857.5
Sox	102.4	6.2 ⁴² / 1000	635	158.75
CO	102.4	102	10445	2611.2
VOC	102.4	32.1	3287	822
NOx	102.4	469	48026	12006.4

Unleaded-Fueled Equipment:

POLLUTANT:	1000 GALS/YR:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	12.8	6.47	82.8	20.7

Sox	12.8	5.31	68.0	17
CO	12.8	3990	51072	12768
VOC	12.8	147.7	1891	473
NOx	12.8	102	1305.6	326.4

Diesel-Fueled Equipment:

PM10	216.1	33.5	7239.4	1810
Sox	216.1	31.2	6742.3	1685.6
CO	216.1	102	22042	5510.6
VOC	216.1	32.1	6937	1735
NOx	216.1	469	101351	25337.7

Reference: Mogas, Diesel, Natural Gas, JP-4, AERO's Manual, Pg 3.7.0-19, Vol 5

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Government-owned Vehicles were all operated on Castle AFB.

2. Equipment Description: MAKE: Vehicles
MODEL: Government-Owned
SIZE: Various
TYPE:
SERIAL NUMBER:

3. Description of Emission Reduction: The Government-Owned Vehicles were shipped off of Castle AFB from January 1995 - September 1995.

4. Baseline Period: The data presented is based upon Government Vehicle Fuel Usage for the year 1990, provided by the 93d Transportation Squadron at Castle AFB. The data was compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

NUMBER OF GOVERNMENT VEHICLES: 472

POLLUTANT:	MILES/YR:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	2.54E+06	8.81E-04	2240	560
Sox	2.54E+06	4.18E-04	1060	265
CO	2.54E+06	2.49E-02	63300	15825
VOC	2.54E+06	4.18E-03	10600	2650
NOx	2.54E+06	4.40E-03	11200	2800

Reference: EPA AP-42B, Appendix D, Table D.7.1, Pg 7-1

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-12-0

1. Equipment Location: The Classified Document Incinerator was located on Castle AFB, in Building 527.

2. Equipment Description: MAKE:
 MODEL:
 SIZE:
 TYPE: Classified Document Incinerator
 SERIAL NUMBER:

3. Description of Emission Reduction: The Classified Document Incinerator was taken off line in January 1992. The original ERC application for this piece of equipment was sent to the Merced County Health Department, but no actions were followed up before the County merged with the SJVUAPCD.

4. Baseline Period: Since the incinerator burned classified documents, no logs were kept of actual burns. However, the data presented is based upon interviewing the primary operator of the incinerator for an annual emissions inventory for Castle Air Force Base back in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	BURNS/YR:	TONS/BURN:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	50	.05	7	17.5	4.375
Sox	50	.05	2.5	6.25	1.5625
CO	50	.05	10	25.0	6.25
VOC	50	.05	3	7.5	1.875
NOx	50	.05	3	7.5	1.875

Reference: EPA AP-42 pg 2.1-2, Table 2.1-1, Vol. 1

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-13-0

1. Equipment Location: The Hospital Waste Incinerator was located on Castle AFB, in Building 1185.

2. Equipment Description: MAKE: Burn-Zol
MODEL: LB 100 Pathological Incinerator
SIZE: 100 Lb
TYPE: Hospital Waste Incinerator
SERIAL NUMBER:

3. Description of Emission Reduction: The Hospital Waste Incinerator was taken off line in March 1993.

4. Baseline Period: The data presented is based upon interviewing the primary operator of the incinerator for an annual emissions inventory for Castle Air Force Base back in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	BURNS/YR:	TONS/BURN:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	52	.05	8	20.8	5.2
Sox	52	.05	neg	0	0
CO	52	.05	neg	0	0
VOC	52	.05	neg	0	0
NOx	52	.05	3	7.8	1.95

Reference: EPA AP-42 pg 2.1-2, Table 2.1-1, Vol. 1

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-14-0

1. Equipment Location: The Paint Booth was located on Castle AFB, in Building 1253.

2. Equipment Description: MAKE: BINKS
MODEL: DYNA-UNIT
SIZE:
TYPE:
SERIAL NUMBER:

3. Description of Emission Reduction: The Paint Booth was shutdown 24 Sep 92.

4. Baseline Period: The emission reductions were estimated based on the amount of coatings used. The emission calculations for the paint booth were included in the 1987 air emission inventory but a more accurate representation of emissions is shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

Polyurethane: 200 gal/yr * 10.3 lb/gal * ton/2000 lb * 1120 lb VOC/ton = 1153.6 lb/yr = 288.4 lb/qtr
Thinner: 200 gal/yr * 8.34 lb/gal * ton/2000 lb * 2000 lb VOC/ton = 1668 lb/yr = 417 lb/qtr
Primer: 200 gal/yr * 8.34 lb/gal * ton/2000 lb * 1320 lb VOC/ton = 1101 lb/yr = 275 lb/qtr

Total: 980.4 lb VOC/yr = 245.1 lb VOC/qtr

Emission factor: EPA AP-42 p. 4.2-1, TABLE 4.2-1, VOL 1.

$$\left(\frac{10.3 \text{ lb coating}}{\text{gal coating}} \right) \left(\frac{1120 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 5.8 \frac{\text{lb}}{\text{gal}}$$

$$\left(\frac{8.34 \text{ lb coating}}{\text{gal coating}} \right) \left(\frac{1320 \text{ lb VOC}}{2000 \text{ lb coating}} \right) = 5.5 \frac{\text{lb}}{\text{gal}}$$

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-16-0

1. Equipment Location: The Wheel and Tire Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 110 Gallon
TYPE: Solvent Degreaser w/ PD680 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Wheel and Tire Shop Solvent Degreaser was removed in August 1994.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Wheel and Tire Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

$$(83.4 \text{ gal}) (0.15) = 12.5$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-17-0

1. Equipment Location: The Hydraulic Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 110 Gallon
 TYPE: Solvent Degreaser w/ PD680 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Hydraulic Shop Solvent Degreaser was removed and shipped to another base in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Hydraulic Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

$$(83.4)(.15) = 12.5$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-96-0

1. Equipment Location: The Hydraulic Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 50 Gallon
TYPE: Solvent Degreaser w/ Safety-Kleen 105 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Hydraulic Shop Solvent Degreaser was removed in February 1995.

4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	333.33 Gal	25%	6.4 lb/gal	533.33 lb	133.33

$$(333.33)(.25) = 83.3$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-97-0

1. Equipment Location: The Wheel and Tire Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE: Degreaser
MODEL: -
SIZE: 50 Gallon
TYPE: Solvent Degreaser w/ PD680 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Wheel and Tire Shop Solvent Degreaser was removed and shipped to another base in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Wheel and Tire Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

$$(83.4)(.15) = 12.5$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-98-0

1. Equipment Location: The Transportation Shop Solvent Degreaser was located on Castle AFB, in Building 325.

2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 30 Gallon
TYPE: Solvent Degreaser w/ Safety-Kleen 105 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Transportation Shop Solvent Degreaser was removed in March 1995.

4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	333.33 Gal	25%	6.4 lb/gal	533.33 lb	133.33

$$(333.33)(.25) =$$

4

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-99-0

1. Equipment Location: The Transportation Shop Paint Gun Cleaner was located on Castle AFB, in Building 325.

2. Equipment Description: MAKE: Safety-Kleen
MODEL: Paint Gun Cleaner
SIZE: 5 Gallon
TYPE: Solvent Degreaser w/ Safety-Kleen 6782 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Transportation Shop Paint Gun Cleaner was removed in March 1995.

4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-6782	24 Gal	6.4 lb/gal	154 lb	38.5

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: Solvent Degreaser was located on Castle AFB, in Building 1550.

2. Equipment Description: MAKE: Degreaser
 MODEL: -
 SIZE: 50 Gallon
 TYPE: Solvent Degreaser w/ PD680 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Solvent Degreaser in Building 1550 was removed in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from Building 1550 for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

$$\left(83.4 \frac{\text{gal}}{\text{yr}}\right) (.15) \left(6.27 \frac{\text{lb}}{\text{gal}}\right) = 78.44 \frac{\text{lb}}{\text{yr}}$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Engine Shop Solvent Degreaser was located on Castle AFB, in Building 1260.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 50 Gallon
 TYPE: Solvent Degreaser w/ PD680 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Engine Shop Solvent Degreaser in Building 1260 was removed in March 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Engine Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The NDI Shop Solvent Degreaser was located on Castle AFB, in Building 1532.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 10 Gallon
 TYPE: Solvent Degreaser w/ 1,1,1 TCA Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Nondestructive Inspection Shop Solvent Degreaser in Building 1532 was removed in March 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the NDI Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
1,1,1 TCA	12 Gal	11.2 lb/gal	134.4 lb	33.6

111 not eligible

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Structural Maintenance Shop Solvent Degreaser was located on Castle AFB, in Building 1253.

2. Equipment Description: **MAKE:** Degreaser
 MODEL:
 SIZE: 30 Gallon
 TYPE: Solvent Degreaser w/ MEK Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Structural Maintenance Shop Solvent Degreaser in Building 1253 was removed in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Structural Maintenance Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
MEK	250 Gal	6.7 lb/gal	1675 lb	418.75

Q

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Safety-Kleen Solvent Degreasers were located at various locations around Castle AFB. These 7 locations are Transportation-Bldg 59, Liquid Fuels-Bldg 1200, ACRP Bearing Shop, Standard Maintenance-Bldg 1260, Weapons Release-Bldg 1335, Aerospace Ground Equipment-Bldg 1344, and Fire Truck Maintenance-Bldg 1344.

2. Equipment Description: MAKE: Safety-Kleen
MODEL: Solvent Degreaser
SIZE: 30 - 50 Gallon
TYPE: Solvent Degreaser w/ SK-105 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Solvent Degreasers were all shut down and removed from December 1994 to March 1995.

4. Baseline Period: The solvent usage is based upon delivery records and solvent recovery/evaporation rates from Safety-Kleen for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	% EVAP:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	2333.33 Gal	6.4 lb/gal	25%	3733.33 lb	933.33



ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. **Equipment Location:** The Structural Maintenance Shop Paint Strip Tank was located on Castle AFB, in Building 1253.

2. **Equipment Description:** **MAKE:** Paint Strip Tank
 MODEL: -
 SIZE: 150 Gallon
 TYPE: Paint Strip Tank w/ Paint Stripper Solvent
 SERIAL NUMBER:

3. **Description of Emission Reduction:** The Structural Maintenance Shop Paint Stripper Tank in Building 1253 was removed in February 1995.

4. **Baseline Period:** The solvent usage is based upon delivery records and evaporation rates from the Structural Maintenance Shop's Paint Strip Tank for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. **Emissions of Air Contaminants Before Actual Emissions Reduction:**

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
Paint Stripper	30 Gal	5.2 lb/gal	156 lb	39

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-127-0

1. Equipment Location: The Liquid Oxygen Cleaning Cart Station was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE:
 MODEL:
 SIZE:
 TYPE: Lox Cleaning Cart Station w/ 1,1,1 TCA Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Lox Cleaning Cart Station was shut down and removed in February 1995.

4. Baseline Period: The solvent usage is based upon solvent delivery records and evaporation/recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
1,1,1 TCA	35 Gal	11.2 lb/gal	392 lb	98



ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-128-0

1. Equipment Location: The Fiberglass Repair Shop is located on Castle AFB, Building 1253.
2. Equipment Description: MAKE: Fiberglass Repair Shop
 MODEL:
 SIZE:
 TYPE: Fiberglass Repair Shop w/ Various Solvents
 SERIAL NUMBER:
3. Description of Emission Reduction: The Fiberglass Repair Shop was shut down in April 1995.
4. Baseline Period: The solvent usage is based upon solvent delivery records and usage rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
Various	187.5 Gal	6.4 lb/gal	1200 lb	300

8

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Aircraft Washracks are located on Castle AFB, Dock 2.
2. Equipment Description: MAKE: Aircraft Washracks
 MODEL: 1 Indoor, 1 Outdoor
 SIZE:
 TYPE: Aircraft Washracks w/ PD 680 Type 3 Solvent
 SERIAL NUMBER:
3. Description of Emission Reduction: The Aircraft Washracks were shut down in April 1995.
4. Baseline Period: The solvent usage is based upon PD 680 solvent usage rates for the year 1990. The solvent was used to remove grease and/or oil from aircraft that aircraft soap could not remove. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD 680 T-3	7250 Gal	6.7 lb/gal	48,575 lb	12,144

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Fire Fighting Training Area was located on Castle AFB, near Building 1312.

2. Equipment Description: MAKE:
 MODEL:
 SIZE: Approx. 500' x 100'
 TYPE: Fire Training Pits, Burn Building
 SERIAL NUMBER:

3. Description of Emission Reduction: The Fire Fighting Training Area was closed in 1990.

4. Baseline Period: The data presented is based upon records of fire training activities for the years 1989 and 1990, provided by the Fire Protection Flight, 39 Civil Engineering Squadron for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

FUEL: 310.78 Gallons of JP4 per Burn
DENSITY of JP4: 6.7 Pounds per Gallon

POLLUTANT:	BURNS/YR:	1000lbFuel/BURN:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	51	2.082	128	13591.3	3397.83
Sox	51	2.082	.4	42.47	10.62
CO	51	2.082	560	59461.92	14865.48
VOC	51	2.082	320	33978.24	8494.56
NOx	51	2.082	4.15	440.66	110.17

Reference: Kirtland TR AFWL-TR 73 106, Quantitative Evaluation of Smoke Abatement for Crash/Rescue Training Facilities

USAFOEHL McClellan PROF 71 M-23 1971, Air Pollution Emissions from JP-4 Fires Used in Fire Fighting Training

$$\left(\frac{51 \text{ burns}}{\text{yr}} \right) \left(2,082 \frac{\text{lb}}{\text{burn}} \right) \left(\frac{\text{gal}}{\text{lb}} \right)$$

$$\left(\frac{51 \text{ burns}}{\text{yr}} \right) \left(2,082 \frac{\text{lb fuel}}{\text{burn}} \right) \left(\frac{128 \text{ lb PM}_{10}}{1000 \text{ lb fuel}} \right) = 13,591.3 \frac{\text{lb}}{\text{yr}}$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-32-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1404.
2. Equipment Description: MAKE: BURNHAM JUBILEE
 MODEL:FR-1
 SIZE: 227,800 BTU/HR
 TYPE: FS-2, DIESEL
 SERIAL NUMBER:240
3. Description of Emission Reduction: The Boiler will be shutdown and UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emission reductions was based on 1991 fuel usage.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1947	0.0025	4.87	1.22
SOX	1947	0.0072	14.01	3.50
CO	1947	0.005	9.74	2.43
VOX	1947	0.0025	4.87	1.22
NOX	1947	0.0018	3.50	0.88

REERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-33-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1405.
2. Equipment Description: MAKE: HYDRO-THERM
 MODEL: OH140
 SIZE: 140,000 BTU/HR
 TYPE: FS-2 Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Boiler will be shutdown and UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emissions reduction was based on 1991 fuel usage.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1300	0.0025	3.25	0.81
SOX	1300	0.0072	9.36	2.34
CO	1300	0.005	6.50	1.63
VOX	1300	0.0025	3.25	0.81
NOX	1300	0.0018	2.34	0.59

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

7

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-36-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1709.

2. Equipment Description: **MAKE:ABCO**
 MODEL:20-E
 SIZE:670,000 BTU/HR
 TYPE: FS-2, DIESEL
 SERIAL NUMBER:8410

3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.

4. Baseline Period: The emissions reduction was based on 1991 fuel usage.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	3275	0.002	6.55	1.64
SOX	3275	0.0072	23.58	5.90
CO	3275	0.005	16.37	4.09
VOX	3275	0.02	65.50	16.38
NOX	3275	0.000556	1.82	0.46

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-37-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1762.
2. Equipment Description: MAKE: NATIONAL STEEL BOILER
MODEL:
SIZE: 506,000 BTU/HR
TYPE: FS-2, DIESEL
SERIAL NUMBER: 02540
3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emissions reduction was based on 1994 fuel usage.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1477	0.002	2.95	0.74
SOX	1477	0.0072	10.63	2.66
CO	1477	0.005	7.39	1.85
VOX	1477	0.02	29.54	7.39
NOX	1477	0.000556	0.82	0.21

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-54-0

1. Equipment Location: The Boiler was located on Castle AFB, in Building 1360.

2. Equipment Description: MAKE: BRYAN
MODEL: RV250-S-15-FDG-FGR
SIZE: 1,903,000 BTU/HR
TYPE: NATURAL GAS/FUEL OIL #2
SERIAL NUMBER: 70479

3. Description of Emission Reduction: The Boiler was shutdown 10 May 92.

4. Baseline Period: The emission reductions were estimated based on the rating of the boiler and the number of hours run per year. The emission calculations for natural gas are included in the 1991 air emission inventory and are shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	RATING-BTU:	TIME:	FTE3/1000BTU	EMS FACTOR:	LB POL/DAY:	LB/QTR
PA	1903000	20h/day	0.001	0.000005	0.1903	17.36
SOX	1903000	20	0.001	0.0000006	0.022	2.00
CO	1903000	20	0.001	0.00002	0.76	69.35
VOC	1903000	20	0.001	0.0000053	0.20	18.25
NOX	1903000	20	0.001	0.00001	3.8	346.75

REFERENCE: EPA AP-2 p. 1.4-3, TABLE 1.4-1, VOL 1.

$$\left(1,903,000 \frac{\text{BTU}}{\text{hr}}\right) \left(\frac{20 \text{ hr}}{\text{day}}\right) \left(\frac{1 \text{ lb}}{1000 \text{ BTU}}\right) \left(0.000005 \frac{\text{lb}}{\text{hr}}\right) = 0.19 \frac{\text{lb}}{\text{day}}$$

$$\left(1,903,000 \frac{\text{BTU}}{\text{hr}}\right) \left(\frac{20 \text{ hr}}{\text{day}}\right) \left(\frac{365 \text{ day}}{\text{yr}}\right) = 13,892 \frac{\text{MMBTU}}{\text{yr}}$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-55-0

1. Equipment Location: The Boiler was located on Castle AFB, in Building 1360.

2. Equipment Description: MAKE: BRYAN
 MODEL: RV250-S-15-FDG-FGR
 SIZE: 1,090,000 BTU/HR
 TYPE: NATURAL GAS/DIESEL
 SERIAL NUMBER: 901532

3. Description of Emission Reduction: The Boiler natural gas/diesel was shutdown 10 May 92.

4. Baseline Period: The emission reductions were estimated based on the rating of the boiler and the number of hours run per year. The emission calculations for natural gas are included in the 1991 air emission inventory and are shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	RATING-BTU:	TIME:	FTE3/1000BTU	EMS FACTOR:	LB POL/DAY:	LB /QTR
PA	1090000	20h/day	0.001	0.000005	0.190	9.94
SOX	1090000	20	0.001	0.0000006	0.022	1.18
CO	1090000	20	0.001	0.00002	0.76	39.78
VOC	1090000	20	0.001	0.0000053	0.20	10.49
NOX	1090000	20	0.001	0.00001	3.8	198.92

365 day/yr

REFERENCE: EPA AP-2 p. 1.4-3, TABLE 1.4-1, VOL 1.

$$\left(\frac{1,090,000 \text{ BTU}}{\text{hr}} \right) \left(\frac{20 \text{ hr}}{\text{day}} \right) \left(\frac{1 \text{ ft}^3}{1000 \text{ BTU}} \right) \left(0.000005 \frac{\text{lb}}{\text{ft}^3} \right) = 0.109 \frac{\text{lb}}{\text{day}}$$

$$\left(\frac{1,090,000 \text{ BTU}}{\text{hr}} \right) \left(\frac{20 \text{ hr}}{\text{day}} \right) \left(\frac{365 \text{ day}}{\text{yr}} \right) = 7,957 \frac{\text{MMBTU}}{\text{yr}}$$

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-66-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1509.
2. Equipment Description:
 - MAKE: IRON FIREMAN
 - MODEL: 36-45-107
 - SIZE: 980,000 BTU/hr
 - TYPE: FS-2 Diesel
 - SERIAL NUMBER: 14559
3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emissions reduction was based on 1991 fuel usage.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	7243	0.002	14.49	3.62
SOX	7243	0.0072	52.15	13.04
CO	7243	0.005	36.22	9.05
VOX	7243	0.02	144.86	36.22
NOX	7243	0.000556	4.03	1.01

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-68-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1750.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 450 KW
SIZE: 900 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	900	24	1	.00221	47.74	11.934
Sox	900	24	.931	.00221	44.44	11.11
CO	900	24	3.03	.00221	144.64	36.16
VOC	900	24	1.12	.00221	53.46	13.37
NOx	900	24	14	.00221	668.3	167.1

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

$$\left(900 \text{ hp} \right) \left(\frac{24 \text{ hr}}{\text{yr}} \right) \left(\frac{1 \text{ gal}}{\text{hp} \cdot \text{hr}} \right) \left(\frac{\text{lb}}{453.6 \text{ g}} \right) = 47.62 \frac{\text{lb}}{\text{yr}}$$

$$= 11.9 \text{ lb/qtr}$$

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-69-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 917.
2. Equipment Description: MAKE: Emergency Generator
 MODEL: 50 KW
 SIZE: 100 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	100	12	1	.00221	2.65	.663
Sox	100	12	.931	.00221	2.47	.62
CO	100	12	3.03	.00221	8.04	2.01
VOC	100	12	1.12	.00221	2.97	.743
NOx	100	12	14	.00221	37.13	9.3

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-71-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 561.
2. Equipment Description: MAKE: Emergency Generator
 MODEL: 60 KW
 SIZE: 120 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	120	12	1	.00221	3.18	.8
Sox	120	12	.931	.00221	2.963	.741
CO	120	12	3.03	.00221	9.64	2.41
VOC	120	12	1.12	.00221	3.56	.891
NOx	120	12	14	.00221	44.554	11.14

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-73-0

- 1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1582.
- 2. Equipment Description: MAKE: Emergency Generator
 MODEL: 150 KW
 SIZE: 300 HP
 TYPE: Diesel
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1



ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-74-0

1. Equipment Location: The Emergency Generator was a portable unit operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-75-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1231.
2. Equipment Description: MAKE: Emergency Generator
 MODEL: 150 KW
 SIZE: 300 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-76-0

- 1. Equipment Location: The Emergency Generator was a portable unit operated on Castle AFB.
- 2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-77-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 360.
2. Equipment Description: MAKE: Emergency Generator
 MODEL: 155 KW
 SIZE: 310 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	310	12	1	.00221	8.22	2.06
Sox	310	12	.931	.00221	7.654	1.914
CO	310	12	3.03	.00221	24.91	6.23
VOC	310	12	1.12	.00221	9.21	2.3
NOx	310	12	14	.00221	115.1	28.8

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-79-0

- 1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building T-71.
- 2. Equipment Description: MAKE: Emergency Generator
MODEL: 200 KW
SIZE: 400 HP
TYPE: Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-80-0

- 1. Equipment Location: The Portable Emergency Generator was operated on Castle AFB.
- 2. Equipment Description: **MAKE:** Portable Emergency Generator
 MODEL: 200 KW
 SIZE: 400 HP
 TYPE: Diesel
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Portable Emergency Generator was shut down in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-81-0

1. Equipment Location: The Portable Emergency Generator was operated on Castle AFB.

2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 200 KW
SIZE: 400 HP
TYPE: Diesel
SERIAL NUMBER:

3. Description of Emission Reduction: The Portable Emergency Generator was Removed From Service in June 1994.

4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-88-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 41/42.
2. Equipment Description: MAKE: Onan Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

8

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-89-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1311.
2. Equipment Description: MAKE: Deere Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-90-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 917.
2. Equipment Description: MAKE: Deere Emergency Generator
 MODEL: 30 KW
 SIZE: 58 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

7

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-91-0

- 1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1905.
- 2. Equipment Description: MAKE: Deere Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

8

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-93-0

- 1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1708.
- 2. Equipment Description: MAKE: Onan Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-109-0

- 1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1336.
- 2. Equipment Description: MAKE: Emergency Generator
MODEL: 600 KW
SIZE: 900 HP
TYPE: Cummins Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1994.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	900	24	1	.00221	47.74	11.934
Sox	900	24	.931	.00221	44.44	11.11
CO	900	24	3.03	.00221	144.64	36.16
VOC	900	24	1.12	.00221	53.46	13.37
NOx	900	24	14	.00221	668.3	167.1

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 3 KW
SIZE: 6 HP
TYPE: Gas *gasoline*
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	6	12	.44	.00221	.14	.035
Sox	2	6	12	.37	.00221	.118	.0295
CO	2	6	12	279	.00221	88.8	22.2
VOC	2	6	12	23.2	.00221	7.38	1.845
NOx	2	6	12	3.17	.00221	1.01	.2525

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: **MAKE:** Portable Emergency Generators
 MODEL: 5 KW
 SIZE: 10 HP
 TYPE: Gas
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	5	10	12	.44	.00221	.583	.146
Sox	5	10	12	.37	.00221	.491	.123
CO	5	10	12	279	.00221	370	92.5
VOC	5	10	12	23.2	.00221	30.8	7.7
NOx	5	10	12	3.17	.00221	4.2	1.05

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

- 1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
- 2. Equipment Description: **MAKE:** Portable Emergency Generators
 MODEL: 5 KW
 SIZE: 10 HP
 TYPE: Diesel
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	10	12	1.00	.00221	.796	.2
Sox	3	10	12	.931	.00221	.741	.19
CO	3	10	12	3.03	.00221	2.41	.603
VOC	3	10	12	1.12	.00221	.891	.223
NOx	3	10	12	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

- 1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
- 2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 6 KW
SIZE: 12 HP
TYPE: Diesel
SERIAL NUMBER:
- 3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	9	12	12	1.00	.00221	2.86	.715
Sox	9	12	12	.931	.00221	2.67	.668
CO	9	12	12	3.03	.00221	8.68	2.17
VOC	9	12	12	1.12	.00221	3.21	.803
NOx	9	12	12	14.0	.00221	40.1	10.03

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 12 KW
 SIZE: 24 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	5	24	12	1.00	.00221	3.18	.795
Sox	5	24	12	.931	.00221	2.96	.74
CO	5	24	12	3.03	.00221	9.64	2.41
VOC	5	24	12	1.12	.00221	3.56	.89
NOx	5	24	12	14.0	.00221	44.6	11.15

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 15 KW
 SIZE: 30 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	30	12	1.00	.00221	.796	.2
Sox	1	30	12	.931	.00221	.741	.19
CO	1	30	12	3.03	.00221	2.41	.603
VOC	1	30	12	1.12	.00221	.891	.223
NOx	1	30	12	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 20 KW
 SIZE: 40 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	40	12	1.00	.00221	1.06	.265
Sox	1	40	12	.931	.00221	.988	.247
CO	1	40	12	3.03	.00221	3.21	.803
VOC	1	40	12	1.12	.00221	1.19	.3
NOx	1	40	12	14.0	.00221	14.9	3.73

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.

2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 3 KW
SIZE: 6 HP
TYPE: Diesel
SERIAL NUMBER:

3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.

4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	6	12	1.00	.00221	.318	.08
Sox	2	6	12	.931	.00221	.296	.074
CO	2	6	12	3.03	.00221	.964	.241
VOC	2	6	12	1.12	.00221	.356	.089
NOx	2	6	12	14.0	.00221	4.46	1.12

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 7 KW
 SIZE: 15 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	15	12	1.00	.00221	.398	.1
Sox	1	15	12	.931	.00221	.37	.093
CO	1	15	12	3.03	.00221	1.21	.303
VOC	1	15	12	1.12	.00221	.446	.112
NOx	1	15	12	14.0	.00221	5.57	1.393

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

- 1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
- 2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 40 KW
 SIZE: 75 HP
 TYPE: Diesel
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	75	12	1.00	.00221	1.99	.5
Sox	1	75	12	.931	.00221	1.85	.465
CO	1	75	12	3.03	.00221	6.03	1.51
VOC	1	75	12	1.12	.00221	2.23	.56
NOx	1	75	12	14.0	.00221	27.8	6.95

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 800 W
 SIZE: .75 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	.75	12	1.00	.00221	.02	.005
Sox	1	.75	12	.931	.00221	.02	.005
CO	1	.75	12	3.03	.00221	.06	.015
VOC	1	.75	12	1.12	.00221	.02	.005
NOx	1	.75	12	14.0	.00221	.28	.07

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

5L

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: **MAKE:** Portable Emergency Generators
 MODEL: 4 KW
 SIZE: 8 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	8	12	1.00	.00221	.424	.106
Sox	2	8	12	.931	.00221	.395	.1
CO	2	8	12	3.03	.00221	1.29	.323
VOC	2	8	12	1.12	.00221	.475	.12
NOx	2	8	12	14.0	.00221	5.94	1.49

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
 MODEL: 30 KW
 SIZE: 60 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	60	12	1	.00221	4.774	1.2
Sox	3	60	12	.931	.00221	4.44	1.11
CO	3	60	12	3.03	.00221	14.46	3.62
VOC	3	60	12	1.12	.00221	5.35	1.34
NOx	3	60	12	14	.00221	66.83	16.71

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: **MAKE:** Portable Emergency Generator
 MODEL: 6 KW
 SIZE: 11 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	11	12	1	.00221	.583	.146
Sox	2	11	12	.931	.00221	.543	.136
CO	2	11	12	3.03	.00221	1.77	.443
VOC	2	11	12	1.12	.00221	.653	.163
NOx	2	11	12	14	.00221	8.17	2.04

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.

2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 2 KW
SIZE: 3 HP
TYPE: Diesel
SERIAL NUMBER:

3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.

4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	3	12	1	.00221	.08	.02
Sox	1	3	12	.931	.00221	.074	.019
CO	1	3	12	3.03	.00221	.241	.04
VOC	1	3	12	1.12	.00221	.09	.023
NOx	1	3	12	14	.00221	1.11	.278

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.

2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 125 KW
SIZE: 250 HP
TYPE: Diesel
SERIAL NUMBER:

3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.

4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	4	250	24	1	.00221	53	13.25
Sox	4	250	24	.931	.00221	49.4	12.35
CO	4	250	24	3.03	.00221	161	40.25
VOC	4	250	24	1.12	.00221	59.4	14.85
NOx	4	250	24	14	.00221	743	185.75

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 7 KW
 SIZE: 15 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	15	24	1.00	.00221	.796	.2
Sox	1	15	24	.931	.00221	.741	.19
CO	1	15	24	3.03	.00221	2.41	.603
VOC	1	15	24	1.12	.00221	.891	.223
NOx	1	15	24	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

K

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

- 1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
- 2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 2 KW
 SIZE: 3.5 HP
 TYPE: Diesel
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
- 4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	3.5	12	1.00	.00221	.278	.07
Sox	3	3.5	12	.931	.00221	.259	.065
CO	3	3.5	12	3.03	.00221	.844	.211
VOC	3	3.5	12	1.12	.00221	.312	.078
NOx	3	3.5	12	14.0	.00221	3.9	.975

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

LR

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

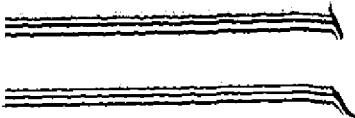
Permit Number: N-1195-1-0

- 1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 65.
- 2. Equipment Description: MAKE: Underground Storage Tank
MODEL: Fixed Roof
SIZE: 8000 Gal
TYPE: Unleaded
SERIAL NUMBER: 2
- 3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNF FACTOR:	LBS/YR:	LBS/QTR:
VOC	148.674	12.13	1803.42	450.85

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

MOCgas



K

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-2-1

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: **MAKE:** Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 12000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: 15
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNs FACTOR:	LBS/YR:	LBS/QTR:
VOC	59.398	12.13	720.5	180.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

11/06/95

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-3-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 5000 Gal
 TYPE: Unleaded
 SERIAL NUMBER:
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNs FACTOR:	LBS/YR:	LBS/QTR:
VOC	10.114	12.13	122.683	30.671

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

Moses

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-4-0

- 1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.
- 2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 10000 Gal
 TYPE: JP-4
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	150.00	.13	19.5	4.875

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-5-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
- 2. Equipment Description: **MAKE:** Aboveground Storage Tank
 MODEL: Internal Floating Roof
 SIZE: 1370000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 1H
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	30817.83	.12	3698.14	924.54

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-6-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
- 2. Equipment Description: **MAKE:** Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 500000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 2H
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	11142.894	.12	1337.15	334.3

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-7-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 650000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 4H
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSN S FACTOR:	LBS/YR:	LBS/QTR:
VOC	14287.56	.12	1714.51	428.63

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor



ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-8-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
- 2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 650000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 3H
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	14519.53	.12	1742.34	435.6

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-9-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1304.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4500 Gal
 TYPE: JP-4
 SERIAL NUMBER:
3. Description of Emission Reduction: The Aboveground Storage Tank will be shut down in September 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNF FACTOR:	LBS/YR:	LBS/QTR:
VOC	4	.13	.52	.13

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

76

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-10-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1304.
- 2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4500 Gal
 TYPE: JP-4
 SERIAL NUMBER:
- 3. Description of Emission Reduction: The Aboveground Storage Tank will be shut down in September 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	4	.13	.52	.13

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

4

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-119-0

- 1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 502.
- 2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 12000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: 16
- 3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	59.398	12.13	720.5	180.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

Moggs

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ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-118-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 65.
2. Equipment Description: MAKE: Underground Storage Tank
MODEL: Fixed Roof
SIZE: 4000 Gal
TYPE: Diesel
SERIAL NUMBER: 4165
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNF FACTOR:	LBS/YR:	LBS/QTR:
VOC	184.228	.03	5.53	1.4

Reference: MRI Air Toxics Hot Spots Inventory

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The 2 Underground Storage Tanks are located on Castle AFB, Building 502.

2. Equipment Description: MAKE: 2 Underground Storage Tanks
MODEL: Fixed Roof
SIZE: 12000 Gal
TYPE: Diesel
SERIAL NUMBERS: 17 and 18

3. Description of Emission Reduction: The 2 Underground Storage Tanks were shut down in April 1995.

4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT:	EMSNF FACTOR:	LBS/YR:	LBS/QTR:
VOC	(KGals) 333.786	.03	10.01	2.5

Reference: MRI Air Toxics Hot Spots Inventory

1 kg, 9 kg each

X

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-125-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
- 2. Equipment Description: **MAKE:** Aboveground Storage Tank
 MODEL: Internal Floating Roof
 SIZE: 420000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 1
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNs FACTOR:	LBS/YR:	LBS/QTR:
VOC	13137.222	.12	1576.5	394.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-123-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.

2. Equipment Description: MAKE: Underground Storage Tank
MODEL: Fixed Roof
SIZE: 10000 Gal
TYPE: Diesel
SERIAL NUMBER:

3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.

4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	212.759	.03	6.383	1.6

Reference: MRI Air Toxics Hot Spots Inventory

A

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-124-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
2. Equipment Description: MAKE: Aboveground Storage Tank
MODEL: Fixed Roof
SIZE: 4000 Gal
TYPE: JP-4
SERIAL NUMBER:
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	1,500	.124	186.0	46.5

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

7

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-126-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
- 2. Equipment Description: MAKE: Aboveground Storage Tank
MODEL: Internal Floating Roof
SIZE: 420000 Gal
TYPE: JP-4
SERIAL NUMBER: 2
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNF FACTOR:	LBS/YR:	LBS/QTR:
VOC	13137.222	.12	1576.5	394.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

8

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1196-1-0

- 1. Equipment Location: The 3 Underground Storage Tanks are located on Castle AFB, Building 785.
- 2. Equipment Description: MAKE: 3 Underground Storage Tanks
 MODEL: Fixed Roof
 SIZE: 10000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: BX Service Station
- 3. Description of Emission Reduction: The 3 Underground Storage Tanks will be shut down in August 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	2000	12.13	24260	6065

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor



San Joaquin Valley Unified Air Pollution Control District

APPLICATION FOR:

EMISSION REDUCTION CREDIT (ERC)
 CONSOLIDATION OF ERC CERTIFICATES

ERC WITHDRAWAL
 ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO: Castle Joint Powers Authority						
2. MAILING ADDRESS: Street/P.O. Box: 2721 Winton Way, P.O. Box 547 City: Atwater State: CA Zip Code: 95301						
3. LOCATION OF REDUCTION: Street: Castle Air Force Base City: CAFB, CA			4. DATE OF REDUCTION: 30 Sept 1995			
5. PERMIT NO(S): Various--See Attached Sheets EXISTING ERC NO(S): None						
6. METHOD RESULTING IN EMISSION REDUCTION: <input checked="" type="checkbox"/> SHUTDOWN <input type="checkbox"/> RETROFIT <input type="checkbox"/> PROCESS CHANGE <input type="checkbox"/> OTHER DESCRIPTION: Shutdowns Due To Closure of Castle AFB (Use additional sheets if necessary)						
7. REQUESTED ERCs (In Pounds Per Calendar Quarter): See Attached Supplementary Information Sheets						
	VOC	NOx	CO	PM10	SOx	OTHER
1ST QUARTER						
2ND QUARTER						
3RD QUARTER						
4TH QUARTER						
8. SIGNATURE OF APPLICANT: <i>Brian K. George</i>			TYPE OR PRINT TITLE OF APPLICANT: Chief of Engineering; Flight of; Engineering			
9. TYPE OR PRINT NAME OF APPLICANT: Brian K. George			Carol Vollmer Phone (209) 726-4841 FAX (209) 726-2430		DATE: 5 May 1995	TELEPHONE NO: 726-4751

FOR APCD USE ONLY:

 MAY 24 1995 SAN JOAQUIN VALLEY UNIFIED A.P.C.D. NO. REGION	FILING FEE RECEIVED: \$ 650- CK 002219 DATE PAID: 5-24-95 PROJECT NO.: 956288 <div style="text-align: right;"> N-109-1 N-109-2 N-109-3 N-109-4 N-109-5 Facility ID. 1195 </div>
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Un-Permitted Diesel Fired Portable
Emergency Generators (Total 40)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 5 KW
SIZE: 10 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	10	12	1.00	.00221	.796	.2
Sox	3	10	12	.931	.00221	.741	.19
CO	3	10	12	3.03	.00221	2.41	.603
VOC	3	10	12	1.12	.00221	.891	.223
NOx	3	10	12	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 6 KW
SIZE: 12 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	9	12	12	1.00	.00221	2.86	.715
Sox	9	12	12	.931	.00221	2.67	.668
CO	9	12	12	3.03	.00221	8.68	2.17
VOC	9	12	12	1.12	.00221	3.21	.803
NOx	9	12	12	14.0	.00221	40.1	10.03

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 12 KW
SIZE: 24 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	5	24	12	1.00	.00221	3.18	.795
Sox	5	24	12	.931	.00221	2.96	.74
CO	5	24	12	3.03	.00221	9.64	2.41
VOC	5	24	12	1.12	.00221	3.56	.89
NOx	5	24	12	14.0	.00221	44.6	11.15

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 15 KW
SIZE: 30 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	30	12	1.00	.00221	.796	.2
Sox	1	30	12	.931	.00221	.741	.19
CO	1	30	12	3.03	.00221	2.41	.603
VOC	1	30	12	1.12	.00221	.891	.223
NOx	1	30	12	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 20 KW
SIZE: 40 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	40	12	1.00	.00221	1.06	.265
Sox	1	40	12	.931	.00221	.988	.247
CO	1	40	12	3.03	.00221	3.21	.803
VOC	1	40	12	1.12	.00221	1.19	.3
NOx	1	40	12	14.0	.00221	14.9	3.73

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 3 KW
 SIZE: 6 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	6	12	1.00	.00221	.318	.08
Sox	2	6	12	.931	.00221	.296	.074
CO	2	6	12	3.03	.00221	.964	.241
VOC	2	6	12	1.12	.00221	.356	.089
NOx	2	6	12	14.0	.00221	4.46	1.12

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 7 KW
 SIZE: 15 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	15	12	1.00	.00221	.398	.1
Sox	1	15	12	.931	.00221	.37	.093
CO	1	15	12	3.03	.00221	1.21	.303
VOC	1	15	12	1.12	.00221	.446	.112
NOx	1	15	12	14.0	.00221	5.57	1.393

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 40 KW
 SIZE: 75 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	75	12	1.00	.00221	1.99	.5
Sox	1	75	12	.931	.00221	1.85	.465
CO	1	75	12	3.03	.00221	6.03	1.51
VOC	1	75	12	1.12	.00221	2.23	.56
NOx	1	75	12	14.0	.00221	27.8	6.95

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 800 W
SIZE: .75 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	.75	12	1.00	.00221	.02	.005
Sox	1	.75	12	.931	.00221	.02	.005
CO	1	.75	12	3.03	.00221	.06	.015
VOC	1	.75	12	1.12	.00221	.02	.005
NOx	1	.75	12	14.0	.00221	.28	.07

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

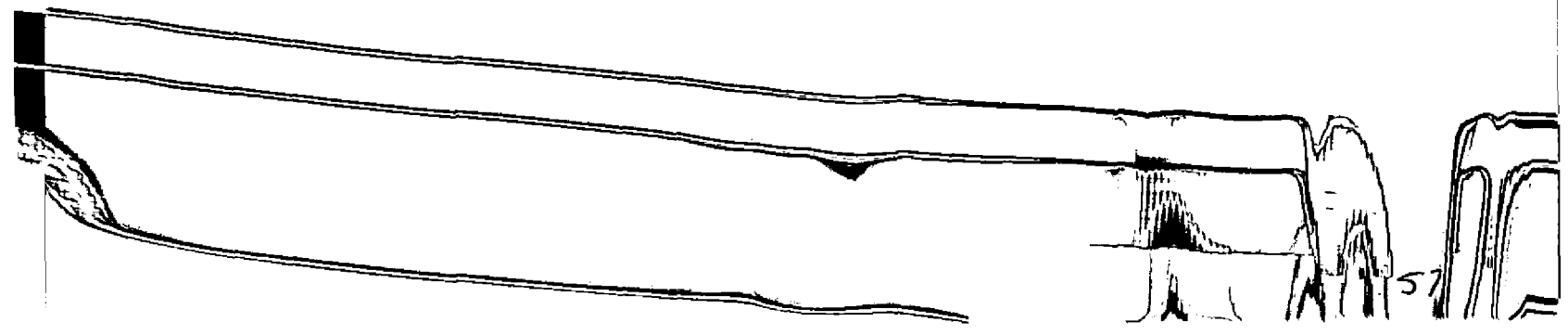
ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 4 KW
SIZE: 8 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	8	12	1.00	.00221	.424	.106
Sox	2	8	12	.931	.00221	.395	.1
CO	2	8	12	3.03	.00221	1.29	.323
VOC	2	8	12	1.12	.00221	.475	.12
NOx	2	8	12	14.0	.00221	5.94	1.49

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1



ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 30 KW
SIZE: 60 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	60	12	1	.00221	4.774	1.2
Sox	3	60	12	.931	.00221	4.44	1.11
CO	3	60	12	3.03	.00221	14.46	3.62
VOC	3	60	12	1.12	.00221	5.35	1.34
NOx	3	60	12	14	.00221	66.83	16.71

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
 MODEL: 6 KW
 SIZE: 11 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	11	12	1	.00221	.583	.146
Sox	2	11	12	.931	.00221	.543	.136
CO	2	11	12	3.03	.00221	1.77	.443
VOC	2	11	12	1.12	.00221	.653	.163
NOx	2	11	12	14	.00221	8.17	2.04

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
 MODEL: 2 KW
 SIZE: 3 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	3	12	1	.00221	.08	.02
Sox	1	3	12	.931	.00221	.074	.019
CO	1	3	12	3.03	.00221	.241	.04
VOC	1	3	12	1.12	.00221	.09	.023
NOx	1	3	12	14	.00221	1.11	.278

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 125 KW
SIZE: 250 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were Removed From Service in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# Units	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	4	250	24	1	.00221	53	13.25
Sox	4	250	24	.931	.00221	49.4	12.35
CO	4	250	24	3.03	.00221	161	40.25
VOC	4	250	24	1.12	.00221	59.4	14.85
NOx	4	250	24	14	.00221	743	185.75

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 7 KW
SIZE: 15 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	1	15	24	1.00	.00221	.796	.2
Sox	1	15	24	.931	.00221	.741	.19
CO	1	15	24	3.03	.00221	2.41	.603
VOC	1	15	24	1.12	.00221	.891	.223
NOx	1	15	24	14.0	.00221	11.1	2.78

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
 MODEL: 2 KW
 SIZE: 3.5 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	3	3.5	12	1.00	.00221	.278	.07
Sox	3	3.5	12	.931	.00221	.259	.065
CO	3	3.5	12	3.03	.00221	.844	.211
VOC	3	3.5	12	1.12	.00221	.312	.078
NOx	3	3.5	12	14.0	.00221	3.9	.975

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

Un-permitted Underground Diesel Storage
Tanks (Bldg 502)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The 2 Underground Storage Tanks are located on Castle AFB, Building 502.
2. Equipment Description: MAKE: 2 Underground Storage Tanks
 MODEL: Fixed Roof
 SIZE: 12000 Gal
 TYPE: Diesel
 SERIAL NUMBERS: 17 and 18
3. Description of Emission Reduction: The 2 Underground Storage Tanks were shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	333.786	.03	10.01	2.5

Reference: MRI Air Toxics Hot Spots Inventory

Un-Permitted Gasoline Fired Emergency
Generators (7 total) - unspecified locations

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 3 KW
SIZE: 6 HP
TYPE: Gas
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	2	6	12	.44	.00221	.14	.035
Sox	2	6	12	.37	.00221	.118	.0295
CO	2	6	12	279	.00221	88.8	22.2
VOC	2	6	12	23.2	.00221	7.38	1.845
NOx	2	6	12	3.17	.00221	1.01	.2525

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

Total = 2 engines

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Portable Emergency Generators were operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generators
MODEL: 5 KW
SIZE: 10 HP
TYPE: Gas
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generators were removed in May 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	# UNITS:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	5	10	12	.44	.00221	.583	.146
Sox	5	10	12	.37	.00221	.491	.123
CO	5	10	12	279	.00221	370	92.5
VOC	5	10	12	23.2	.00221	30.8	7.7
NOx	5	10	12	3.17	.00221	4.2	1.05

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

Un-Permitted Gasoline Powered Government-
Owned Vehicles.

(No credits)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Government-owned Vehicles were all operated on Castle AFB.
2. Equipment Description: MAKE: Vehicles
 MODEL: Government-Owned
 SIZE: Various
 TYPE:
 SERIAL NUMBER:
3. Description of Emission Reduction: The Government-Owned Vehicles were shipped off of Castle AFB from January 1995 - September 1995.
4. Baseline Period: The data presented is based upon Government Vehicle Fuel Usage for the year 1990, provided by the 93d Transportation Squadron at Castle AFB. The data was compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

NUMBER OF GOVERNMENT VEHICLES: 472

POLLUTANT:	MILES/YR:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	2.54E+06	8.81E-04	2240	560
Sox	2.54E+06	4.18E-04	1060	265
CO	2.54E+06	2.49E-02	63300	15825
VOC	2.54E+06	4.18E-03	10600	2650
NOx	2.54E+06	4.40E-03	11200	2800

Reference: EPA AP-42B, Appendix D, Table D.7.1, Pg 7-1

Un-Permitted Aerospace Ground Equipment.

ERC APPLICATION SUPPLEMENTAL INFORMATION

*Apr 12, 1991
Completeness Ltr
Ready Mon.*

Permit Number: N/A

1. Equipment Location: The Aerospace Ground Equipment was located and operated on Castle AFB's Flightline.

2. Equipment Description: MAKE: Aerospace Ground Equipment
MODEL: Various
SIZE: Various
TYPE: See Below
SERIAL NUMBER:

3. Description of Emission Reduction: The Aerospace Ground Equipment was shipped off of Castle AFB from January 1995 - March 1995.

4. Baseline Period: The data presented is based upon AGE Fuel Usage for the year 1990, provided by the 93d Maintenance Squadron at Castle AFB. The data was compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

TYPES OF AEROSPACE GROUND EQUIPMENT:	FUEL TYPE:	HORSEPOWER RATING:
MEP025A Generator Set	Unleaded	3
NF-2 Light Carts	Unleaded	10.3
A-1 Blower	Unleaded	5
MHU-83 Bomblift	Unleaded	27.5
6MC-2A Air Compressor	Unleaded	9.6
MC-2A Air Compressor	Unleaded	8.7
A/M32A-86 Generator	Diesel	14.8
MJ-1NB Bomblift	Diesel	25.2
Steam Cleaner	Diesel	11
MA-3D Air Conditioner	Diesel	15
H-1 Heater	Diesel	6.5
1H-1 Heater	Diesel	3.6
MC-7 Air Compressor	Diesel	10
MC1A Air Compressor	Diesel	18.4
NF-2D Light Carts	Diesel	10
MHU-83C/E Bomblift	Diesel	27.2
MJ-1-1 Hydraulic Test Stand	Diesel	25.2
AFM27M-1 Jacking Manifold	Diesel	24
-60 Aircraft Power Generator	JP-4	75

POLLUTANT:	1000 GALS/YR:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
JP-4-Fueled Equipment:				
PM10	102.4	33.5	3430	857.5
Sox	102.4	6.2	635	158.75
CO	102.4	102	10445	2611.2
VOC	102.4	32.1	3287	822
NOx	102.4	469	48026	12006.4
Unleaded-Fueled Equipment:				
PM10	12.8	6.47	82.8	20.7

Sox	12.8	5.31	68.0	17
CO	12.8	3990	51072	12768
VOC	12.8	147.7	1891	473
NOx	12.8	102	1305.6	326.4

Diesel-Fueled Equipment:

PM10	216.1	33.5	7239.4	1810
Sox	216.1	31.2	6742.3	1685.6
CO	216.1	102	22042	5510.6
VOC	216.1	32.1	6937	1735
NOx	216.1	469	101351	25337.7

Reference: Mogas, Diesel, Natural Gas, JP-4, AERO's Manual, Pg 3.7.0-19, Vol 5

Un-permitted Paint Ship Tank
(Bldg 1253)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Structural Maintenance Shop Paint Strip Tank was located on Castle AFB, in Building 1253.

2. Equipment Description: MAKE: Paint Strip Tank
 MODEL:
 SIZE: 150 Gallon
 TYPE: Paint Strip Tank w/ Paint Stripper Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Structural Maintenance Shop Paint Stripper Tank in Building 1253 was removed in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Structural Maintenance Shop's Paint Strip Tank for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
Paint Stripper	30 Gal	5.2 lb/gal	156 lb	39

Un-Permitted Fire fighting Training Areas.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Fire Fighting Training Area was located on Castle AFB, near Building 1312.

2. Equipment Description: **MAKE:**
 MODEL:
 SIZE: Approx. 500' x 100'
 TYPE: Fire Training Pits, Burn Building
 SERIAL NUMBER:

3. Description of Emission Reduction: The Fire Fighting Training Area was closed in 1990.

4. Baseline Period: The data presented is based upon records of fire training activities for the years 1989 and 1990, provided by the Fire Protection Flight, 39 Civil Engineering Squadron for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

FUEL: 310.78 Gallons of JP4 per Burn
 DENSITY of JP4: 6.7 Pounds per Gallon

POLLUTANT:	BURNS/YR:	1000lbFuel/BURN:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	51	2.082	128	13591.3	3397.83
Sox	51	2.082	.4	42.47	10.62
CO	51	2.082	560	59461.92	14865.48
VOC	51	2.082	320	33978.24	8494.56
NOx	51	2.082	4.15	440.66	110.17

Reference: Kirtland TR AFWL-TR 73 106, Quantitative Evaluation of Smoke Abatement for Crash/Rescue Training Facilities

USAFOEHL McClellan PROF 71 M-23 1971, Air Pollution Emissions from JP-4 Fires Used in Fire Fighting Training

Non-Permitted Solvent Degreasers

(Bldg: 59, 1200, 1335, 1344, 1550, 1260,
1532, 1253, and ACRP bearing shop)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: Solvent Degreaser was located on Castle AFB, in Building 1550.

2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 50 Gallon
TYPE: Solvent Degreaser w/ PD680 Solvent
SERIAL NUMBER:

3. Description of Emission Reduction: The Solvent Degreaser in Building 1550 was removed in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from Building 1550 for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15% ↑	6.27 lb/gal	78.44 lb	19.61

12.5

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Engine Shop Solvent Degreaser was located on Castle AFB, in Building 1260.
2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 50 Gallon
TYPE: Solvent Degreaser w/ PD680 Solvent
SERIAL NUMBER:
3. Description of Emission Reduction: The Engine Shop Solvent Degreaser in Building 1260 was removed in March 1995.
4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Engine Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

12.5

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The NDI Shop Solvent Degreaser was located on Castle AFB, in Building 1532.
2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 10 Gallon
 TYPE: Solvent Degreaser w/ 1,1,1 TCA Solvent
 SERIAL NUMBER:
3. Description of Emission Reduction: The Nondestructive Inspection Shop Solvent Degreaser in Building 1532 was removed in March 1995.
4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the NDI Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
1,1,1 TCA	12 Gal	11.2 lb/gal	134.4 lb	33.6

No credits

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Structural Maintenance Shop Solvent Degreaser was located on Castle AFB, in Building 1253.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 30 Gallon
 TYPE: Solvent Degreaser w/ MEK Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Structural Maintenance Shop Solvent Degreaser in Building 1253 was removed in February 1995.

4. Baseline Period: *The solvent usage is based upon delivery records and evaporation rates from the Structural Maintenance Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.*

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
MEK	250 Gal	6.7 lb/gal	1675 lb	418.75

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Safety-Kleen Solvent Degreasers were located at various locations around Castle AFB. These 7 locations are Transportation-Bldg 59, Liquid Fuels-Bldg 1200, ACRP Bearing Shop, Standard Maintenance-Bldg 1260, Weapons Release-Bldg 1335, Aerospace Ground Equipment-Bldg 1344, and Fire Truck Maintenance-Bldg 1344.

2. Equipment Description: MAKE: Safety-Kleen
 MODEL: Solvent Degreaser
 SIZE: 30 - 50 Gallon
 TYPE: Solvent Degreaser w/ SK-105 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Solvent Degreasers were all shut down and removed from December 1994 to March 1995.

4. Baseline Period: The solvent usage is based upon delivery records and solvent recovery/evaporation rates from Safety-Kleen for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	% EVAP:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	2333.33 Gal	6.4 lb/gal	25%	3733.33 lb	933.33

$$\text{Lost} = 2333.33 \text{ gals} \times 0.25$$

=

Un-permitted Aircraft Wash Racks

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N/A

1. Equipment Location: The Aircraft Washracks are located on Castle AFB, Dock 2.

2. Equipment Description: MAKE: Aircraft Washracks
 MODEL: 1 Indoor, 1 Outdoor
 SIZE:
 TYPE: Aircraft Washracks w/ PD 680 Type 3 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Aircraft Washracks were shut down in April 1995.

4. Baseline Period: The solvent usage is based upon PD 680 solvent usage rates for the year 1990. The solvent was used to remove grease and/or oil from aircraft that aircraft soap could not remove. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD 680 T-3	7250 Gal	6.7 lb/gal	48,575 lb	12,144

Permitted Solvent Degreasers.

- ① N-1195-16-0
- ② 17-0
- ③ 96-0.
- ④ 97-0
- ⑤ 98-0.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-16-0

1. Equipment Location: The Wheel and Tire Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

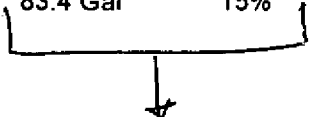
2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 110 Gallon
 TYPE: Solvent Degreaser w/ PD680 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Wheel and Tire Shop Solvent Degreaser was removed in August 1994.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Wheel and Tire Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61



$$\begin{aligned} \text{Lost} &= 83.4 \text{ gal} \times 0.15 \\ &= 12.5 \text{ gal/yr} \end{aligned}$$

The following are conditions for PTO number: N-1195-16-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
WHEEL AND TIRE SHOP DEGREASER

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. Use of solvents other than those stated on application require prior District approval.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-17-0

1. Equipment Location: The Hydraulic Shop Solvent Degreaser was located on Castle AFB, in Building 1350.
2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 110 Gallon
TYPE: Solvent Degreaser w/ PD680 Solvent
SERIAL NUMBER:
3. Description of Emission Reduction: The Hydraulic Shop Solvent Degreaser was removed and shipped to another base in February 1995.
4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Hydraulic Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBs/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

The following are conditions for PTO number: N-1195-17-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
HYDRAULIC SHOP DEGREASER

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. Use of solvents other than those stated on application require prior District approval.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-96-0

1. Equipment Location: The Hydraulic Shop Solvent Degreaser was located on Castle AFB, in Building 1350.
2. Equipment Description: MAKE: Degreaser
MODEL:
SIZE: 50 Gallon
TYPE: Solvent Degreaser w/ Safety-Kleen 105 Solvent
SERIAL NUMBER:
3. Description of Emission Reduction: The Hydraulic Shop Solvent Degreaser was removed in February 1995.
4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	333.33 Gal	25%	6.4 lb/gal	533.33 lb	133.33

$$\begin{aligned} \text{Lost} &= 333.33 \text{ gals} \times 0.25 \\ &= 83.3 \text{ gals} \end{aligned}$$

The following are conditions for PTO number: N-1195-96-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ORGANIC SOLVENT DEGREASING OPERATION USED FOR CLEANING AEROSPACE COMPONENTS (LOCATED IN BUILDING #1350, HYDRAULICS SHOP) SERVED BY A PENETONE, MODEL # MS17600H DEGREASER USING PD680 TYPE II SOLVENT.

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. Degreasing operations shall comply with Rule 4662 (Organic Solvent Degreasing Operation).
3. Records shall be kept in accordance with Rule 4662, Sec.6.1. Records shall be maintained for a minimum of two years and made available for District inspection upon request.
4. The degreasing equipment and emission control equipment shall be operated and maintained in proper working order.
5. The degreaser shall be equipped with a permanent, conspicuous label listing all operating requirements as in Rule 4662, Sec. 5.1.1 .
6. The degreaser shall be equipped with a permanent, conspicuous mark indicating the maximum allowable solvent level which conforms with the applicable freeboard requirement.
7. The top of the degreaser shall be kept covered when not processing work in the degreaser.
8. Any solvent liquid or solvent vapor leaks shall be repaired immediately, or the degreaser shall be shut down and the solvent drained.
9. The freeboard ratio for the degreaser shall be equal to or greater than 0.75.
10. The parts shall be dried within the degreaser until visually dry.
11. The degreaser shall not be used to degrease porous or absorbent material like cloth, rope, leather or wood.
12. Solvent spraying shall be done at least four (4) inches below the top of the degreaser.
13. Only a continuous fluid stream (not a fine, atomized, or shower type spray) shall be used at a pressure which does not cause liquid solvent to splash outside of the solvent container.
14. All solvents shall be stored in closed containers.
15. Do not store or dispose of any solvent, including waste solvent and solvent residues, or solvent laden cloth, in such a manner that will cause or allow its evaporation into the atmosphere.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-97-0

1. Equipment Location: The Wheel and Tire Shop Solvent Degreaser was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 50 Gallon
 TYPE: Solvent Degreaser w/ PD680 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Wheel and Tire Shop Solvent Degreaser was removed and shipped to another base in February 1995.

4. Baseline Period: The solvent usage is based upon delivery records and evaporation rates from the Wheel and Tire Shop for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
PD-680	83.4 Gal	15%	6.27 lb/gal	78.44 lb	19.61

The following are conditions for ATC number: N-1195-97-0

ISSUED DATE: / /

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ORGANIC SOLVENT DEGREASING OPERATION SERVED BY PENETONE COLD SOLVENT DEGREASER (BUILDING # 1350, WHEEL & TIRE SHOP)

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. The top of the degreaser shall be kept covered when not processing work in the degreaser.
3. The freeboard ratio for the degreaser shall be equal to or greater than 0.75.
4. The parts shall be dried within the degreaser until visually dry.
5. The degreaser shall not be used to degrease porous or absorbent material.
6. Any solvent liquid or solvent vapor leaks shall be repaired immediately.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-98-0

1. Equipment Location: The Transportation Shop Solvent Degreaser was located on Castle AFB, in Building 325.

2. Equipment Description: MAKE: Degreaser
 MODEL:
 SIZE: 30 Gallon
 TYPE: Solvent Degreaser w/ Safety-Kleen 105 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Transportation Shop Solvent Degreaser was removed in March 1995.

4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	% EVAP:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-105	333.33 Gal	25%	6.4 lb/gal	533.33 lb	133.33

The following are conditions for ATC number: N-1195-98-0

ISSUED DATE: / /

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ORGANIC SOLVENT DEGREASING OPERATION SERVED BY SAFETY KLEEN REMOTE RESERVOIR COLD DEGREASER 10 GALLON CAPACITY USING SAFETY KLEEN LAQUER THINNER #6782.

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. The degreasing operation shall comply with Rule 4662 (Organic Solvent Degreasing Operations).
3. Records shall be kept in accordance with Rule 4662 (Organic Solvent Degreasing Operations).
4. A drain cover shall be used when no work is being processed in the degreaser and high volatility solvent is used. If low volatility solvent is used, a drain cover is not required.
5. The basin shall have a freeboard height of at least six (6) inches.
6. The degreaser shall have a sink-like work area which is sloped sufficiently towards the drain to preclude pooling of solvent.
7. The degreaser shall have a permanent, conspicuous label or sign summarizing the applicable operation requirements.
8. The degreaser shall have a permanent conspicuous mark locating the maximum allowable solvent level which conforms with the applicable freeboard requirement.
9. Solvent storage shall be in closed containers.
10. Solvent leaks shall be repaired immediately, or shut down and drain the degreaser.
11. Use only a continuous fluid stream (not a fine, atomized, or shower type spray) at a pressure which does not cause liquid to splash outside of the solvent container.
12. Porous or absorbent materials such as cloth, leather, wood or rope shall not be degreased.
13. Do not store or dispose of any solvent, including waste solvent and solvent residues, or solvent-laden cloth in such a manner as will cause or allow its evaporation into the atmosphere.
14. Drain cleaned parts for at least 15 seconds after cleaning or until dripping ceases.
15. Solvent spray shall be done at least four (4) inches below the top of the degreaser.

Liquid Oxygen Cleaning Cart Station
(Permit # N-1195-127-0)

> Use 1,1,1-TCE no credits.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-127-0

1. Equipment Location: The Liquid Oxygen Cleaning Cart Station was located on Castle AFB, in Building 1350.

2. Equipment Description: MAKE:
 MODEL:
 SIZE:
 TYPE: Lox Cleaning Cart Station w/ 1,1,1 TCA Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Lox Cleaning Cart Station was shut down and removed in February 1995.

4. Baseline Period: The solvent usage is based upon solvent delivery records and evaporation/recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
1,1,1 TCA	35 Gal	11.2 lb/gal	392 lb	98

The following are conditions for PTO number: N-1195-127-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

LOX CLEANING CART STATION ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR
DATED 10/28/93 ***** THIS OPERATION NOW USES ONLY HOT AIR ** NO COMBUSTION

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. Use of solvents other than those stated on application require prior District approval.

Permitted Fiberglass Repair Shop
(N-1195-128-0)

Still active permit with JPA no
reductions

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-128-0

1. Equipment Location: The Fiberglass Repair Shop is located on Castle AFB, Building 1253.
2. Equipment Description: MAKE: Fiberglass Repair Shop
 MODEL:
 SIZE:
 TYPE: Fiberglass Repair Shop w/ Various Solvents
 SERIAL NUMBER:
3. Description of Emission Reduction: The Fiberglass Repair Shop was shut down in April 1995.
4. Baseline Period: The solvent usage is based upon solvent delivery records and usage rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
Various	187.5 Gal	6.4 lb/gal	1200 lb	300

Permitted Diesel Fired IC Engines
Powering Generators.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-68-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1750.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 450 KW
SIZE: 900 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	900	24	1	.00221	47.74	11.934
Sox	900	24	.931	.00221	44.44	11.11
CO	900	24	3.03	.00221	144.64	36.16
VOC	900	24	1.12	.00221	53.46	13.37
NOx	900	24	14	.00221	688.3	167.1

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-68-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
450 KW EMERGENCY GENERATOR

CONDITIONS

1. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-69-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 917.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 50 KW
SIZE: 100 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	100	12	1	.00221	2.65	.663
Sox	100	12	.931	.00221	2.47	.62
CO	100	12	3.03	.00221	8.04	2.01
VOC	100	12	1.12	.00221	2.97	.743
NOx	100	12	14	.00221	37.13	9.3

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-69-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

50 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-71-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 561.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 60 KW
SIZE: 120 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	120	12	1	.00221	3.18	.8
Sox	120	12	.931	.00221	2.963	.741
CO	120	12	3.03	.00221	9.64	2.41
VOC	120	12	1.12	.00221	3.56	.891
NOx	120	12	14	.00221	44.554	11.14

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-71-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
60 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-73-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1582.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-73-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
150 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-74-0

1. Equipment Location: The Emergency Generator was a portable unit operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-74-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
150 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-75-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1231.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-75-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
150 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-76-0

1. Equipment Location: The Emergency Generator was a portable unit operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 150 KW
SIZE: 300 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	300	12	1	.00221	7.96	1.99
Sox	300	12	.931	.00221	7.41	1.852
CO	300	12	3.03	.00221	24.11	6.03
VOC	300	12	1.12	.00221	8.91	2.23
NOx	300	12	14	.00221	111.38	27.85

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-76-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

150 KW EMERGENCY GENERATOR ***** PERMIT DELETED PER TONY SCOTT'S MFR DATED 12-27-93

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-77-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 360.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 155 KW
SIZE: 310 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	310	12	1	.00221	8.22	2.06
Sox	310	12	.931	.00221	7.654	1.914
CO	310	12	3.03	.00221	24.91	6.23
VOC	310	12	1.12	.00221	9.21	2.3
NOx	310	12	14	.00221	115.1	28.8

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-77-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
155 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-79-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building T-71.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 200 KW
SIZE: 400 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-79-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
200 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-80-0

1. Equipment Location: The Portable Emergency Generator was operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 200 KW
SIZE: 400 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-80-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
200 KW EMERGENCY GENERATOR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-81-0

1. Equipment Location: The Portable Emergency Generator was operated on Castle AFB.
2. Equipment Description: MAKE: Portable Emergency Generator
MODEL: 200 KW
SIZE: 400 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Portable Emergency Generator was Removed From Service in June 1994.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	400	24	1	.00221	21.22	5.3
Sox	400	24	.931	.00221	19.75	4.99
CO	400	24	3.03	.00221	64.29	16.1
VOC	400	24	1.12	.00221	23.762	11.88
NOx	400	24	14	.00221	297.03	74.26

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-81-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

200 KW EMERGENCY GENERATOR ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR DATED
10/28/93 ***** THIS GENERATOR WAS TAKEN OUT OF SERVICE *****

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. A daily log shall be maintained with the following: (1) Date (2) Numbers of hours operated (3) Fuel usage. These records shall be retained for previous 24 months and shall be made available to the APCD inspection upon request.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-88-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 41/42.
2. Equipment Description: MAKE: Onan Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-88-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

30 KW EMERGENCY DIESEL GENERATOR, MAKE-ONAN, MODEL # 300DD1-15R, INSTALLED FEB. 1984. (58 HP)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-89-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1311.
2. Equipment Description: MAKE: Deere Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-89-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

30 KW EMERGENCY DIESEL GENERATOR, MAKE-JOHN DEERE, MODEL # C820615395, INSTALLED JAN. 1982. (58 HP)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-90-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 917.
2. Equipment Description: **MAKE: Deere Emergency Generator**
 MODEL: 30 KW
 SIZE: 58 HP
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
 EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-90-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

30 KW EMERGENCY DIESEL GENERATOR, MAKE-JOHN DEERE, MODEL # 4219DF01, INSTALLED DEC.1983. (58 HP)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-91-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1905.
2. Equipment Description: MAKE: Deere Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-91-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

EMERGENCY POWER GENERATOR (30KW): JOHN DEERE 58 HP DIESEL ENGINE, MODEL #C820615395. INSTALLED JAN 85. (58 HP)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-93-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1708.
2. Equipment Description: MAKE: Onan Emergency Generator
MODEL: 30 KW
SIZE: 58 HP
TYPE: Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was Removed From Service in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	58	12	1	.00221	1.54	.39
Sox	58	12	.931	.00221	1.43	.36
CO	58	12	3.03	.00221	4.66	1.17
VOC	58	12	1.12	.00221	1.723	.431
NOx	58	12	14	.00221	21.53	5.4

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-93-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

EMERGENCY POWER GENERATOR (30 KW): ONAN 58 HP DIESEL ENGINE, MODEL #3000DDA-15R. INSTALLED APRIL 1982. (58 HP)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

The following are conditions for PTO number: N-1195-95-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

EMERGENCY POWER GENERATOR (150 KW): ALLIS CHALMERS 276 HP DIESEL ENGINE, MODEL #6138LT.
INSTALLED DECEMBER 1982 ***** DELETED PER TS'S MFR DATED 12-27-93 *****

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).

No data

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-109-0

1. Equipment Location: The Emergency Generator was located on Castle AFB, in Building 1336.
2. Equipment Description: MAKE: Emergency Generator
MODEL: 600 KW
SIZE: 900 HP
TYPE: Cummins Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Emergency Generator was shut down in March 1995.
4. Baseline Period: The data presented is based upon generator operating logs, compiled for an annual emissions inventory for Castle Air Force Base in 1994.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	HSPWR:	HR/YR:	GAL/HP-HR	CONV FACTOR:	LBS/YR:	LBS/QTR:
PM10	900	24	1	.00221	47.74	11.934
Sox	900	24	.931	.00221	44.44	11.11
CO	900	24	3.03	.00221	144.64	36.16
VOC	900	24	1.12	.00221	53.46	13.37
NOx	900	24	14	.00221	688.3	167.1

Reference: EPA AP-42 pg 3.3.3-2, Table 3.3.3-1, Vol 1
EPA AP-42 pg 3.2.5-2, Table 3.2.5-1, Vol 1

The following are conditions for PTO number: N-1195-109-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) CUMMINS 900 HP DIESEL ENGINE, MODEL #VT-A28-G2, SERVING A 600 KW EMERGENCY GENERATOR AND ENGINE SET.

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
3. The permittee shall maintain records of hours of operation and of the sulfur content of the diesel fuel used and shall make such records readily available to District staff upon request.
4. Operation of the engine, for other than maintenance purposes, shall be limited to emergency use.
5. Operation of the engine for maintenance and testing purposes shall not exceed 200 hours per year.
6. The sulfur content of the diesel fuel used shall not exceed 0.05% by weight.
7. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).
8. The daily emissions limits from the engine shall not exceed the following levels: NO_x = 475.8 lb/day; CO = 144.2 lb/day; VOC = 53.3 lb/day; SO_x = 7.1 lb/day; and PM₁₀ = 47.7 lb/day.
9. The engine shall be equipped with a positive crankcase ventilation (PCV) system or a crankcase emissions control device of at least 90% control efficiency.

Permitted Underground Diesel Storage
Tanks (LN-1195-118-0 & N-1195-123-0)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-118-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 65.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4000 Gal
 TYPE: Diesel
 SERIAL NUMBER: 4165
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	184.228	.03	5.53	1.4

Reference: MRI Air Toxics Hot Spots Inventory

The following are conditions for PTO number: N-1195-118-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) 4,000 GALLON DIESEL STORAGE TANK, #4165, SERVED BY PHASE I VAPOR RECOVERY SYSTEM.

***** PERMIT DELETED PER TS'S MFR DATED 12-27-93 *****

CONDITIONS

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-123-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 10000 Gal
 TYPE: Diesel
 SERIAL NUMBER:
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	212.759	.03	6.383	1.6

Reference: MRI Air Toxics Hot Spots Inventory

The following are conditions for PTO number: N-1195-123-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
10,000 GALLON DIESEL TANK

CONDITIONS

Aboveground Permitted
JP-4 Tanks.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-5-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Internal Floating Roof
 SIZE: 1370000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 1H
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMISNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	30817.83	.12	3698.14	924.54

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-5-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

1.37MMGALLON JP4 STORAGE TANK #1H ***** ***** THIS PERMIT DELETED PER MFR FROM TONY
SCOTT OF COMPLIANCE DATED 10/28/93 ***** ***** CHANGED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. The permittee shall perform and pass a Leak Test on the aboveground tank(s) using BAAQMD Method ST-38 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
4. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
5. All testing requirements contained in this permit shall be performed at least once every five years.
6. Vapor pressure in the tank to be 1.5 lbs/sq. inch or less.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-6-0

- 1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
- 2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 500000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 2H
- 3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	11142.894	.12	1337.15	334.3

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-6-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

0.5 MMGALLON JP4 STORAGE TANK #2H ***** THIS PERMIT DELETED PER MFR FROM TONY
SCOTT OF COMPLIANCE DATED 10-28-93 ***** CHANGED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. The permittee shall perform and pass a Leak Test on the aboveground tank(s) using BAAQMD Method ST-38 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
4. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
5. All testing requirements contained in this permit shall be performed at least once every five years.
6. Vapor pressure in tank to be 1.5 lbs/sq. inch or less.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-7-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 650000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 4H
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	14287.56	.12	1714.51	428.63

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-7-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

0.65 MMGALLON JP4 STORAGE TANK #4H. ***** THIS PERMIT DELETED PER TONY
SCOTT'S MFR DATED 10/28/93 ***** CHANGED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. The permittee shall perform and pass a Leak Test on the aboveground tank(s) using BAAQMD Method ST-38 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
4. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
5. All testing requirements contained in this permit shall be performed at least once every five years.
6. Vapor pressure in tank to be 1.5 lbs/sq. inch or less.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-8-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: External Floating Roof
 SIZE: 650000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 3H
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNs FACTOR:	LBS/YR:	LBS/QTR:
VOC	14519.53	.12	1742.34	435.6

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-8-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

0.65 MMGALLON JP4 STORAGE TANK #3H. ***** THIS PERMIT IS DELETED PER TONY
SCOTT'S MFR DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. The permittee shall perform and pass a Leak Test on the aboveground tank(s) using BAAQMD Method ST-38 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
4. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
5. All testing requirements contained in this permit shall be performed at least once every five years.
6. Vapor pressure in tank to be 1.5 lbs/sq. inch or less.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-9-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1304.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4500 Gal
 TYPE: JP-4
 SERIAL NUMBER:
3. Description of Emission Reduction: The Aboveground Storage Tank will be shut down in September 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	4	.13	.52	.13

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-9-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

4,500 GALLON JP4 STORAGE TANK ***** DELETED THIS PERMIT PER TONY SCOTT'S
MFR DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-10-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1304.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4500 Gal
 TYPE: JP-4
 SERIAL NUMBER:
3. Description of Emission Reduction: The Aboveground Storage Tank will be shut down in September 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSN FACTOR:	LBS/YR:	LBS/QTR:
VOC	4	.13	.52	.13

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-10-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

4,500 GALLON JP4 STORAGE TANK ***** DELETED THIS PERMIT PER TONY
SCOTT'S MFR DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-124-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Fixed Roof
 SIZE: 4000 Gal
 TYPE: JP-4
 SERIAL NUMBER:
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	1,500	.124	186.0	46.5

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-124-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

4,000 GALLON JP4 FUEL TANK. ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR
DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8. *****

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95 % by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-125-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Internal Floating Roof
 SIZE: 420000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 1
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	13137.222	.12	1576.5	394.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-125-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

10,000 BBL (420,000 GALLON) JP4 TANK #1 ***** DELETED PER TONY SCOTT'S MFR
DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. Aboveground storage tank(s) shall be equipped with pressure/vacuum valves set to within 10 percent of the maximum working pressure of the tank.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-126-0

1. Equipment Location: The Aboveground Storage Tank is located on Castle AFB, Building 1336.
2. Equipment Description: MAKE: Aboveground Storage Tank
 MODEL: Internal Floating Roof
 SIZE: 420000 Gal
 TYPE: JP-4
 SERIAL NUMBER: 2
3. Description of Emission Reduction: The Aboveground Storage Tank was shut down in May 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	13137.222	.12	1576.5	394.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-126-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

10,000 BBL (420,000 GALLON) JP4 FUEL TANK ***** DELETED THIS PERMIT PER
TONY SCOTT'S MFR DATED 10/28/93 ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. At least 95% by weight of all vapors displaced during the filling of storage tanks shall be prevented from entering the atmosphere.
2. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
3. Aboveground storage tank(s) shall be equipped with pressure/vacuum valves set to within 10 percent of the maximum working pressure of the tank.

Permitted Underground JP-4 Storage Tank
(N-1195-4-0)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-4-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 10000 Gal
 TYPE: JP-4
 SERIAL NUMBER:
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNs FACTOR:	LBS/YR:	LBS/QTR:
VOC	150.00	.13	19.5	4.875

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-4-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

10,000 GALLON, JP4, STORAGE TANK. ***** DELETED THIS PERMIT PER TONY
SCOTT'S MFR ***** CONVERTED FROM JP4 TO JP8 *****

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

Permitted Bolters

The following are conditions for PTO number: N-1195-19-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, KEWANEE #3R12 SERIES IX, 1.2 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

$$\begin{aligned} \text{Hours} &= 16 \text{ hrs/day} \times 182 \text{ days/yr} \\ &= 2912 \text{ hrs/yr} \times 1.2 \text{ MMBtu/hr} \end{aligned}$$

The following are conditions for PTO number: N-1195-20-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, KEWANEE, 2.4 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

2912

The following are conditions for PTO number: N-1195-21-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, KEWANEE, 2.4 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

2912 lbs/yr

The following are conditions for PTO number: N-1195-22-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, AJAX MODEL WGOFD900, 0.9 MMBTU/HR, S/N 732791

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3286 hrs/yr

The following are conditions for PTO number: N-1195-25-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 2 MMBTU/HR ***** DELETED PER TONY SCOTT'S CHANGE ORDER DATED 1-13-94

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur and nitrogen contents of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

2.420 mg/yd.

The following are conditions for PTO number: N-1195-26-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, RITE MODEL 120, 1.2 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

4392 hrs/jf

The following are conditions for PTO number: N-1195-27-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, FITZGIBBONS MODEL 400 SERIES, 567,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

4342 ms/yr

The following are conditions for PTO number: N-1195-28-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, KEWANEE, 960,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

2880 hrs/yr

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-32-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1404.

2. Equipment Description: MAKE: BURNHAM JUBILEE
 MODEL:FR-1
 SIZE: 227,800 BTU/HR
 TYPE: FS-2, DIESEL
 SERIAL NUMBER:240

3. Description of Emission Reduction: The Boiler will be shutdown and UST will be removed by Sept. 95 as part of closure of Castle AFB.

4. Baseline Period: The emission reductions was based on 1991 fuel usage.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1947	0.0025	4.87	1.22
SOX	1947	0.0072	14.01	3.50
CO	1947	0.005	9.74	2.43
VOX	1947	0.0025	4.87	1.22
NOX	1947	0.0018	3.50	0.88

REERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

The following are conditions for PTO number: N-1195-32-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, BURNHAM JUBILEE, 227,800 BTU/HR ***** DELETED PER TONY SCOTT'S CHANGE ORDER
DATED 01-13-94. *****

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur and nitrogen contents of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

Diesel fired.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-33-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1405.
2. Equipment Description: MAKE: HYDRO-THERM
MODEL: OH140
SIZE: 140,000 BTU/HR
TYPE: FS-2 Diesel
SERIAL NUMBER:
3. Description of Emission Reduction: The Boiler will be shutdown and UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emissions reduction was based on 1991 fuel usage.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1300	0.0025	3.25	0.81
SOX	1300	0.0072	9.36	2.34
CO	1300	0.005	6.50	1.63
VOX	1300	0.0025	3.25	0.81
NOX	1300	0.0018	2.34	0.59

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

The following are conditions for PTO number: N-1195-33-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, HYDRO-THERM MODEL OH140, 140,000 BTU/HR (FS-2 FUEL OIL ONLY)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

Diesel fnd-

The following are conditions for PTO number: N-1195-34-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, WEBCO-RAY MODEL 54, 2.7 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

= 3904 ms/yr

The following are conditions for PTO number: N-1195-35-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, KEWANEE MODEL A712, 1 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3/04 ms/yj

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-36-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1709.

2. Equipment Description: MAKE:ABCO
MODEL:20-E
SIZE:670,000 BTU/HR
TYPE: FS-2, DIESEL
SERIAL NUMBER:8410

3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.

4. Baseline Period: The emissions reduction was based on 1991 fuel usage.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	3275	0.002	6.55	1.64
SOX	3275	0.0072	23.58	5.90
CO	3275	0.005	16.37	4.09
VOX	3275	0.02	65.50	16.38
NOX	3275	0.000556	1.82	0.46

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

*3888 hrs/yr on NG
3275 gals of diesel*

The following are conditions for PTO number: N-1195-36-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 670,000 BTU/HR (FS-2 FUEL OIL ONLY)

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-37-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1762.
2. Equipment Description: MAKE: NATIONAL STEEL BOILER
MODEL:
SIZE: 506,000 BTU/HR
TYPE: FS-2, DIESEL
SERIAL NUMBER: 02540
3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.
4. Baseline Period: The emissions reduction was based on 1994 fuel usage.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	1477	0.002	2.95	0.74
SOX	1477	0.0072	10.63	2.66
CO	1477	0.005	7.39	1.85
VOX	1477	0.02	29.54	7.39
NOX	1477	0.000556	0.82	0.21

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

The following are conditions for PTO number: N-1195-37-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, NATIONAL STEEL R0142640, 506,000 BTU/HR (FS-2 FUEL OIL ONLY)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

The following are conditions for PTO number: N-1195-38-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, TRANE FTBB311F-25-W030-GP, 4.2 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

No data

The following are conditions for PTO number: N-1195-39-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, AJAX, 2.51 MMBTU/HR

2.25

CONDITIONS

-
1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
 2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
 3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
 4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3640 m/yr

The following are conditions for PTO number: N-1195-40-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, AJAX, 1.26 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3640 lbs/yr

The following are conditions for PTO number: N-1195-41-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, MOBILITY CENTER, 1.65 MMBTU/HR

0.5

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

50

The following are conditions for PTO number: N-1195-44-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, BX FACILITY, 900,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

No data

The following are conditions for PTO number: N-1195-45-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, THEATER, 720,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

2/18/94 m/ys

The following are conditions for PTO number: N-1195-46-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, BOWLING CENTER, 1.33 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

1/20 hsl/86

The following are conditions for PTO number: N-1195-47-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, WING HQ/312,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3934 hsl/gk

The following are conditions for PTO number: N-1195-48-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, WING HQ, 1.12 MMBTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

3834 m/jd

The following are conditions for PTO number: N-1195-49-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, SQUADRON OPS, 360,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

E, 392 hrs/yr

The following are conditions for PTO number: N-1195-50-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, SQUADRON OPS, 560,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

4392 m/yr

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-55-0

1. Equipment Location: The Boiler was located on Castle AFB, in Building 1360.

2. Equipment Description: MAKE: BRYAN
MODEL: RV250-S-15-FDG-FGR
SIZE: 1,090,000 BTU/HR
TYPE: NATURAL GAS/DIESEL
SERIAL NUMBER: 901532

3. Description of Emission Reduction: The Boiler natural gas/diesel was shutdown 10 May 92.

4. Baseline Period: The emission reductions were estimated based on the rating of the boiler and the number of hours run per year. The emission calculations for natural gas are included in the 1991 air emission inventory and are shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	RATING-BTU:	TIME:	FTE3/1000BTU	EMS FACTOR:	LB POL/DAY:	LB /QTR
PA	1090000	20h/day	0.001	0.000005	0.190	9.94
SOX	1090000	20	0.001	0.0000006	0.022	1.18
CO	1090000	20	0.001	0.00002	0.76	39.78
VOC	1090000	20	0.001	0.0000053	0.20	10.49
NOX	1090000	20	0.001	0.00001	3.8	198.92

REFERENCE: EPA AP-2 p. 1.4-3, TABLE 1.4-1, VOL 1.

$$\left(\frac{20 \text{ hr}}{\text{day}} \right) \left(\frac{365 \text{ days}}{\text{yr}} \right) = 7300 \frac{\text{hr}}{\text{yr}}$$

The following are conditions for PTO number: N-1195-51-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, SQUADRON OPS, 560,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

✓ 392 mbyr

The following are conditions for PTO number: N-1195-52-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, SQUADRON OPS, 560,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

4880 m/yf

The following are conditions for PTO number: N-1195-53-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, BASE OPS, 837,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

6080 hrs/yr

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-54-0

1. Equipment Location: The Boiler was located on Castle AFB, in Building 1360.

2. Equipment Description: MAKE: BRYAN
MODEL: RV250-S-15-FDG-FGR
SIZE: 1,903,000 BTU/HR
TYPE: NATURAL GAS/FUEL OIL #2
SERIAL NUMBER: 70479

3. Description of Emission Reduction: The Boiler was shutdown 10 May 92.

4. Baseline Period: The emission reductions were estimated based on the rating of the boiler and the number of hours run per year. The emission calculations for natural gas are included in the 1991 air emission inventory and are shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	RATING-BTU:	TIME:	FTE3/1000BTU	EMS FACTOR:	LB POL/DAY:	LB/QTR
PA	1903000	20h/day	0.001	0.000005	0.1903	17.36
SOX	1903000	20	0.001	0.0000006	0.022	2.00
CO	1903000	20	0.001	0.00002	0.76	69.35
VOC	1903000	20	0.001	0.0000053	0.20	18.25
NOX	1903000	20	0.001	0.00001	3.8	346.75

REFERENCE: EPA AP-2 p. 1.4-3, TABLE 1.4-1, VOL 1.

$$\left(\frac{20 \text{ hr.}}{\text{day}} \right) \left(\frac{365 \text{ day}}{\text{yr}} \right) = 7,300 \frac{\text{hr}}{\text{yr}}$$

The following are conditions for PTO number: N-1195-54-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

REMOVED FROM SERVICE

CONDITIONS

The following are conditions for PTO number: N-1195-55-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

REMOVED FROM SERVICE

CONDITIONS

The following are conditions for PTO number: N-1195-56-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 800,000 BTU/HR

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

876 mo/jk

The following are conditions for PTO number: N-1195-57-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER 215,000 BTU/HR

CONDITIONS

-
1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
 2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
 3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
 4. Particulate matter emissions from the boiler shall not exceed 0.1 gr/dscf (calculated at 12% Carbon Dioxide) and visible emission from any single emission point shall be less than 20% opacity.

486 hml/g

The following are conditions for PTO number: N-1195-58-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, 2.1 MMBTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
5. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.
6. The emissions from the boiler shall not exceed the following limits when fired on natural gas: PM=0.03 lbs/day, SOx=0.03 lbs/day, CO=1.004 lbs/day, HC=0.3 lbs/day, NOx=5.0 lbs/day.
7. The emissions shall not exceed the following limits when fired on #2 diesel: PM=0.7 lbs/day, SOx=12.8 lbs/day, CO=1.8lbs/day, HC=0.1 lbs/day, NOx=7.2 lbs/day.

3640 mg/yf

The following are conditions for PTO number: N-1195-59-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 350,000 BTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
5. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.
6. The emissions from the boiler shall not exceed the following limits when fired on natural gas: PM=0.04 lbs/day, SOx=0.005 lbs/day, CO=0.02 lbs/day, HC=0.05 lbs/day, NOx=0.8 lbs/day.
7. The emissions shall not exceed the following limits when fired on #2 diesel: PM=0.2 lbs/day, SOx=2.1 lbs/day, CO=0.3 lbs/day, HC=0.04 lbs/day, NOx=1.1 lbs/day.

2412 hrt/gd

The following are conditions for PTO number: N-1195-62-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 4.83 MMBTU/HR (BLDG 1210)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

6028 lb/yr

The following are conditions for PTO number: N-1195-63-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 168,000 BTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

4980 lbs/gal

The following are conditions for PTO number: N-1195-64-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, 250,000 BTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

480 hm/yf

The following are conditions for PTO number: N-1195-65-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
BOILER, 840,000 BTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

4880 m/v

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-66-0

1. Equipment Location: The Boiler is located on Castle AFB, in Building 1509.

2. Equipment Description: MAKE:IRON FIREMAN
 MODEL:36-45-107
 SIZE: 980,000 BTU/hr
 TYPE: FS-2 Diesel
 SERIAL NUMBER:14559

3. Description of Emission Reduction: The Boiler will be shutdown and the UST will be removed by Sept. 95 as part of closure of Castle AFB.

4. Baseline Period: The emissions reduction was based on 1991 fuel usage.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	GAL FUEL/YR:	EMS FACTOR:	LB POL/YR:	LB/QTR
PA	7243	0.002	14.49	3.62
SOX	7243	0.0072	52.15	13.04
CO	7243	0.005	36.22	9.05
VOX	7243	0.02	144.86	36.22
NOX	7243	0.000556	4.03	1.01

REFERENCE: AP-42, PG 1.3-2, TABLE 1.3-1, VOL 1, 1985

No N4

The following are conditions for PTO number: N-1195-66-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 980,000 BTU/HR (FUEL OIL ONLY)

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The APCO or any authorized representative, upon request, shall have access to inspect any equipment, operation, or method required in this permit, and to sample emissions from the source or require samples to be taken.
5. The emissions from the boiler shall not exceed the following limits: PM=0.14 lbs/day, SOx=3.03 lbs/day, CO=0.35 lbs/day, HC=0.024 lbs/day, NOx=1.4 lbs/day.

The following are conditions for PTO number: N-1195-67-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 2.1 MMBTU/HR

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

5/26/8 m/yt

The following are conditions for PTO number: N-1195-85-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BRYAN FLEXTUBE BOILER, 0.2 MM BTU/HOUR, NATURAL GAS WITH DIESEL STANDBY

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions from any combustion source shall not exceed 0.1 grains/dscf (calculated to 12% carbon dioxide).
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. The boiler shall only be fired on natural gas or No. 2 fuel oil.
5. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.

NO data

The following are conditions for PTO number: N-1195-110-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, 2.4 MMBTU/HR, MODEL # KEWANEE #84482, NATURAL GAS FIRED, STANDBY FUEL- DIESEL #2

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

2-912 km/yg

The following are conditions for PTO number: N-1195-111-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER, .528 MMBTU/HR, MODEL - KEWANEE #3R6, NATURAL GAS FIRED, STANDBY FUEL - DIESEL #2.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
4. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.

4 886 hm/yt

The following are conditions for PTO number: N-1195-112-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER 4.68 MMBTU/HR, MODEL NEBRASKA #2235, NATURAL GAS FIRED, STANDBY FUEL - DIESEL #2.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. The APCO or any authorized representative, upon request, shall have access to inspect any equipment, operation, or method required in this permit, and to sample emissions from the source or require samples to be taken.
5. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
6. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.
7. The emissions from the boiler shall not exceed the following limits when fired on natural gas: PM=0.6 lbs/day, SOx=0.07 lbs/day, CO=2.2 lbs/day, HC=0.7 lbs/day, NOx=11.2 lbs/day.
8. The emissions shall not exceed the following limits when fired on #2 diesel: PM=1.6 lbs/day, SOx=28.7 lbs/day, CO=4.0 lbs/day, HC=0.3 lbs/day, NOx=16.2 lbs/day.

3640 hr/yr

The following are conditions for PTO number: N-1195-113-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER 0.43 MMBTU/HR, MODEL- TELEDYNE LAARS #400, NATURAL GAS FIRED, STANDBY FUEL-DIESEL #2.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. No air contaminant shall be released into the atmosphere which causes a public nuisance.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. The APCO or any authorized representative, upon request, shall have access to inspect any equipment, operation, or method required in this permit, and to sample emissions from the source or require samples to be taken.
5. The boiler shall be fired on natural gas. No.2 fuel oil shall be allowed only in the event that natural gas is curtailed by the supplier.
6. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
7. The emissions from the boiler shall not exceed the following limits when fired on natural gas: PM=0.05 lbs/day, SOx=0.006 lbs/day, CO=0.2 lbs/day, HC=0.06 lbs/day, NOx=1.0 lbs/day.
8. The emissions shall not exceed the following limits when fired on #2 diesel: PM=0.2 lbs/day, SOx=2.6 lbs/day, CO=0.4 lbs/day, HC=0.05 lbs/day, NOx=1.3 lbs/day.

3640 w/hy

The following are conditions for PTO number: N-1195-114-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER 0.98MMBTU/HR. ***** THIS PERMIT IS DELETED PER TONY SCOTT'S MFR DATED
10/28/93 ***** DUPLICATION OF PERMIT # N-1195-66-0 *****

CONDITIONS

1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
2. An analysis showing the sulfur and nitrogen contents of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
4. The APCO or any authorized representative, upon request, shall have access to inspect any equipment, operation, or method required in this permit, and to sample emissions from the source or require samples to be taken.
5. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
6. No air contaminant shall be released into the atmosphere which causes a public nuisance.

The following are conditions for PTO number: N-1195-115-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

BOILER 0.84 MMBTU/HR, NATURAL GAS FIRED, STANDBY FUEL-DIESEL #2.

CONDITIONS

-
1. The boiler shall only be fired on natural gas or No. 2 fuel oil.
 2. An analysis showing the sulfur content of each load of fuel oil received shall be maintained on the premises for period of at least two years and shall be made available for District inspection upon request.
 3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
 4. The APCO or any authorized representative, upon request, shall have access to inspect any equipment, operation, or method required in this permit, and to sample emissions from the source or require samples to be taken.
 5. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
 6. No air contaminant shall be released into the atmosphere which causes a public nuisance.

3696 h/ypg

Permitted

GASOLINE DISPENSING.

(N-1196-10, N-1195-1-0, N-1195-2-0,
N-1195-3-0, N-1195-119-0)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1196-1-0

- 1. Equipment Location: The 3 Underground Storage Tanks are located on Castle AFB, Building 785.
- 2. Equipment Description: MAKE: 3 Underground Storage Tanks
 MODEL: Fixed Roof
 SIZE: 10000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: BX Service Station
- 3. Description of Emission Reduction: The 3 Underground Storage Tanks will be shut down in August 1995.
- 4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
- 5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	2000	12.13	24260	6065

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-1-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 65.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 8000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: 2
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991, and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	148.674	12.13	1803.42	450.85

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-1-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

8,000 GALLONS MOGAS STORAGE TANK #2.

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-2-1

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 12000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: 15
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	59.398	12.13	720.5	180.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-2-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

12,000 GALLONS, MOGAS STORAGE TANK #15

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-3-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 1325.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 5000 Gal
 TYPE: Unleaded
 SERIAL NUMBER:
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	10.114	12.13	122.683	30.671

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-3-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:
5,000 GALLON MOGAS STORAGE TANK,

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-119-0

1. Equipment Location: The Underground Storage Tank is located on Castle AFB, Building 502.
2. Equipment Description: MAKE: Underground Storage Tank
 MODEL: Fixed Roof
 SIZE: 12000 Gal
 TYPE: Unleaded
 SERIAL NUMBER: 16
3. Description of Emission Reduction: The Underground Storage Tank was shut down in April 1995.
4. Baseline Period: The data presented is based upon fuel throughput records, compiled for an annual emissions inventory for Castle Air Force Base in 1991 and the MRI Air Toxics Hot Spots Inventory in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	THROUGHPUT: (KGals)	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
VOC	59.398	12.13	720.5	180.12

Reference: SJVUAPCD Annual Emissions Inventory Emissions Factor

The following are conditions for PTO number: N-1195-119-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) 12,000 GALLON MOGAS STORAGE TANK #16

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.
3. The vapor recovery system and its components shall be installed, operated, and maintained in accordance with the State certification requirements.
4. The permittee shall perform and pass a Dynamic Back Pressure Test using BAAQMD Method ST-27 within 60 days after initial start-up and as required by the Air Pollution Control Officer thereafter.
5. The permittee shall perform and pass a Vapor Leak Test using BAAQMD Method ST-30 within 60 days after initial start-up and as required by the Air Pollution control Officer thereafter.
6. The District shall be notified by the permittee 15 days prior to each test. The test results shall be submitted to the District no later than 30 days after each test.
7. All testing requirements contained in this permit shall be performed at least once every five years.

The following are conditions for PTO number: N-1195-120-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK.((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.

The following are conditions for PTO number: N-1195-121-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK. ((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

CONDITIONS

1. All nozzles shall be equipped with coaxial hose configurations.
2. At least 95% by weight of all gasoline vapors displaced during the filling of storage tanks and the refueling of vehicles shall be prevented from entering the atmosphere.

The following are conditions for PTO number: N-1195-122-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ONE (1) 10,000 GALLON UNDERGROUND GASOLINE STORAGE TANK. ((PERMIT FOR THIS IS ISSUED ON PERMIT # N-1196-1-0))

CONDITIONS

Permitted Classified Document Incinerator

Permitted Medical Waste [^]_ε Incinerator

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-12-0

1. Equipment Location: The Classified Document Incinerator was located on Castle AFB, in Building 527.

2. Equipment Description: MAKE: ·
MODEL:
SIZE:
TYPE: Classified Document Incinerator
SERIAL NUMBER:

3. Description of Emission Reduction: The Classified Document Incinerator was taken off line in January 1992. The original ERC application for this piece of equipment was sent to the Merced County Health Department, but no actions were followed up before the County merged with the SJVUAPCD.

4. Baseline Period: Since the incinerator burned classified documents, no logs were kept of actual burns. However, the data presented is based upon interviewing the primary operator of the incinerator for an annual emissions inventory for Castle Air Force Base back in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	BURNS/YR:	TONS/BURN:	EMSNS FACTOR:	LBS/YR:	LBS/QTR:
PM10	50	.05	7	17.5	4.375
Sox	50	.05	2.5	6.25	1.5625
CO	50	.05	10	25.0	6.25
VOC	50	.05	3	7.5	1.875
NOx	50	.05	3	7.5	1.875

Reference: EPA AP-42 pg 2.1-2, Table 2.1-1, Vol. 1

The following are conditions for PTO number: N-1195-12-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

CLASSIFIED DOCUMENT INCINERATOR ***** DELETED THIS PERMIT PER TONY SCOTT'S MFR
DATED 10/28/93 ***** INCINERATOR DECOMMISSIONED. NO LONGER IN PLACE *****

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. Particulate emissions from any incinerator shall be no more than 0.3 gr/dscf (calculated to 12% Carbon Dioxide) and visible emissions from any single emission point shall be less than 20% opacity.
3. The incinerator shall be operated in a manner preventing the emission of noxious odors or other nuisances.
4. The incinerator shall not be used to dispose of plastic syringes.

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-13-0

1. Equipment Location: The Hospital Waste Incinerator was located on Castle AFB, in Building 1185.
2. Equipment Description: MAKE: Burn-Zol
MODEL: LB 100 Pathological Incinerator
SIZE: 100 Lb
TYPE: Hospital Waste Incinerator
SERIAL NUMBER:
3. Description of Emission Reduction: The Hospital Waste Incinerator was taken off line in March 1993.
4. Baseline Period: The data presented is based upon interviewing the primary operator of the incinerator for an annual emissions inventory for Castle Air Force Base back in 1991.
5. Emissions of Air Contaminants Before Actual Emissions Reduction:

POLLUTANT:	BURNS/YR:	TONS/BURN:	EMSN FACTOR:	LBS/YR:	LBS/QTR:
PM10	52	.05	8	20.8	5.2
Sox	52	.05	neg	0	0
CO	52	.05	neg	0	0
VOC	52	.05	neg	0	0
NOx	52	.05	3	7.8	1.95

Reference: EPA AP-42 pg 2.1-2, Table 2.1-1, Vol. 1

The following are conditions for PTO number: N-1195-13-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

HOSPITAL WASTE INCINERATOR ***** THIS PERMIT IS DELETED PER TONY SCOTT'S
MFR DATED 10/28/93 ***** THIS INCINERATOR IS NO LONGER BIENG USED.

CONDITIONS

1. Particulate emissions from any incinerator shall be no more than 0.3 gr/dscf (calculated to 12% Carbon Dioxide) and visible emissions from any single emission point shall be less than 20% opacity.
2. All burners shall be used during incineration of charged material.
3. The incinerator shall not be used to dispose of plastic syringes.
4. The incinerator shall be operated in a manner preventing the emission of noxious odors or other nuisances.

Permitted Metal Parts & Products
Coating Operation (IN-1195-14-0)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-14-0

1. Equipment Location: The Paint Booth was located on Castle AFB, in Building 1253.

2. Equipment Description: MAKE: BINKS
 MODEL: DYNA-UNIT
 SIZE:
 TYPE:
 SERIAL NUMBER:

3. Description of Emission Reduction: The Paint Booth was shutdown 24 Sep 92.

4. Baseline Period: The emission reductions were estimated based on the amount of coatings used. The emission calculations for the paint booth were included in the 1987 air emission inventory but a more accurate representation of emissions is shown below.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

Polyurethane: $200 \text{ gal/yr} * 10.3 \text{ lb/gal} * \text{ton}/2000 \text{ lb} * 1120 \text{ lb VOC/ton} = 1153.6 \text{ lb/yr} = 288.4 \text{ lb/qtr}$
Thinner: $200 \text{ gal/yr} * 8.34 \text{ lb/gal} * \text{ton}/2000 \text{ lb} * 2000 \text{ lb VOC/ton} = 1668 \text{ lb/yr} = 417 \text{ lb/qtr}$
Primer: $200 \text{ gal/yr} * 8.34 \text{ lb/gal} * \text{ton}/2000 \text{ lb} * 1320 \text{ lb VOC/ton} = 1101 \text{ lb/yr} = 275 \text{ lb/qtr}$

Total: $980.4 \text{ lb VOC/yr} = 245.1 \text{ lb VOC/qtr}$

Emission factor: EPA AP-42 p. 4.2-1, TABLE 4.2-1, VOL 1.

The following are conditions for PTO number: N-1195-14-0

PTO exp: 10/01/1998

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

FMS PAINT SPRAY BOOTH, BINKS- NO PUMP DYNA UNIT (2) **** DELETED JUNE 1993 PER TS ****

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Exhaust fans shall be switched on prior to the start of paint spraying operations.
3. The coating operation shall comply with Rule 4603 (Surface Coating of Metal Parts and Products).
4. All filters shall be properly maintained and must be in place during the painting operation.
5. Records of types and daily amounts used of all organic solvent containing material shall be maintained, retained on the premises for at least two years and made available for District inspection upon request.
6. Spray equipment shall only be cleaned in an approved spray equipment cleaner.
7. Closed, non-absorbent containers shall be used for storage and disposal of all solvent-laden cloth or paper.
8. Only HVLP, electrostatic, brush, dip, or roll coating application equipment shall be used, and shall be operated in accordance with the manufacturer's recommendations.

Permitted Paint Gun Cleaning Operators.
(N-1195-99-0)

ERC APPLICATION SUPPLEMENTAL INFORMATION

Permit Number: N-1195-99-0

1. Equipment Location: The Transportation Shop Paint Gun Cleaner was located on Castle AFB, in Building 325.

2. Equipment Description: MAKE: Safety-Kleen
 MODEL: Paint Gun Cleaner
 SIZE: 5 Gallon
 TYPE: Solvent Degreaser w/ Safety-Kleen 6782 Solvent
 SERIAL NUMBER:

3. Description of Emission Reduction: The Transportation Shop Paint Gun Cleaner was removed in March 1995.

4. Baseline Period: The solvent usage is based upon Safety-Kleen delivery records and Safety-Kleen recovery rates for the year 1990. This data was originally compiled for an annual emissions inventory for Castle Air Force Base in 1991 and for the MRI Air Toxics Hot Spots Inventory performed in 1991.

5. Emissions of Air Contaminants Before Actual Emissions Reduction:

SOLVENT:	USAGE/YR:	VOC CONTENT:	VOCs EMITTED/YR:	VOC LBS/QTR:
SK-6782	24 Gal	6.4 lb/gal	154 lb	38.5

The following are conditions for ATC number: N-1195-99-0

ISSUED DATE: / /

LEGAL OWNER OR OPERATOR: CASTLE AIR FORCE BASE

LOCATION: #F0460488MV939, CASTLE AFB

MAILING ADDRESS: 3350 F STREET , ATWATER, CA 95301

EQUIPMENT DESCRIPTION:

ORGANIC SOLVENT DEGREASING OPERATION SERVED BY SAFETY KLEEN REMOTE RESERVOIR COLD DEGREASER WITH 6 GALLON CAPACITY USING SAFETY KLEEN PARTS CLEANER #699.

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance.
2. The degreasing operation shall comply with Rule 4662 (Organic Solvent Degreasing Operations).
3. Records shall be kept in accordance with Rule 4662 (Organic Solvent Degreasing Operations).
4. A drain cover shall be used when no work is being processed in the degreaser and high volatility solvent is used. If low volatility solvent is used, a drain cover is not required.
5. The basin shall have a freeboard height of at least six (6) inches.
6. The degreaser shall have a sink-like work area which is sloped sufficiently towards the drain to preclude pooling of solvent.
7. The degreaser shall have a permanent, conspicuous label or sign summarizing the applicable operation requirements.
8. The degreaser shall have a permanent conspicuous mark locating the maximum allowable solvent level which conforms with the applicable freeboard requirement.
9. Solvent storage shall be in closed containers.
10. Solvent leaks shall be repaired immediately, or shut down and drain the degreaser.
11. Use only a continuous fluid stream (not a fine, atomized, or shower type spray) at a pressure which does not cause liquid to splash outside of the solvent container.
12. Porous or absorbent materials such as cloth, leather, wood or rope shall not be degreased.
13. Do not store or dispose of any solvent, including waste solvent and solvent residues, or solvent-laden cloth in such a manner as will cause or allow its evaporation into the atmosphere.
14. Drain cleaned parts for at least 15 seconds after cleaning or until dripping ceases.
15. Solvent spray shall be done at least four (4) inches below the top of the degreaser.